

*

UMASS/AMHERST

*



312066 0333 2717 8





**UNIVERSITY OF MASSACHUSETTS
LIBRARY**

MANUSCRIPT
OF THE
COLLEGE
LIBRARY

REDACTED
REDACTED
REDACTED
REDACTED

UNIVERSITY
OF CALIFORNIA
LIBRARY
BERKELEY

LIBRARY
UNIVERSITY OF
MASSACHUSETTS
AMHERST, MASS.

E.

638,05

G47

v. 34

INDEX TO GLEANINGS IN BEE CULTURE

VOLUME XXXIV.

General Correspondence

Absorbent cushions, Doolittle on 79; Adulteration of foundation in Europe 793; Adulteration discussed by Doolittle 19; Advantage of standard-made goods 289; Advertising by exhibits of honey 31; Advertising honey by giving samples 210; Advertising honey, unique method for 97; Advertising, effect on prices 285; Alabama, bee-keeping in 492; Alcohol from sour honey 792; Alcohol, denatured 792; Alexander establishment 1572, 1576; Alexander on rearing queens for early increase 573; Alexander plan of mating 946; Alexander on building up weak colonies 581; Alexander plan for increase not successful 582; Alexander plan for weak colonies 830; Alexander on strong colonies 987; Alexander sick 1059; Alexander plan of uniting, Wardell on 1288; Alexander bee-hat 873; Alexander head-rigs 88; Alexander method of uniting colonies 355, 507, 1131, 1189, 1190, 1229, 1357, 1420, 1441, 1588, 1589; Alexander feeder modified 1256; Alexander plan for weak colonies endorsed 1070, 1071; Alexander plan of uniting essentials for 1329; Alexander and his critics 727; Alexander honey-strainer 26; Alexander visiting New York markets 1495; Alexander treatment for foul and black brood 22; Alexander's plan for weak colonies not successful 658; Alexander's cure for black brood a success 507, 827; Alexander feeder 499; Alexander tells how to unite 1357; Alexander methods, a warning 217; Alexander method of making increase 423; Alexander cure for black-brood pollen in combs 1013; Alexander plan for weak colonies not successful 716; Alexander cure for black brood not safe for foul brood 736, 887; Alexander method of curing black brood 580; Alexander's plans local 716; Alexander's honey-tanks 801; Alexander's critics 151; Alexander's plans not suited for every location 651; Alfalfa as a honey-plant 1512; Alfalfa in Texas 1565; Alfalfa honey in the East 1355; Alfalfa in Pennsylvania 791, 1378; Alfalfa honey, color of 1190; 1355; Alfalfa, honey yield from in the East 1047; Alfalfa, greater yield when grown near bees 487; Alfalfa, 1000 acres, no honey 1445; Alfalfa 1000 acres in bloom; Alfalfa, yield of in New York 987; Alighting-boards, curved 743; Alley queen-trap 519; Albaugh on foundation stretching 1352; Alsike clover v. Alfalfa 288; Alsike clover, caution against 811; Althea, or Rose of Sharon 1303; American foul brood, see foul brood; Analysis of sugar syrup stored in comb 799; Anti-saloon League, Shurtleff to support 483; Anti-saloon League, work on 140; Anatomy of the bee, Cook on 14; Annexation of Cuba 1288; Ants of Florida 140; Ants in South America 362; Ants, to kill 746, 1056; Ants, great enemy of bees 1054; Ants, black 1118; Ants, red 1056; Apiary paved with cement 939; Apiary in California 435; Apiary, Peterson's 1302; Apiary, Cuban, to lay out 94; Apiary, out, equipment needed 1014; Apiary, out, last work at 1014; Apiaries, arrangement of for out-yards 20; Apiculture, rosy side of 20; Apis-dorsata 275; Apple, seedless 1114; Appliances to adopt if starting anew, 288, 358, 500, 655, 730, 939, 994; Aspinwall shipping-case 514; Aspinwall non-swarming hive 426; Association, bee-keepers', 40,000 members in Germany 715; Association, bee, large, German 987; Association, German bee-keepers' 791; Association, National bee-keepers', when started 207; Association, Pennsylvania State Bee-keepers'

735; Association, Texas Bee-keepers' 799, 987; Attachment, comb-honey, Ferris 1184; Atwater introducing and nursery cage 1070; Atwater's steam-heated honey-tank 25; Automobile for running machinery 1254; Automobile for out apiary work 1001; Automobile for out-yards 1169; Automobiles, selection of 1228; Automobile, Doolittle on 1253.

Baby nucleus not new 946; Baby nuclei, small, unsatisfactory 99; Baby nuclei, wintering 1361; Bacillus alvei 581, 736; Bacillus alvei not found in foul brood 992, 1327; Bacillus alvei, spores of in honey 639; Barrels, honey, to use second time 1066; Balling of queens 811, 1234; Banat bees, a new race 218; Barrels, to stop leaks 88; Barrels, to wax, 1071; Basswood, price advancing 715; Basswood seedlings numerous 639; Bee demonstration in old times 1116; Beating tin pans for swarms 32; Bee demonstration in Pennsylvania 1497; Bee demonstration in Medina 1579; Bee demonstration by Quinby 1190; Bee-book, old, Secor's review 1299, 1359; Bee-books and journals, value of 216; Bee expert 1127; Bee journal, new German 140; Bee journals, reading 1586; Bee license in Australia 1240; Bee pasturage, controlling 1240; Bee range, control of 991; Bee prospectors 1416; Bee, alive, on flower, photograph of 814; Bees immune to disease 1047; Bees in warm climate, stores consumed in winter 73; Bees v. poultry, the other side 82; Bees v. poultry 513; 571; 1190; Bees crust over cluster 640; Bees and brood, shipping from South 99; Bees in Manitoba 1352; Bees hearing 812; Bees carry water 640; Bees taxed in Ohio 411; Bees and grapes 1423; Bees close to cattle 31; Bees v. poultry, criticism of, McGlade's 83; Bees and queens, trade in 1436; Bees and poultry 1190; Bees for honey flow 503; Bees in Africa 361; Bees dead in November 234; Bees imprisoned in queen-cell 1233; Bees transferred from side of building 433; Bees as reflex machines 1290, 1347; Bees fertilize cucumber-blossoms 509; Bees kept in warm room in spring 412; Bees of energy, breeding from 994; Bees on shares, value of contract 520; Bees in open air 228; Bees worked on shares 519; Bees without hive 670; Bees kept in warm room in spring 488; Bees with stings wanted 518; Bees storing water 590; Bees near alfalfa cause more seed 487; Bee-keeping, start in 429; Bees getting honey from one source at once 1233; Bees and poultry 1254; Bees in Philippines 214; Bees for women 1047; Bees, black, can they be distinguished? 1177; Bees, length of flight 417, 1172; Bees, management of in spring 508; Bees, temperature of cluster 793; Bees, to remove from walls 827; Bees, transferring eggs and larvae 934, 1589; Bees, temperature of cluster 877; Bees, making out of syrup 1565; Bees, non-swarming 563; Bees, long-tongued 230; Bees, shaking from combs 1108; Bees, to quiet on a journey 1555; Bees, removing from supers 938; Bees, life of in harvest 721; Bees, do they hear? 1176; Bees, to prevent crawling up pants 297; Bees, to remove from trees without cutting 998; Bees, preference for color 1228; Bees, stingless 230, 1063; Bees, danger of mongrel 594; Bees, number to square mile 20, 791; Bees, temperature of cluster 716; Bees, caring for after swarming 1058; Bees, condition of in winter 276; Bees, to avoid killing 819; Bees, care in breeding 503; Bees, handling in cool weather 1296; Bees length of life of a worker 411; Bees,

demonstrations of at fairs 218, 221, 355; Bees, temperature of cluster 210; Bees, difficulty in determining race 505; Bees, cross to kill 873; Bees, robber 1014; Bees, improvements in 798; Bees, improvement of 76; Bees, sick, what becomes of 927; Bees, red-clover 1118; Bees, long-tongued 80; Bees, small number of establish colony 569; Bees, difficulty of keeping pure stock 276; Bees, temperature of cluster 928; Bees, do they hear? 1235; Bees, demonstration of in church or hall 224; Bees, creatures of habit 1227; Bees, income from 519; Bees, to avoid killing 585; Bees, old way of handling 826; Bees, distance fly 34, 1114; Bees, number for wintering 1112; Bee-brush, Flory's 1255; Bee-brush, German 938; Bee-cave for wintering 810; Bee-cells, see cellars; Bee-escape, Porter 817; Bee-escapes, to put on 952; Bee-flight, length of 1172; Bee-hat, Alexander 744; Bee-hunting 998; Bee-hunting, when it pays 296; Bee-keeper in industrial parade 1128; Bee-keeper, young 439; Bee-keeper in Indiana, youngest 1188; Bee-keeper, youngest in Pennsylvania 1577; Bee-keeper, blind 228; Bee-keeper, young 1018, 1127, 1431; Bee-keepers, are there, too many? 730; Bee-keepers, notable 1107; Bee-keepers, old, tick to old things 717; Bee-keepers, two young 1127; Bee-keeping in Alabama 492, 640; Bee-keeping for women 995; Bee-keeping with other business not advised 836; Bee-keeping combined with other occupations 208; Bee-keeping in Cuba, discouraging 1179; Bee-keeping for beginners 1298; Bee-keeping, intensive, v. extensive 76; Bee-keeping, success in, Alexander on 935; Bee-range, government control of 991, 1047; Bee-space over frames in winter 234; Bee-space, size of 498; Bee-tree, curious 825; Bee-tree hunting 888; Bee-trees, removing trees 1378; Bee-unit 361; Bee-veils, value of 417; Beef trust 1355; Benton trip, European estimate of 1586; Benton's travels in Europe 1434; Betsinger wire-cloth separator 1303; Betsinger wire-cloth separator, see separator, wire-cloth; Bigelow's teachers at Medina 1579; Bigelow's Educational hive 591; Birds bad in bee-yard 1429; Bird-lice, order of 281; Bitter taste in honey, to remove 98; Black color for hives 570; Black as a color for hives, Latham on 656; Black queens hard to find 726; Black brood, Alexander method of curing 95; Black brood, Alexander cure not satisfactory 1013; Black brood, Alexander treatment for 22; Black brood, Alexander's cure a success 507; Black races, can we distinguish? 1177; Blacks and Caucasians, color similar 505; Book, poem on bees 1300; Books and journals, value of 429; Botanical terms 933; Bottoms, loose preferred 994; Bottom-board feeder 824; Bottom-board with adjustable entrance 671; Bottom-boards designed for wintering 1312; Bottom-board, double to control increase 825; Bottom-board, double, for controlling increase 868; Bottom-boards cheap as dirt 1422; Bottom-board, Hershiser 1367; Bottom-board, reversible 1288; Bottom-board, Dr. Miller's special 940; Bottom-board, changing of for winter 1069; Bottom-boards, dirt on in spring 1287; Bottom-boards, fastening to hives 1070; Bottom-boards, turning in the spring 353; Bottom-boards, reversing 443, 1108, 1234; Bottom-boards, to secure to hive-body 353; Boxes, pasteboard, for making candy cakes 199; Breeding bees, methods for improving 76; Breeding queens on an island 139; Breeding, pure stock best for 200; Breeder's catalog, E. F. Phillips on 99; Breeding-points in queens 1420; Breeding-queens, imported 816; Breeders' Association 1248; Brood from two queens in hive 354; Brood in outside frames 1167; Brood bare-headed, caused by worms 791; Brood foundation, see foundation; Brood to strengthen weak colonies 504; Brood, diseases of, by Phillips 1565; Brood chambers, large, use of 733; Brood-combs, honey in 827; Brood-frames and surplus sections in same body 219; Brood-nest, honey in 826; Brood-rearing, time of beginning in the spring 352; Brood-rearing stimulated by crocus blossoms 831; Brood-rearing started early 412; Brood-rearing, double-walled hives 997; Brood-rearing, early, value of 933; Brood-rearing, stimulation in spring 444; Brood-rearing, sufficient stores for 521; Broomweed in Texas 1292; Brush, camel-hair for transferring larvae 1059; Brush, German bee 938; Brushes of weeds or grass 1113; Brushes, bee 1113; Brushing bees 1244, 1245; Buckwheat honey, antiseptic 988; Buckwheat honey, thickness of 1352; Buckwheat for curing foul brood

1235; Buckwheat flow, preparation for 890; Buckwheat, average yield from 747; Buckwheat honey-flow checks foul brood 950; Buckwheat-field of 1000 acres 1503; Burr and brace combs, to avoid 1107; Burr-combs between thick top-bars 988; Burr-combs in Danzenbaker hives 745; Butt's plan of storing honey out of hive 1247; Burtel-Reepen's book 1290, 1347; Butter and honey 1423; Buying bees 150, 210.

Cabbage, palmetto, of Florida 742; Cage, introducing and nursery, Atwater 1070; Cage, mammoth for fertilizing queens 1569; Caging of queens to prevent swarming 797; Caging of queens 812; California honey, price in New York 1496; California honey-producing flowers in 888; California sources of light and dark honey 1007; Canadian department 1234; Candied honey in New Zealand, cutting 1445; Candy for feeding nuclei 298; Candy for stimulative feeding 1177; Candy for feeding bees, to make 199; Candy for queen-cages 14; Candy, good, for feeding bees in winter 199; Candy, hard, for introducing queens 1057; Candy, honey, to make 1130; Candying, how to prevent 577; Cane sugar and kidney trouble 1499; Cans, importance of clean 1256; Cappings, honey from, see honey; Cappings, honey from 517; Cappings, good honey from 1297; Cappings, double, over honey 1416; Cappings, white 1192; Carbolic acid for foul brood 885; Carniolan bees, color of 283; Carniolan colonies, brood-rearing during honey harvest 284; Carniolans on red clover 275; Carniolans gentle 1256; Carniolans injurious to apiculture 1167; Carniolan-Italian bees 503; Carniolan-Italian bees preferred 358; Carrier, see hive-carrier; Carton, pasteboard for two sections 96; Cartons, comb honey 1584; Cattle and bees 1510; Caucasian bees, long tongues of 81; Caucasian bees, a warning 139, 495, 594; Caucasian on flower, photograph 814; Caucasian v. Italian for city use 1589; Caucasians in Europe 1428; Caucasians in Russian bee book 1428; Caucasians as swarmers 889; Caucasians resembling other blacks; Caucasians, Frank Benton, on 93; Caucasians, color like black 505, 1177; Caucasians, characteristic markings of 92; Caucasians not new race 442; Caucasians for city 368; Caucasians, introduction of 563; Cave for wintering bees 810; Cellar wintering 78; Cellar wintering, Hershiser on 1312, 1367; Cellar for bees, of stone 225; Cellar for bees under empty house 145; Cellar for bees, lime in 231; Cellar for bees, vestibule in 226, 1310; Cellar wintering without bottom-boards 1441; Cellar wintering, Hatch on 1310; Cellar wintering, principles of 1375; Cellar floor of cement or not 1348; Cellar for bees, ventilation in 79; Cellar for bees, dampness in 79; Cellar, artificial heat in 79; Cellar, to build, West on 1181; Cellar, chaff hives in 67; Cellar, candle better than lamp in 139; Cellar, consumption of honey in 1347; Cellar, damp, success with 1187; Cellar, putting bees in, by Doolittle 1181; Cellar, to build, West on 1249; Cellar, proper temperature for 518; Cellars of concrete 1363-1367, 1377; Cellars, large entrances for ventilation 432; Cellars, light in 80; Cellars, to kill mice 80; Cellared bees, temperature of cluster 411; Cellared colonies, care given to 430; Cellared bees, to remove in the spring 286, 287, 344, 411, 443, 563, 935, 1047; Cellared colonies, when to put in and out 935, 1373; Cellared bees restless 439; Cellared bees, when to remove in spring 344; Cellared bees, moisture on comb 233; Cellared bees, temperature of cluster 344; Cellaring bees, time of 13; Cellaring bees, a flight before 73; Cellaring bees early 1352; Cellaring bees, flight before 139; Cellar-wintered colonies in chaff hives 36; Cells by Italians and blacks 1416; Cells, direction of in twin mating-box 594; Cells, embryo queen 1562; Cell-starting device, Chambers' 293, 1059; Cell-getting without making queenless 1130; Cement and oil for paint 230; Cement for cellars 1348; Cement hive-stands 939; Cement cellars 1363-1367; Census report 1117; Chaff-packed walls for cellar under empty house 145; Chambers non-swarming plan a failure 824; Chambers non-swarming device 582, 1251; Chambers cell-starting device 1059; Chambers on foul brood 806; Chambers' cell-starting device 293; Chemistry of honey 1335; Chemistry of honey and sugar syrup 799; Cheshire on foul brood 808; Chickens eat drones 868; Chickens that will not eat bees 1378; Chinese bee-keeper 433, 661; Chunk honey, an argument against 157; Chute, Doolittle's 353; Cities,

bees for 1589; City bee-keeping 1502; Clamps for wintering 1368; Cleansing flight before cellaring 73; Cleats, cover, downward projecting despised 868; Cleome lutens 724; Clothing, color of 88; Closed-end frames, reversible 1434; Clover a failure in Illinois 1348; Clover, 1000 acres, no honey 1445; Clover, where there is none 1499; Clover, no yield from 867; Clover, see sweet clover; Clover, alsike, see alsike; Clover, failures more frequent than formerly 1484, 1556; Clover, white and sweet 1239; Cluster, temperature of inside of cluster 1353; Cluster of bees, temperature of, see bees; Clusters of bees, positions of 200, 717; Clustering-space in supers with fence 1191; Colonies strong in brood, Alexander on 573; Colonies strong for extracted honey 579; Colonies strongest for comb honey 649; Colonies in best condition for harvest 522; Colonies strong for comb honey 803; Colonies, number one man may handle 743; Colonies, difference, Alexander on 935, 1227; Colonies, preparation for honey-flow 517; Colonies, strong, for honey-flow 503; Colonies, equalizing 1014; Colonies, strong, Alexander on 987; Colonies, size for winter 1112; Colonies, weak, in fall 493; Colonies, number to square mile 20; Colonies, number in one place 728; Colonies, two-story, good results from 298; Colonies, weak, brood for 504; Colonies, naked, in Europe 1227; Colonies, large v. small 1115; Colonies, large, advantage of 366; Colony on scales 33; Colony of bees live outdoors 1008; Colony building up in fall 1377; Colony persisting in building cells 1377; Color for hives 85; Color recognized by bees 232, 1228; Color and its relation to stings 1484; Comb built over wires 1048; Comb and extracted honey in one super 24; Comb foundation, see foundation; Comb naturally built over wires 348; Comb, transferred, bent wires to hold 594; Comb, cells made by blacks and Italians 1416; Combs in use 20 years 1012; Combs built over wires 1012; Combs, building upward 1167; Combs, thin v. thick for table 351; Combs, metal 987; Combs, handling in low temperature 1296; Combs, new ones advised 361; Combs, extracting, to clean 1509; Combs, extracting, washing of 928; Combs, empty, fumigation of 727; Combs, empty, need more protection 1483; Combs, transferred, binder twine to hold 741; Comb and extracted honey in the same hive 659; Combs filled before supers are put on 728; Combs of honey over sections 497, 563; Combs of sour honey 670; Combs on vertical and horizontal wires 1047; Combs melt in dark-colored hives 748; Combs built in open air 228; Combs interchangeable desired 358; Comb-building next to separators 1173; Comb-carrier, automatic 1257; Comb-carriers, Alexander 88; Comb-honey canards, effects of magnified 1255; Comb-holder, Townsend 1243; Comb-leveler, Whitney's 1191; Comb honey protected on hive 1118, 1446; Comb honey in Europe, prices of 275; Comb honey in storage, ventilation of 563; Comb honey cured out of the hive 220, 422, 1247; Comb honey a modern delicacy 158; Comb honey in storage ventilated 422; Comb honey in poor condition 948; Comb honey from extracted honey fed back 649; Comb honey, corrugated paper to protect 495; Comb honey by two-queen system, Ferris on 803; Comb honey without increase, Doolittle on 797; Comb honey, fine, without separators 1443; Comb honey, ripening and storing of 421, 1247, 1420; Comb honey, artificial ripening of 220; Comb honey, production of, Alexander on 648; Comb honey manufactured 1511; Comb honey, storage-crates for 494; Comb honey, proper ripening of 75; Comb honey, discoloration of 421; Comb honey, ripening of 1000; Comb honey, fancy 737; Comb honey, shipping by express 519; Comb honey, story of manufacture 729; Comb honey, difficulty in grading 213; Comb honey, systems of selling 213; Comb honey, to take care of 75; Comb honey, to produce without injuries 593; Comb honey, to pack for shipment 1264; Comb-honey attachment 1007; Comb-honey crop, cornering 944; Comb-honey supers, protection for 215; Comb-honey shipping-case without glass 514; Comb-honey cartons 1583; Comb-honey production on nights cool or hot 14; Commission plan of selling honey 1426; Concrete slabs for hive-bottoms 1589; Concrete cellars, to make 1363-1367; Concrete for hive-stands 487; Convention of 2000 German bee-keepers 349; Convention, Ontario 1355, 1504, 1510; Convention, Ontario 1494; Conventions without papers 1555; Corn

v. sugar 987; Cornering comb-honey crop 944; Cork sawdust as packing-material 97; Corn syrup still on market 368; Cover, telescopic, Acme 589; Covers of paroid roofing 951; Covers, cleats for, despised 868; Covers, Aiken's telescopic 501; Covers, metal 817; Covers, telescopic, preferred 994; Covers, color of 1072; Covers, zinc 940; Crates for storing comb honey 494; Crocus blossoms 831; Cuban question 1288, 1483, 1555; Cuban trees, climbing 364; Cuba, not the rosy side 1178; Customers, to keep 587.

Dandelion, bee on 1288; Danzenbaker hives, bur-combs in 745; Danzenbaker hives for winter 35; Danzenbaker section, weight of 68; Day, F. L., replies to Alexander 582; Dayton on control of swarming 812; Demonstration of bees without a cage 218; Demonstration of bees at fairs 221; Demonstrating bees for advertising 355; Demonstrations at public places 31; Diary, advantage of notes 208; Diary, bee-keeper's 206; Directors of the National, vacancy in 68; Directors in National 1484; Diseased brood checked by heavy honey-flow 1047; Distance traveled by bees 293; Dividing, another plan 791; Dividing without loss of bees 746; Dividing before honey-flow 217; Divisible-brood-chamber hives 747; Divisible-brood-chamber hive, Dr. Miller tries 791; Divisible-chamber hives, Dadant on 1115; Divisible-brood-chamber hive, Aiken 501, 791; Divisible-brood-chamber hive, to use 731; Dodder, to get rid of 1008; Doolittle plan of preventing swarming 927; Doolittle non-swarming system 1187; Doolittle non-swarming plan in the South 1424; Doolittle system of swarm control 442, 520, 525, 652, 749, 821, 890, 952, 1014, 1069, 1192; Doolittle's method of controlling increase 596; Doolittle's record-board 521; Doolittle's plan of giving stores for brood-rearing 521; Dovetailing, advantage of 815; Drone comb in sections to prevent pollen 1007; Drone comb, to prevent 931; Drone foundation, demand for 1348; Drones clog queen-excluder 498; Drones in outdoor colonies 889; Drones reared early 927; Drones reared in worker-cells 441; Drones in weak colony 564; Drones, when hatched from cells 1233; Drones, confining undesirable 747; Drones, importance of large number for laying queens 744; Drone-laying queen, improving 1129, 1446; Drone-traps 818; Dual plan of introducing 1168; Dzierzon, death of 1508.

Early-order discounts 74; Eggs sold by weight 295; Eggs, do bees transfer? 934, 1168, 1589; End-bars, machine for punching 233; Enemy of bees 36; Entrance covered with grass and leaves 823, 868; Entrance screened to prevent robbing 1188; Entrance storm-doors 35, 1298; Entrance, location of for winter 640, 1446; Entrance, importance of, large in summer 1571; Entrance, size, effect of 640, 1256, 1438, 1446; Entrance, upper 1498; Entrances open while bees are moved 441; Entrances contracted in winter 659; Entrances contracted in spring 354; Entrances in winter, Simmins on 86; Entrances of hives wintered outdoors 300; Entrances covered with wet rags 488; Entrances protected in winter 519; Entrances covered by grass and weeds 991; Entrances at top of brood-chamber 199; Entrances contracted in the fall 1352; Entrances over the brood-chamber 362; Entrances propolized nearly shut 439; Entrances, winter size of 563; Entrances, to close 412; Entrances, Allen Latham on size of 431, 487; Entrances, wet rag over 563; Entrances, sizes in spring and winter 495; Entrances, open for moving bees 1068, 1108; Entrances, moss for closing 73; Entrance-guard for mice 1512; Entrance-screen, automatic 418; Escapes, spiral bee, West on 1058; Escapes, bee, to put on 952; European travels, Ralph Benton 1433, 1502; European foul brood, see back brood; Exhibit of honey in Australia 1500, 1501; Exhibit, honey, at St. Louis fair 205; Exhibits of honey in Canada 1353; Exhibition of bees and honey 729; Experiments, value of 724; Exposition at Toronto 1353; Extracted honey fed back to produce comb honey 649; Extracted honey, production of 1498; Extracted honey, production of, Alexander on 87; Extracted honey, advantage of hives of one size 87; Extracting honey before capped over 999; Extracting, arrangement of room 939; Extracting-combs, bees cleaning outdoors 1352; Extractor, inventor of, Hruschka 1483; Extractor, honey, vertical 928; Extractor, vertical, honey 882; Extractor, wax and honey 817; Extracting-combs, to clean 1509; Extracting-combs, washing of 928; Extracting-house in California 516.

Fairs, honey exhibits at 29; Family of honey-eaters 1186, 1307; Farmers, simple hives for 209; Farmers' institutes addressed by bee-keeper 429; Feed for bees in winter, different kinds 95; Feeder for nucleus hives 946; Feeder, Alexander, modified 1256; Feeder, Alexander 499; Feeder, Miller 67; Feeder, shallow pans in bottom-board 824; Feeder, outdoor, trough for 831; Feeder, Alexander, for chaff hives 830; Feeding outdoors 493; Feeding outdoors on cork chips 1168; Feeding by spraying leaves 232; Feeding for stimulation of in spring 444; Feeding for stimulating 231, 354, 504, 564, 825, 868; Feeding outdoors for stimulating 517; Feeding for stimulating, Alexander on 499; Feeding sugar syrup 1175; Feeding back extracted honey during flow 650; Feeding up for fall 1112; Feeding in the cellar 1312; Feeding in spring, preparation for honey flow 933; Feeding bees in winter 199; Feeding back unfinished sections 76; Feeding bees in winter quarters 94; Feeding, to stimulate, with candy 1177; Feeding, larger crop secured after 499; Feeding, does it pay? 828; Fence, placing slats further apart 1118; Fence, extra, at the side of supers 1191; Fences and plain sections preferred 817; Ferris system of producing honey 511; Fences and plain sections not liked 748; Ferris on two-queen system 803; Ferris system of swarm control 880, 1006, 1121; Ferris comb-honey attachment 1184; Ferris, two-queen system 586; Fertilization of blossoms, bees for 509; Fertilizing queen-cage 1568; Fertile workers, see laying workers; Field bees, to prevent loss by moving 744; Field meeting of European bee-keepers 1502; Field day at Jenkintown 1004, 1061; Fireless stove 928, 1483; Flap-jacks and honey 864; Flight of bees 1114; Flight of bee, length of 1421; Flight, advantage of after hauling to cellar 139; Flight, cleansing of queen and workers 830; Flights in winter unnecessary 1310; Florida, apiary in shade, advantages of 738; Flowers, organs of 752; Formic acid in brood 1483; Foul brood, bees immune to 1047; Foul brood, no race proof against it 806; Foul brood, why checked by buckwheat flow 950; Foul brood, can diseased larvae be removed? 505; Foul brood, does honey contain germs? 580; Foul brood, some statements condemned 806; Foul brood, bee-escape method 1294; Foul brood, spores of germs in honey 639; Foul brood, izar for 650; Foul brood, English expert on 885; Foul brood, modification of McEvoy plan 1067; Foul brood, Simmins on 886; Foul brood, are germs carried by inspectors? 889; Foul brood, does it affect mature bees? 350; Foul brood not cured by Alexander plan for black brood 887; Foul brood may disappear without treatment 736; Foul brood in extracted-honey apiaries 205; Foul brood not cured by removing queen 806; Foul brood cured without medication 807; Foul brood carried in honey 1294; Foul brood v. black brood 991; Foul brood can not be cured with diseased honey in hive 806; Foul brood in extracting 13; Foul brood cured without medication 22; Foul-brood inspector in Ohio 886; Foul-brood inspector for Mesa Co., Cal. 1420; Foul-brood bill, Ohio 1071; Foul-broody colonies, extracting honey from 206; Foundation starters in wired frames 301; Foundation starters, hiving on 831; Foundation sagging 745; Foundation splints, sawed 564, 639, 721; Foundation starters v. full sheets 725; Foundation sagging 412; Foundation in Europe adulterated 793; Foundation starters, bottom 1287; Foundation in Canada stretching 1352; Foundation fastening, groove-and-wedge plan 1578; Foundation supported by vertical splints 487; Foundation sagging in unshaded hives 805; Foundation drawn out after swarming 805; Foundation to use and prevent sagging 804; Foundation, groove and wedge for fastening 96, 98, 500, 564, 715, 746; Foundation, size of in sections 1114; Foundation, drone, demand for 1348; Foundation, bottom starters of 351; Foundation, putting in sections 1254; Foundation, brittle, to soften 1287; Foundation, wires not imbedded 209; Foundation, sagging of 808; Foundation, melted wax to fasten 501; Foundation, full sheets used 940; Foundation, light grade not desirable 495; Foundation starters v. full sheets 505, 804; Foundation, hot-plate for fastening 805; Foundation, lighter grade preferred in Texas 208; Foundation, home-made v. manufactured 209; Foundation, wiring in deep frames 208; Foundation, lighter grades condemned 808; Foundation-fastener, Aulick's 1254; Foundation-fastener, Par-

ker improved 99; Foul-brood spores in honey 868; Frame, Woodward self-spacing 594; Frame, Hoffman, see Hoffman frame; Frame, Marback, metal-spaced 670; Frames, staple-spaced 289, 815, 940; Frames, brood, starters in 724; Frames, wired 808; Frames, device to hold while nailing 741; Frames, wired, foundation starters in 301; Frames, method for shaking 652, 798; Frames, horizontal wiring v. vertical 746; Frames, wired, starters in 495; Frames, double-groove-and-wedge top-bar, see foundation; Frames, closed-end reversible 1434; Frames, self-spacing, reversing preferred 994; Frames, no one kind suited to all 741; Frames, to wire 587; Frames, no one kind for every one 67; Frames with short top-bars 809, 867, 887; Frames, shallow extracting 1072; Frame-spacers, various German 1009; Freezing kills bees 275; Fruit-trees, when to spray 517; Frame-spacers, Miller on 1236; Frame-spacer, metal sides and end 748; Fruits preserved in honey 1175; Fruit-blossoms, bees to pollinize 234; Fuel of clover hay, for smoker 1129; Fumigating empty combs 727.

Gallberry as a honey-plant 35; Gasoline-engines for extractors 1242; German authorities on wax-rendering 1000; German bee-brush 938; Gleanings in French 412; Glucose karo syrup 1416; Glucose, commercial, not a good food 277, 362; Goldenrod in Canada 1235; Government distribution of Caucasians 495; Government lease of bee territory 1427; Government control of bee range 991, 1047; Grading honey 24, 502; Grading of comb honey 213; Graham bread, honey in 1189; Grass, Doolittle on mowing 595; Grasshoppers 874; Green, J. A., not an inspector 1420; Greenhouse, bees in 509; Griffin's class in apiculture 585; Grooves and wedge for holding foundation in frames, see foundation.

Habit, force of, in bees 1227; Hall, J. B., as a honey-producer 1353; Hammer, magnetic, for bee-keepers 1565; Hatch on arrangement of apiaries 20; Hauling bees, see moving bees; Hearing of bees 233, 277, 343, 812, 1072, 1235; Hearing of bees v. smell 344; Heartsease and smartweed honey 1512; Heather honey, thickness of 1352; Heddon honey-board 199; Herman Holmes, life history 159; Hershiser bottom-boards for wintering 1312; Hershiser on honey market 575; Hive with two queens, Ferris on 586; Hive for farmers 275; Hive shallower than Danzenbaker 1442; Hive, Aspinwall non-swarming 275, 657; Hive, Danzenbaker, preferred 994; Hive, divisible-brood-chamber 657; Hive, double, Ferris 512; Hive, Educational 591; Hive, eight-frame dovetailed, preferred 940; Hive, long-idea 1435; Hive, Hoffman, eight-frame, preferred 1072; Hive, moisture in 639; Hive, observatory, with long entrance 230; Hive, Pearl-Agnes 665; Hives in Germany hard to manipulate 208; Hives and their relation to swarming 1237; Hives for farmers 209; Hives without followers to frames 343; Hives open at the ends 1424; Hives to adopt, see appliances; Hives tight at top 496; Hives covered with blankets when moving 505; Hives, manipulation of instead of frames 747; Hives, Gallup, ten-frame 1492; Hives, value of double walls 997; Hives, chaff 67; Hives, carrying into cellar 1131; Hives, color of 570; Hives, proper color for 85; Hives, combs melt in dark-colored 748; Hives, ventilation under 516; Hives, large v. small 1237; Hives, large, to prevent swarming 365; Hives, double-walled 1298; Hives, double-walled, best for comb honey in the North 229; Hives, proper color for 655; Hives, standard, preferred 994; Hives, factory v. home-made 994; Hives, 12-frame, advantages of 151; Hives, importance of standard 1492; Hives, manipulation of, instead of frames 1011; Hives, sectional, J. E. Hand on 747; Hives, piling in cellar, West plan 1227; Hives, shallow, to use 84; Hives, eight-frame Langstroth preferred 730; Hives, arrangement of in cellar 1182, 1183; Hives, cleats v. hand holes 563; Hives, weighing of 1014; Hives, ten-frame v. eight-frame 209; Hives, unpainted 639; Hives, chaff, unknown in Texas 208; Hives, painting 1428; Hives, large 34; Increase, to keep down 34; Hives, cleats instead of rabbets 809; Hive-carrier 343, 440; Hive-carrier, iron 520; Hive-carriers quickly adjusted 1434; Hive-cleats v. hand-holes 487; Hive-carrier, Greiner's 1235; Hive-carrier, Holtermann's 1235; Hive-carrier, West 1250; Hive-carrier, rope for 443; Hive-carrying rack 1444; Hive-cover 291; Hive-lifter, Cyrenius 802; Hive-lifters, improving

1352; Hive-lifters 1121-1124, 1420; Hive-lifting, parody on 1506; Hives, large, Dadant on 1115; Hive-rabbits, to make 500; Hive-stands of concrete 487; Hive-stands, high and low used alternately 735; Hive-stands, tall 585; Hive-stand, Simmins 33; Hive-stands, Stanley 1556; Hive-stool, Handy 1422; Hoffman frame preferred 358, 650, 655; Hoffman frames best where propolis is abundant 660; Hoffman frame, merits of 24; Hoffman frame, reason for popularity 1011; Hoffman frames not movable 659; Hoffman frames preferred for 1500 hives 650; Hoffman frames made fool-proof in nailing 647; Hoffman frames, Aiken on 500; Hoffman frames, shortened top-bars of 200; Hoffman frames, to handle 821; Hoffman frames, short top-bars not liked 887; Hoffman frames, propolis on 200; Hoffman frames, original 200; Hoffman metal spacers 68; Hoffman frames 1118; Holtermann's hive 290; Holtermann's honey-strainer 146; Honey crop of 1906 1495; Honey crop in Texas short 1292; Honey restricted by Germans 1415; Honey exhibits at fairs 29; See Exhibits, also Fairs; Honey-medium for carrying foul brood 580; Honey consumed in the U. S. 1117, 1168; Honey exhibit, advertising 31; Honey from red clover 993; Honey yield from alfalfa in the East 1047; Honey nougat 1130; Honey produced in the U. S. 1117; Honey market for the bee-keeper 1117; Honey market cornered 944; Honey chemically changed by bees 1235; Honey market, what is responsible price? 729; Honey ripe, but long unsealed 1255; Honey gathered from one source at a time 1233; Honey crop short in Canada 1236; Honey as a food 1307; Honey yield per colony in the South 73; Honey vinegar, unpleasant 1298, 1347; Honey to prevent colds 1443; Honey market, cultivation of 575; Honey vinegar 1295; Honey surplus, taking off 890; Honey, selling early 1297; Honey in brood-nest 826; Honey crop, selling 1297; Honey of sweet clover dark green 1377; Honey consumed by bees in cellar 1309, 1347; Honey in brood-chamber 217; Honey from brood-combs, color of 827; Honey good in cappings 1297; Honey exhibit 33; See Exhibits of Honey in Illustrations; Honey extracted from foul-broody colonies 206; Honey production in New Zealand 1556; Honey production and swarm control, Doolittle on 750; Honey diseased, to make safe for feeding 1067; Honey market in Europe 275; Honey from cappings 563; Honey rattling out of the hives 1187; Honey ripening off the hive 1420; Honey extracted before capped over 999; Honey may not contain germs of foul brood 808; Honey and wax, values of 235; Honey show in Toronto 1235; Honey at auction 441; Honey as a food 96, 299, 740, 1186, 1443, 1499; Honey as a food, See Honey Eating Families; Honey extracted, small package for 575; Honey eaten by one family 96, 740; Honey from cappings 517; Honey for preserving fruits 1175; Honey for graham bread 1189; Honey naturally and artificially ripened 1235; Honey, advantage of best quality 231; Honey, advertising by giving samples 210; Honey, Alexander's quality of 152; Honey, Alexander on sale of 210; Honey, alfalfa, color of 1190; Honey, amount consumed by a family 432; Honey, aroma of 939; Honey, bitter 98; Honey, buckwheat, darkens color 722; Honey, candied, to cut with machine 1445; Honey, chunk, see chunk honey; Honey, color of 722; Honey, don't barrel direct from extractor 935; Honey, demand for, to increase 208; Honey, distance of source 889; Honey, extracted, strong colonies for 579; Honey, fermented 715; Honey, Ferris on production of 511; Honey, giving to neighbors 1014; Honey, grading of 24, 502, 578; Honey, heavy flow of, checks brood diseases 1047; Honey, leaking of 1053; Honey, marketing 587; Honey, price of in Europe 207; Honey, price of in Great Britain 1433; Honey, price in England 1556; Honey, prices of, depend on quality 493; Honey, sale of 284; Honey, selling of, Alexander's figures on 152; Honey, same kinds of, vary in color 420; Honey, sources of light and dark in California 1007; Honey, sour 670; Honey, sugared different from real honey 799; Honey, storing and preparing for market 220; Honey, sweet-clover, for wintering 593; Honey, to increase sale of 210; Honey, why it sells so slowly-19; Honey, unripe, Cook on 1423; Honey, water-white 417; Honey, water-white v. water-clear 417, 487; Honey, where it sells best 1117; Honey, why it candies 400; Honey, yield from Italians and hybrids 488; Honey-

barrels, to use second time 1066; Honey-board, Aiken 501; Honey-boards, to clean 873; Honey-boards, unbound, sagging 1047; Honey-cans, importance of clean 1256; Honey-cartons 96; Honey-comb not a food 275; Honey-crop reports 1494; Honey-eaters, see family of honey-eaters; Honey-extractor, vertical 882; Honey-flow, colonies in condition for 74; Honey-house, Cuban 234; Honey-houses, Cuban 93; Honey-knives, hot or cold 276; Honey-market, to stimulate 948; Honey-plants of North Carolina 34; Honey-strainer 434; Honey-strainer, Alexander 26; Honey-strainer, Archibald 939; Honey-strainer inside extractor-can 146; Honey-tank, oil-stove for 219; Honey-tanks, Alexander 801; Honey-tanks, steam-heated 25; Honey-tanks heated by not water 26; Honey-thieves 1511; Horticulture and bee-keeping 1427; House-aparies 1185; Hruschka, inventor of the extractor 1483; Hunting bees 998; Hunting bees, see bee-hunting; Hutchinson's new book 139; Hybrids as propolizers 275; Hybrids v. Italians, see Italians; Hybrids v. pure bees 200; Hybrids, to keep the same 889; Hybrids, breeding from 927.

Idaho, bee-keeping in 587, 663, 884, 943; Imbedding wires and foundation 808; Improving queens in getting larger profit 74; In-breeding not dangerous 747; Increase in the fall 1292; Increase, Alexander's method 423; Increase, to prevent 496, 593, 727; Increase, rapid, to make 569; Increase, double-bottom-board for controlling 825, 868; Increase, prevention of, Ferris on 941; Increase, Doolittle plan for 749; Increase, reply to Alexander's criticism 582; Increase from nuclei 298; Index of some value 67; Indiana against liquor 1416; Indoor wintering, see cellars; Industrial parade 1128; Insects, orders of 77, 206, 349, 416, 498, 645, 723; Inspector, foul-brood, in Ohio 886; Introducing by dual plan 1168, 1228; Introducing queens, hard candy for 1057; Introducing queens, method for 368; Introducing-cage and nursery combined, Atwater's 1070; Introducing-cage, Doolittle's home-made 823; Introduction of queens, Alexander on 801; Irrigating flume 885; Island for mating queens 139; Italians v. hybrids, Dr. Miller on 140; Italians v. mixed stock 200; Italians v. hybrids, Dr. Miller on 345; Italians v. hybrids for gathering honey 412, 488, 791; Italians v. hybrids for comb honey 721; Italians resisting disease 31; Italians not proof against foul brood 806; Italians, all varieties, red-clover bees 993; Italians, difficulty of keeping pure 200; Italians, superiority over blacks 234; Italianizing a locality 276, 344, 1129.

Japanese clover 33; Jar, Mason, for honey 576; Jay and his bees 1356; Jay's stinging fracas 1567; Jenkintown field day 1004, 1061; Judging-test in Ontario 1235.

Karo, history of 1416; Kidney diseases on increase 987; Killing bees, to prevent 819; Knives, uncapping, hot or cold 276.

Labels for comb honey 951; Laboratory, educational, Dr. Bigelow 156; Land Agents 13; Langstroth, Secor's poem 872; Large colonies, value of 424; Larvæ transferred by bees 517; Larvæ of the wax-moth for consumption 1483; Larvæ, age of, when transferred to cups 647; Larvæ, to tell age of 1287; Larvæ, camel-hair brush for transferring 1059; Latham on wintering 1438; Law, national pure-food, see pure-food law; Laying workers 24; Laying workers, to get rid of 831; Leaking of honey 1053; Legal right to a territory 939; Legal right to bee-range 991; Lemon to attract swarms 928; Lever used for pressure in rendering wax 363; Life of Dzierzon 1509; Life of workers in harvest 721; Lifting, unnecessary, to avoid 821; Lightning at Dr. Miller's 867; Liquor business in the denominations 13; Liquor, cost of, in United States 792; Local option in Kentucky 988; Localities a short distance apart 1294; Locality where is no clover 1499; Locality, what is a good one? 727; Locality, its bearing on Alexander's plans 651; Longevity of bees 1420; Long-tongued bees 80.

Maeterlinck's book 14; Magnetic hammer 873; Manzanita of California 359; Maple sap for bees 744; Market for honey, to improve 208; Market, honey, cultivation of 575; Markets for bee-keepers 1168; Marriage relations in books and plays 14; Mating of queen witnessed 1378; Mating of queens, lack of improvement in 76; Mating, pure 1107; Mating-box, three compartments 717; Mating-box, twin, slant of cells 594; Mating-boxes, ideal, four-

compartment 879; Mating-box, triplet, positions of cluster 200; Mating-box, three compartments 140, 199, 670, 792; Mating-nuclei at Alexander's 1576; McGlade's poem on poultry 1587; Mesquite, no yield from in Texas 874; Mice in cellars, how to kill 80; Michigan, bee-keeping in 814; Miller at work among bees 1227; Miller's tool for imbedding wedges 1579; Mirror for hive and swarms 671; Moisture in hive 689; Moisture, bad effects of in cellar 431; Moss for closing entrances 73; Moths and Butterflies 572; Moving bees with open entrances 441, 1068; Moving bees a short distance 1190; Moving bees 1107; Moving bees to prevent loss 744; Moving bees in the dark 504; Moving bees, Cogshall on 744; Moving bees, hives breaking open 1108; Moving bees, best time for 151; Moving bees, questions on 829; Moving bees, staples to fasten hive 1107; Moving bees, closing entrances 73; Muscles, Prof. Cook on 1489.

Nails picked up by magnet 927; Nails, advantage of different sizes 873; Nails, to use 873; Nailing frames 741; Naked colonies in Europe 1227; Naming bees, difficulty in 505; National convention, date and place of meeting 344; National at San Antonio 1292; National dairy food show 343; National officers, election of 368; National Beekeepers' Association 207; Nectar, one bee may carry 417; Nectar, extracting before ripening 1236; Neighbors and bees 1511; Neighbors, giving honey to 1014; Nights cool or hot for comb-honey production 14; Non-swarming, Doolittle 1187; North Carolina, bee-keeping in 828; Nuclei, forming of 574; Nuclei, shade for 441; Nuclei, strong v. weak 1251; Nuclei, questions concerning buying of 298; Nuclei, small, old 988; Nuclei, wintering of 518, 1227; Nucleus hive, the Root twin 69; Nucleus, baby, Atwater on 946.

Observatory hive with long passage for entrance 230; Observatory hive, Savage's 1358; Ohio foul-brood bill 1071; Oil-stove in the cellar 79; Oil-stove for heating honey 26; Ontario convention 1353, 1493; Orange-blossom honey 888; Outdoor feeding, see feeding outdoors; Outdoor wintering, shed for 212; Out-apiary, last work at 1015; Out-apiary, equipment needed 1014; Outdoor feeding, Scholl on 494; Overstocking 67, 208; Overstocking, Hatch on 21.

Package small, for extracting honey 575; Packing for double-walled hives 998; Paint for hives, to mix 1428; Painting of hives 1072; Pants-guards to protect the legs 343; Paper winter cases 1309; Paper, winter cases 36; Paraffine-workers diseases 1415; Period for hive-covers 951; Pasturage, to create, artificial 288; Pennsylvania, bee-keeping in 734; Pennsylvania, ants in 1056; Permanent records, advantages of 206; Pettit leaves bees for pulp 1352; Phenol for foul brood 808; Philadelphia convention 1306; Piping of queens 1287; Poem, old, on bees 1299, 1359; Polen gathered in January 300; Pollen and honey, values of 792; Pollen contains foul-brood germs 806; Pollen as a food 487, 1296; Pollen from basswood 927, 1355; Pollen for winter 1297; Pollen from wild grape 1355; Pollen, value of 716; Pollen, substitutes for 496; Pollen, early sources of 496; Pollen, keeping 1355; Pollen, substitute for 884; Pollen, Doolittle on 876; Pollen, brick and orange 1415; Pollen, flour as a substitute 368; Pollen, brick and red 1347; Pollen, Latham on 867; Pollen, prevention of in shallow hives 84; Porter bee-escape 817; Poultry statements corrected 295; Poultry v. bees, both made to pay 215; Press, Root-German wax 810; Press, hot-water, for rendering wax outdoors 363; Presses, steam wax 878; Price of honey in England 1556; Price of honey as affected by supply and demand 284; Prices of honey depend on quality 493; Prices, to get better on honey 1425; Priority rights 991, 1427; Prohibition and liquor-selling 200; Propolis on Hoffman frames 200; Propolis to be left on comb honey 1511; Propolis in rabbets 867, 1108; Propolis removed by lard or grease 368, 518, 873; Propolis on metal spacers 68; Propolis, hybrid bees for 68; Propolis, hybrids worse for 275; Propolis, solvent for 34; Protection for comb-honey supers 215; Protection for hive or super 867; Protection in spring, Alexander on 354; Protection for supers 997; Protection for supers 425; Psalm from farm life

1587; Public Ledger of London 361; Punic bees 97; Pure-food law, gist of 1415.

Quacking of drones and not of virgins 1348; Queen displaced by virgin 929; Queen rearing in California, Heidorn on 949; Queen kills worker 86; Queen smaller at swarming time 931; Queen mother supplanted by virgin 1048; Queen more important than hive 658; Queen, noises made by 813; Queen, mating of, witnessed 1378; Queen, time taken to mature 716; Queen, old, displaced by virgin 988; Queen, pure, to judge 1443; Queen, two in a hive, Ferris on 586; Queens bred for honey-gathering 493; Queens piping 1287; Queens clipped differently to show age 343; Queens reared for early increase, Alexander on 573; Queens, superseding of 573; Queens introduced by Simmins' plan 671; Queens mated on an island 139; Queens mated from upper stories 573; Queens stung by worker 86, 987, 1192, 1228; Queens imported for queen-breeders 826; Queens delay in hatching 791; Queens with clipped wings 828; Queens, clipping wings of 520; Queens, do bees sting? 86, 987, 1192, 1228; Queens, clipping wings of 496, 830; Queens, two in hive 593; Queens, two in hive, Ferris on 803; Queens, value of good ones 950; Queens, superseding in spring 444; Queens, time taken to emerge from cell 647; Queens, several fertilized from one colony 573; Queens, several laying in a hive at a time 574; Queens, cleansing flight of 830; Queens, mating of in nucleus hives 879; Queens, two broods from 888; Queens, caged, to prevent swarming 797; Queens, poor 517; Queens, how long they can fast 139; Queens, dual plan of introducing 1168; Queens, direct method of introducing 86; Queens, balled 811; Queens, early, Doolittle on 646; Queens, early reared 744; Queens, early 411, 488; Queens, to get 1421; Queens, new, for shaken swarms 1072; Queens, to tell the age of 301; Queens, quality of 74; Queens, two in a hive 354; Queens, balling 1234; Queens, to find 726; Queens, caging of 812; Queens, southern, for northern apiaries 828; Queen-breeders not knowing stock 873; Queen-breeders should know about stock 927; Queen-breeders' association 13; Queen-breeder's catalog 99; Queen-breeder, young 29; Queen-cage candy 14; Queen-cages, mailing and introducing 667; Queen-cell carrier, Doolittle 891; Queen-cell detector 292; Queen-cell detector, Holtermann's 504; Queen-cells, large view of 1126; Queen-cell protector, West 891, 1056; Queen-excluder, Alexander on 88; Queen-excluding honey-board 734; Queen-excluding zinc spaced from top-bars 1012; Queen-fertilizing cage 1569, 1570; Queen-rearing bulletin 350, 493; Queen-rearing in England 411; Quinby in demonstration work 1190.

Rabbit spacers, Miller on 1236; Rabbets filled with propolis 867; Rabbets, to make 500; Rabbets, wood, v. tin 1108; Rabbets cleats instead of 809; Races, new, warning against 506; Railroad, moving bees by 829; Railroads and sweet clover 1108; Rains in California 232; Reason v. instinct 827; Recipes for making honey candy 1130; Record-board, Doolittle's 521; Record-Herald retraction 1415; Red clover, honey from 993; Records, value of 949; Red clover, bees working on 80; Red clover, Carniolans work on 275; Red clover, short-tubed 230; Red-clover bees 993, 1118; Relic, beeswax 516; Rent of unused land 234; Repositories for wintering, see cellars; Requeening 571, 743, 811, 891, 1113; Retailing of extracted honey 575; Ripening of comb honey 1000; Roaches, to kill 97, 139; Roaches harmless 232; Robber bees 1014; Robbers Italians 1348, 1416; Robbing confined to one colony 1348; Robbing prevented by glass screens 1188; Robbing, to prevent 1191; Robbing, how it carries foul brood 808; Root, A. I., viewed by outsiders 1352; Root, A. I., and bees 1107; Root, H. H., at Townsend's 1241; Root's smoker, latest 1168; Root on shipping honey 1246; Rose or Sharon 1303.

Sagging of foundation on horizontal wires 412; Sagging of foundation 808; Saloons v. law 276; Savage's observatory hive 1358; Scent of bees 888; Scent as a factor in calling bees 411; Scholl on shaking bees 1293; Science, importance of noting facts of 1490; Schoolteachers at Medina 1579; Scraping sections 75; Screen over portico of hive 291; Season bad in Europe 1287; Season, condition of 874; Secor's review of poem on bees 1299, 1359; Section stamps or labels 951; Section comb-leveler,

Whitney's 1191; Section, one pound, a misnomer 792; Section, which is the top? 350; Section, pound or less 1421; Section, Aiken, 4 x 5 beeway 501; Section, folding to avoid breaking 951; Section, 1-lb., Greiner on 1238; Sections, bait 867; Sections, grading 1299; Sections, to get out of super 1294; Sections, thin, advantages of 205; Sections, clean 1356; Sections, are they detrimental to the market? 502; Sections, unfinished, feeding back 231; Sections, light-weight 68, 639, 725, 792, 205, 577, 213, 502, 518; Sections, pasteboard, advocated in France 715; Sections, unfinished, to clean out 951, 988; Sections, finished, replaced 715; Sections, taking out finished ones 649; Sections, overweight, for advertising 654; Sections, weight of 725; Sections, plain, and fences not liked 748, 639; Sections, size and shape of 1238; Sections, bait 1252; Sections, unfinished, to prevent 75; Sections, cloths over 889; Sections, unfinished, care of 1130; Sections, are they detrimental to honey market? 156; Sections, plain, v. beeway 639, 577, 748; Sections, to remove from supers 992, 1047; Sections, light honey advised for 211; Sections, novelty in 139; Sections, full sheets foundation for 140; Sections, larger 205; Sections, weight of 68, 205, 213, 502, 518, 577, 639, 725, 792, 1119; Sections, plain, uniform weight of 578; Sections, 4 x 5 205, 817; Sections, bait 797; Sections, beeway, demanded by the market 359; Sections, clover, pollen in 876; Sections, unfinished at close of season 1113; Sections, bottom starters for 140; Sections, unfinished, what to do with 890; Sections without separators 351; Sections sold by piece or by weight 502; Sections, plain, why used by Crane 933; Sections 4 x 5 preferred 817; Sections put on to retard swarming 497; Section-cleaner, Morgan's 367; Section-protector, Ormsby's 67; Section-protector 23; Seed of alsike clover 811; Seedless apple 1114; Seed, adulterated 987; Selling honey by advertising 231; Selling the crop 75; Separator, wire-cloth 292, 437, 745; Separator, queen-excluding zinc 438; Separator, wire cloth, condemned 437; Separators, comb attached to 829; Separators, slatted, preferred 817; Separators, wire-cloth, modifications of 743; Shade for bees on city lot 299; Shade for bees, why Alexander avoids 229; Shade for baby nuclei 441; Shade for bees, Alexander on 67, 229; Shade v. sun for bees 1498; Shade for single-walled hives 997; Shade for hives 571; Shade-board, Doolittle 1287; Shade-boards for hive 1253; Shaken v. Shook 640, 988; Shaken swarms, see swarms, shaken; Shaking on foundation, cure for black brood 1013; Shaking bees from combs, Dr. Miller's plan 1108, 1167; Shaking bees, right and wrong way 1293; Shaking bees, Scholl's plan 1293; shallow hives, see, hives, shallow; Shed, ant-proof, for bees 1054; Shed, packing colonies for winter 212; Sheep in the apiary 1114; Shipping bees from South 99, 498; Shipping bees questions answered 97; Shipping-case, no-drip cleats in 514; Shipping comb honey 1264, 1426; Shipping comb honey by express 519; Shipping-case without glass 514; Shipping-cases, corrugated paper in 297, 495; Simmins' hive stand 33; Simmins on foul brood 22, 807, 888; Skunks 987; Slungum, to render into wax 810; Smartweed at Medina 1167; Smoker fuel 232; Smoker fuel of clover hay 1129; Smokers 1494; Smoker, Root's latest 1168; Solar extractors, artificial heat for 874; Space above and below frames desired 359; Spaces, bee, between supers 829; Spacer, Marback's metal, for frames 68; Spacer, metal, for side and end of frames 442; Spacers for frames, various German 1009; Spacing, wide, of extracting-combs 937; Spelling reform 1168, 1228, 1420, 1565; Spermatozooids, vitality of 86; Spider, yellow, an enemy of bees 232, 825; Splints for supporting foundation 564; Splints, to prevent sagging of foundation 412; Splints, vertical, for foundation 487, 746; Spores of foul brood live years 639, 868; Spraying in bloom condemned by authorities 1427; Spacers, frame, Miller on 1236; Spraying leaves with syrup for feeding bees 232; Spraying, time for 517; Spring feeding, see feeding in spring; Spring management 508; Spring management for beginners, Doolittle on 210; Spring management, Alexander plan endorsed 581; Stochel-hausen on frame-spacers 1009; Staples for hauling bees 1107; Starters in wired frames 495; Starters, bottom 140, 1287; Steam-heated honey-tanks 25; Stimulative feeding, see feeding for stimulating; Sting fatal to queen 571; Sting queens, do bees?

1192, 1228, 987; Stinging fracas by the Jay 1567; Stings affected by color 1484, 1564; Stingless bees not wanted 297; Stingless bees 1063, 1504; Stock, improvement of 564; Storage-crates for comb honey and sections 75; Storage-tank, oil-stove for heating 219; Storing of comb honey 1053; Storm-door for hives, adjustable 230; Storm-doors for entrances 1298; Stove, fireless, Miller's 1287; Strainer, honey, see honey-strainer; Straining of honey, Archibald on 939; Straw as packing material 131; Students study apiculture 585; Sugar injurious to human system 987; Sugar syrup, when stored, not honey 799; Sugar syrup v. honey 1175; Sugar, pulverized v. confectioners' 13; Sulphuric acid to refine wax 810; Sunshine for the health 493; Super ventilator 291; Super, Danzenbaker, preferred 994; Super, T, used by Aiken 501; Super, T, v. section-holders 792; Super, empty, location on the hive 752; Supers, coaxing bees into 1193; Supers, bees slow to enter 1256; Supers, T, not liked 791; Super, T, preferred 940; Supers, emptying of 992, 1047; Supers, protection for 215, 425, 997, 941; Supers, springs v. wedges 817; Supers, bee-spaces between 829; Supers, protection of, Ferris on 941; Supers, removal and storing at out-yard 1014; Super-lifters, see hive-lifters; Superseding of queens 891; Supplies, importance of buying early 74, 1565; Supplies, home-made v. factory made 818; Supplies what to use, see appliances; Surface, students in apiculture 942; Swarm settling before going 1415; Swarm control, by Atwater 1305; Swarm location of parent colony 639; Swarms hived with mirror 671, 1129; Swarms caught with decoy hives 98; Swarms going together in a cluster 811; Swarms induced by cells 830, 1563; Swarms going together in one cluster 154, 867; Swarm, Doolittle shaking 715; Swarm, changing hive while in air 831; Swarm, hiving on starters 831; Swarm, queen smaller to fly with 931; Swarm, shook, on man's arm 1306; Swarm, newly hived, to keep contented 806; Swarms, early 724; Swarms, custom of beating tin pans for 32; Swarms, shaken 352, 657, 1072; Swarming, control of, Alexander on 423; Swarms, Doolittle, method of making 653; Swarms, smell v. hearing 344; Swarms, after, Heddon plan of preventing 727; Swarms, size of first 867; Swarms, to make contented after hiving 1058; Swarming prevented by long-idea hive 1435; Swarming prevented by means of Aspinwall hives 426; Swarming methods of control discussed 1305; Swarming out with virgin 35; Swarming fever, to prevent 521; Swarming general principle 575; Swarming induced by hive 1237; Swarming not a calamity 657; Swarming a calamity 365; Swarming, non, Chambers plan a failure 824; Swarming, to prevent, Doolittle on 497; swarming, control of, Dayton on 811; Swarming, queens caged to prevent 797; Swarming, conditions that lead to 1006; Swarming, control of, Atwater on 735; Swarming, conditions that control 942; Swarming, Chambers' device to prevent 582; Swarming, prevention of 352, 496, 649, 1255; Swarming, to prevent, see Doolittle's system of swarm control, also Ferris' system; Swarming, natural 1107; Swarming, to prevent in comb-honey colonies 649; Swarm-catcher 361, 1130; Swarm-catcher, grape-basket for 831; Sweet clover in Colorado 1294; Sweet clover 32, 411, 724, 1072, 1107, 1108, 1180, 1256, 1294, 1347, 1049, 1167, 885, 1047; Sweet clover for improving location 884; Sweet clover not a noxious weed 1180; Sweet clover in Florida 411; Sweet clover for farm stock 991, 1256; Sweet clover for lawns 1347; Sweet clover as a forage-plant 32; Sweet clover not good on lawns 1294; Sweet clover and cows 1108; Sweet clover for hay 1072; Sweet clover on cultivated land 1048; Sweet clover killed by cutting 1167; Sweet clover, white 885; Sweet clover, height of 1047; Sweet clover, flavor of 1240; Sweet clover, yellow or white 884; Sweet clover, sowing for summer 1113; Sweet-clover honey dark green 1377; Sweet-clover seed 516; Sweet-clover and basswood honey 927; Sweet clover honey for wintering 593; Sweetest lady at San Antonio 1347; Syrup for making bees 1565; Syrup kept from candying by vinegar 488; Syrup not lost in feeding 1175; Syrup, sugar, when stored in combs not honey 799; Syrup, corn, brassy flavor of 277.

Tank, honey, see honey-tanks 25; Tanks, honey, Alexander 801; Temperance question in Indiana 1416; Temperance, Dr. Chapman on 282; Temperature for cellar 36; Temperature of cluster of bees,

see bees; Temperature inside of hive in winter 1354; Temperature of bee-cellar 79; see cellars; Temperature inside of cluster 1353; Texas for bees 418; Texas crop short 1292; Texas prospects not good 874; Texas as a honey State 1555; Texas, fall honey in 493; Thunder, effect on bees 1072; Toads v. bees 1188; Tongues, bee, to measure 1120; Tongues, measuring-device 1120; Tongues, length of, in bees 1420; Tool for hive from saw-blade 671; Tool for Hoffman-frames 34; Tool, frame-hook for 297; Tool, large nail for 96; Tool, combined hive and frame 441; Top-bars of Hoffman frames shortened 200; Top-lars, bee-space over 234; Top-bars, shortened, not liked 887; Top-bars, thick or thin 1167; Top-bars, proper space over 199; Top-bars, shortened 867; Top-bars, shortened, objections to 809; Top-bars, thick, burr-combs between 988; Townsend on wintering in clamps 1368; Townsend on better prices 1425; Townsend, visit to by Huber Root 1241; Townsend's extracting-house 1242; Transferred comb, bent wires to hold 594; Transferred combs, binder twine to hold 741; Transferring bees 1588; Transferring excursion 815; Trees, to get bees from without cutting 998; Tropics, ants troublesome in 1054; Tumblers, jelly for extracted honey 575; Tumblers, jelly, improved by Hersher 577; Turkeys and grasshoppers 1294; Twining, H. M. 1306; Twin mating-box 69, see mating boxes; Two queens in hive, Ferris on 1007; Two-queen system 586.

Uncapped honey, extracting, Alexander on 151; Uncapped honey, extracting of 217; Uncapping, directions for 937; Uncapping-knife with scalloped edge 1444; Uncapping-knife, long or short 1430. 1431; Uncapping-knife, improved, Townsend on 936; Uncapping-knife, improved by Dayton 1430; Uncapping-knife heated with alcohol 1347; Uncapping-knife, hot or cold 1431; Unfinished sections, to clean out 951, 988; Unfinished sections, feeding back 231; United States and the Japs 1441; Uniting when taking bees from cellar 412; Uniting without fighting 1588; Uniting without smoking 659; Uniting in the brood form 1173; Uniting colonies, Miller on 1288; Uniting weak colonies to strong 1189, 1190; Uniting by Alexander plan, requisites for 1357; Uniting by Alexander's plan 1131, 1229, see also Alexander plan of uniting; Upper entrances 199, 362; Unripe honey, extracting of 999; Unripe honey, why not to be extracted 152; Unused land, rent paid 234.

Veils, value of black color 640; Ventilation for cellar, see cellar; Ventilation of cellars 1310; Ventilation in cellars, principles of 1376; Ventilation for supers 291; Ventilation, philosophy of 1439; Vetch as a honey-plant 1355; Vinegar to prevent candying 458; Vinegar, honey 1295, 1298, 1347; Virgin displacing queen mother 929; Virgin supplants queen mother 1048; Virgin displaces old queen 988; Virgins, two in hive at same time 199.

Walls, to get bees out of 827; Washington as honey State 442; Washington, bee-keeping in 826; Wasps friend of bee-keepers 715; Water for bees 1047; Water for bees in moving 1555; Water stored in combs 1445; Water stored by bees 589, 640; Water-stand for bees 1563; Wax adulteration 1440; Wax and honey, comparative value of 235; Wax

from old combs, hot water for rendering 81; Wax production exclusively 1255; Wax scales, waste of 1113, 1352; Wax, production of in tropics 1512; Wax, relic 516; Wax, water-soaked 810; Wax-extractor 818; Wax-extractor, solar 435; Wax-extractors, solar, artificial heat for 874; Wax-extractor, solar, with artificial heat 943; Wax-presses, see presses, wax; Wax-rendering 81, 810; Wax-rendering not advisable in house 879; Wax-rendering, review of German journals 877, 1000; Water-soaked wax 810; Weak colonies, modification of, Alexander plan for 827; Weather Bureau for bee-keepers 798; Weather, peculiar, in Canada 1235; Weight of Danzenbaker section 68, see sections; Weather, cold, in north 798; West on queen-cell protectors 1056; Wheat chaff, substitute for 519; Wheelbarrow, automatic, to carry combs 1257; Whisky fight 68; Winter repository, up-ground, Boardman's 1373; Winter in Danzenbaker hives 35; Winter cases 737; Winter cases of paper 36; Winter cases of building-paper 1309; Winter entrances 86; Winter feeding 199; Winter, flights not advised 1312; Winter protection of entrances 519; Winter work in the apiary 292; Winter, changing bottom-boards for 1069; Winter, condition of bees in 276; Winter, mild, consumption of stores in 199; Winters in England, advantages of large entrances 87; Wintering at Rootville 933; Wintering baby nuclei 518; Wintering baby nuclei 1361; Wintering bees in cave 810; Wintering colonies between sawdust walls 300; Wintering tiered-up colonies 36; Wintering colonies in benches 519; Wintering in cellar without bottom-boards 1441; Wintering losses v. losses by disease 1374; Wintering in sheds 1431; Wintering indoors, see cellars; Wintering in clamps 1368; Wintering indoors or out 1353; Wintering bees, experiments with different kinds of feed 95; Wintering bees, time for putting in cellar 297; Wintering bees, necessity of sufficient stores 74; Wintering bees in warm climate 73; Wintering, bad effects of moisture 431; Wintering, condition of bees in Colorado 350; Wintering, entrances contracted 659; Wintering, location of entrance 640; Wintering, essentials for 1311; Wintering, Latham on 1438; Wintering, success in Colorado 205; Wintering, science of 430; Wintering, size of entrances for 431, 487; Wintering, packing of colonies for 220; Wintering, packing colonies in shed 212; Wintering-cases of paper 36, 1309, 1371; Wire for foundation, rusted 929; Wired frames 808; Wires loose in frames 809; Wires not imbedded in foundation 209; Wires, combs built over 10, 12, 1028; Wiring deep frames 208; Wiring of frames, horizontal v. vertical 746; Wiring of frames, vertical v. horizontal 827; Wiring, horizontal 412; Wiring, perpendicular, v. horizontal 1047; Wiring, perpendicular, preferred 1018; Wire-cloth separator 292; Wire-cloth separator condemned 437; Wire-cloth separators, modification of 743, 745; Wire-cloth separator, Retsinger's 1303; Wire-imbedder, Easterday 589; Wisconsin fair 29; Women and bees 955; Worker combs, straight, to secure 932; Workers reared in drone-cells 1415.

Yield from a colony 33.

Zinc honey-boards, unbound, sagging 1047.

Editorials

Acklin, J. C., death of 718; Acklin, J. C., obituary 870; Acklin, Mrs. H. G. 203; Advanced Bee Culture revised 71, 143; Alexander improving 564; Alexander method of uniting 505; Alexander and Mrs. Holtermann ill 489; Alexander's articles in book form 565; Alsike adapted to wet soils 489; Alsike increasing the honey crop 489; Alcohol, denatured 567, 642; Algorrohilla, Chilian 1417; Alighting-boards, ample 564; American foul brood 1561; Analysis for sugar syrup 644; Ants and bees fighting 141; Annexation of Cuba possible 1232, 1239; Ants destructive to bees 141; Apiaries near smelters 642; April cold at Medina 641; Aspinwall non-swarming hive 204, 641; Automobile for carrying bees 1109; Baby nuclei, see mating-boxes; Barber, Ira, death of 201; Basswood plantation at Medina 869; Bees hauled in automobile 1109; Bee demonstration by Surface 796; Bees and poultry 69; Bees handled without stings 796; Bees moved short distances 989; Bees freezing 202; Bees as pollinators 203; Bee-keepers in Algeria 1417; Bees, dead,

cleaning out entrance 564; Bees, method of carrying to cellar 279; Bees, moving short distances 346; Bees, stinging, at Jekintown 795; Bees, to shake, right and wrong way 641; Benton modified v. original cage 1418; Benton in the Caucasus 69; Benton, Ralph, in Europe 1503; Betsinger and his wire-cloth separator Black brood, mailing specimens 871; Black brood spreading in U. S. 871; Branch-house question 415; Brood diseases, government help 1560; Brood, peculiar malady of 1349; Brood, black, spreading in U. S. 871; Building-material, cost of 491; Burt's \$25 queen 870; Buttel-Reepen's book 1290; Bulletin on queens 346.

Cage for fertilizing queens 642; Cage, Benton, original 1418; Cages of wire cloth to shut bees in 1559; California rains 414; California honey advanced in price 1558; Canadian department 1290; Candy for cages, disinfecting 1050; Caucasians at Medina 1230; Caucasians not for sale 989; Caucasians at Root's Florida home 413; Caucasians, by A. I. R. 641; Caucasians, conflicting testimony on

70; Caucasians, Rauchfuss on 1558; Caucasians, by Titoff 15; Caucasians for queen-rearing 718; Cellars of concrete 1111; Cellar, methods for carrying bees into 279; Cellar, the Root, ventilating 141; Cellars, dampness in 70; Cellars, dry 565; Cellars, articles on 989; Cellared bees shut in hive 1559; Cell cups, 72 from one hive 869; Chemical standard, U. S., for honey 1231; Chicago convention 142; Chick peas as a honey-plant 1557; Chicken story, editor's experience 869; Closed-end frames on colonies in spring 568; Clover, red, as a honey-plant 990; Clover, sweet, not noxious 989; Colonies short of stores in spring 567; Comb honey, manufactured 1487; Comb-honey lies silenced by food law 1417; Commission houses, irresponsible 14; Comb-honey canards not dead 566; Comstock, Mrs. Anna B. 931; Concrete for cellars 1111; Convention, Michigan 204; Convention at San Antonio 1418; Convention at Chicago 16; Convention of four-brood inspectors 1290; Convention report, Chicago 345; Convention, National, San Antonio 1290; Convention, what it did at San Antonio 1486; Co-operation in handling supplies 415; Cost of supplies 490; Crop, when to sell 1169; Cuban and sage honey in New York 1558; Cuba, annexation of 1232, 1289.

Dampness in bee-cellars 70, 565; Demonstration of bees in New York 201; Denatured alcohol 642, 567; Denatured alcohol, bill passed 793; Department of Agriculture helping bee-keepers 1560; Derricks to lift hives, see hive-lifters; Directors not supply-dealers in the National 1418; Directorship of the National 16; Disease, new, in Illinois and Wisconsin 1349; Divisible-brood-chamber hive 1419; Division-board, close-fitting 643; Division-board for springing bees 643; Donkey automobile 1418; Doolittle, G. M. 414; Doolittle on swarm control 345; Drouth and too much rain 929; Drumming to quiet bees 1170.

Editor on chickens 869; Editor and his incubator 566; Editor, the junior 567; Editor at Detroit, handling bees 1171; Entrances obstructed during honey-flow 794; Entrances closed with wire cloth 1559; Entrance, removing bees from 564; Entrances, cleaning out 564; Entrance, location for outdoor colonies 568; Eucalyptus, hardy 1485; European foul brood 1561; Excluder, queen, inventor of 1557; Experiment station in Switzerland 1557; Experiments at Medina with stores 141; Extractor driven by power 1230.

Fairs for advertising honey 1109, 1171; Fairs, honey exhibits at 1051, 1170; Fall flows of honey 1111; Fatalities from stings 796; Feeding outdoors 565; Feeding in the spring 567; Feeding, late, dangers of 1289; Ferris, A. K. 345; Ferris' two-queen system 565; Fertilizing queens in tent 642; Field meeting in Missouri 1485; Field meeting at Jenkintown 720; Field meet at Jenkintown, see Jenkintown; Field meeting of teachers at Medina 930; Florida ants, by A. I. R. 414; Food law, effect on glucose 1418; Food law, effect on bee-keepers 1051; Foul brood in the mails 929; Foul or black brood 1349; Foul v. black brood 930; Foul or black brood, treatment of 989; Foul and black brood compared 1561; Foul-brood convention in Texas 1170; Foul-brood law, Canada, amended 642; Foul-brood law, Ohio 347, 413; Foul-brood inspectors' meeting 1290, 1486; Foul-brood inspector for Canada 929; Frames, closed-end advantages in spring 568; Freight rates on honey 1486; Fruit-blossoms, time to spray 644.

Gavel given at Chicago convention 142; Gleanings for 1907 1419; Gleanings contents for coming year 414; Gleanings publishing house 347, 1349; Gleanings subscription-list 347, 489; Gleanings, new type for 1109; Glucose interests affected by food law 1418; Glucose people's lawsuits 1417; Goldenrod for honey 1170; Good, I. R., and family 1289; Government, what it is doing for bee-keepers 1560; Grave, bees following owner to 1485; Griggs' talk with woman on honey 1487.

Hambaugh, death of 565; Hand's non-swarming system 1419; Harvest, see crop reports; Hawthorne on honey 1111; Harrison, Mrs., death of 642; Hepburn food bill passed 346; Hersher on confining bees in cellar 1549; Hersher's plan of shutting bees in cellar 1559; Hersher's daughter burned 929; Hibernation of bees, semi 202; Hired help in apiary 1050; Hive, Aspinwall non-swarming 641; Hive, jumbo, Ferris 795; Hive-lifter, Ferris 1050; Hive-lifting devices 795; Hive-stretcher to carry bees to cellar

279; Honey sold by co-operation 415; Hoffman frame, metal-spaced 16; Holtermann a special correspondent 1290; Honey-suckle apiary 1485; Honey crop increased by alsike 489; Honey sold by co-operation 415; Honey as a food 1289; Honey to allay bitterness of the world 1111; Honey season for 1906, see honey-crop reports; Honey prospects for 1906 566, 1231; Honey puffs 1170; Honey exhibits at fairs 1051; Honey v. syrup for winter feed 1169; Honey, freight rates on 1486; Honey, higher prices on 1557; Honey, standard for 1231; Honey, when to sell 1169; Honey crop short for 1906 1231; Honey-crop reports 566, 717, 794, 930, 1231, 869, 990, 929, 1558; Honey-flow good at Medina 929; Honey-crop reports in Gleanings 1558; Honey-packages, small 566; Hooker, J. M., death of 201; Hutchinson in the field 1050; Hutchinson's new book 71.

Incubator, editor's 566; Index for 1905 15; Inspectors of foul brood, meeting of 1486; Introducing, the Simmins plan 69; Irrigation in Canada 1557.

January weather 141; Jay's new department 1349; Jenkintown field day 795; Jenkintown field meeting 720, 795, 871, 929, 1110; Jenkintown meeting, A. I. R.'s report 871; Jenkintown meeting in the evening 1110.

Knowing too much 565, 1487.

Langstroth, poem on 642; Law, Canada foul-brood amended 642; Law, Ohio foul-brood 347, 413; Law, pure-food, explained 1350; League, Honey-producers' and attack on Wiley 413; Libel on bees 71; Live-bee demonstration in New York 201; Loss of bees in early fall 1417; Lumber advanced 490.

Mailing diseased brood 871, 929; Manufactured comb honey 1487; Manufactured honey, so called 346; Mating nuclei getting bees for 718; Mating nuclei at basswood apiary 869; Mating-boxes, Root 17; Metal-spaced frame, see Hoffman; Miller, C. C. 642; Misbranding of honey a crime 1350; Montgomery Ward & Co., and pure sugars 1417; Morrison at Medina 642; Moving bees short distances 346; Moving bees short distances safely 989.

National and its directors 1418; National food law, effect on bee-keepers 1051; National food law, effect on honey 1289; National food law, provisions of 1350; National convention at San Antonio 643; National Association at San Antonio or St. Paul 347; National convention, report of 1486; Nectar, raw, wanted 644; Newspaper canards about bees 71; Nom de plume, use of 69; Nomination notices for National 1109; Non-swarming hive, Aspinwall 294.

Ohio foul-brood law passed 347, 413; Outdoor feeding 565.

Phillips' bulletin of brood diseases 1560; Phillips, E. F., marriage of 1350; Pollination by bees 293; Poultry and bees 69; Power-driven extractor 1230; Press, wax, Hersher 142; Price of supplies 490; Prices advanced on food stuffs 1557; Prices, higher, on honey 1557; Propolis chinked in by Caucasians 1230; Prospects for the season 717; Prospects for 1906 566; Publishing house Gleanings new 347; Pure-food bill hanging fire 793; Pure-food bill passed 346; Pure-food law, effect on apiculture 1289; Pure-food law, provisions and penalties 1350; Pure-food law and canards 1417; Putnam at Medina 717.

Queen, Burt's \$25, 870; Queens fertilized in big tent 642; Queens for export 1418; Queens, chilling, to make drone-layers 202; Queens, early, in the North 347, 414; Queen, virgin, destroying old queen 1110; Queen-cage candy to be disinfected 1050; Queen-excluder, inventor of 1557; Queen-mailing cages 795; Queen-mating boxes, see mating-boxes; Queen-rearing bulletin 346; Queen-rearing, early, in the North 348, 414.

Railroads not cutting sweet clover 1111; Red clover as a honey-plant 990; Reflex machines, are bees? 1290; Reports on honey 1558; Reward, \$1000 346; Robbers, killing, to stop robbing 990; Robbing, effects of 990; Robbing, a trick worth knowing 990; Robber-traps, value of 1050; Root twin mating-hive 718; Root mating-boxes 17; Root, A. I., the man and his work 278; Root, A. I., and baby nuclei 1291; Root, A. I., with bees again 718; Root, Allan Irving 1230; Root's, E. R., Florida trip deferred 345; Root, E. R., not a director 16; Root, H. H. 567; Root, H. H., assistant editor 415; Rural Bee-keeper 717.

Sage and Cuban honey in New York 1558; Sage honey, advance in price 1558; Salisbury on wire-cloth separators 278; Schonfeld, death of 1485; Season for 1906 1231, 1558; Sections to be scraped or not 1487; Sections, Danzenbaker 277; Sections, graded and scraped 1170; Section, thickness of, v. length and breadth 277; Semi-hibernation of bees 202; Separator, wire-cloth, Betsinger's 278; Shaking bees, right and wrong way 641; Shook swarming, see swarming 11; Simmins' method of introducing 69; Smartweed honey 1111; Spring work 641; Spraying trees in bloom 644; Springing bees, division-board for 643; Standard, U. S., for honey 1231; Starvation, danger of 279; Stingless bees at Jenkintown 795; Stings, commercial use for 1052; Stings, fatalities from 796; Stores consumed in winter 141; Subscription-list, Gleanings 1289; Sugar syrup easily detected in honey 644; Sugars, pure, by Montgomery Ward 1417; Supplies by co-operation 415; Supplies, cost of 490; Surface, H. A. 719; Surface, H. A., hive and swarm 796; Swarm in a frenzy 793; Swarm control 142; Swarm control for comb honey in out-yards 568; Swarm control,

three plans for 641; Swarm control by Doolittle 345, 869; Swarm control, Ferris plan 795; Swarm, to make it contented 793; Swarming shook 568; Sweet clover not a noxious weed 989; Sweet clover, getting railroads not to cut 1111; Switzerland, its experiment station 1557; Syrup for making bees 1229; Syrup too late to feed 1349.

Tax on bees in Ohio, one cent 413; Texas, poor season in 641; Thousand-dollar reward cards 346; Toepperwein's swarm 346; Traps for robbers 1050; Twin mating-boxes, see mating nuclei; Twin nuclei, see mating-hive; Type, new, for Gleanings 1109.

Uniting weak colonies with strong 565.

Ventilating the Root cellar 141; Ventilation in bee-cellars 565; Virgin queen killing old queen 1110.

What's the use of knowing so much? 565, 1487; White, L. R. 720; White, Dr. F. G., bulletin from 1560; Wiley advocate of food bill 347; Wiley, attack on by brewers 413; Winter losses heavy in Kansas 414; Wintering in clamps in clay soil 1349; Wintering indoors and out at Medina 489.

Pickings

Apiarist, Texas, new journal 934.

Bee journal, new Roumanian 722; Bee journals of Europe 281; Beeswax to prevent stings 722; Benton in Europe 419.

Eggs, do bees move? 934.

Honey and milk 1564.

Introducing at dark 934.

New Zealand 1488.

Pettit damage suit 1564; Pronunciation of words in England 1564.

Schonfeld, death of 722; Sections, miniature 1564;

Stings for weak eyes 419.

Wax, hard water on 722; Writing for press with pencil 934.

Our Homes

American bee-keepers 1132; Anti-saloon League of America 1590; Anti-saloon League of Ohio 1590.

Baby nuclei 753; Balloon, dirigible 832; Bathroom, A. I.'s 526; Battery-testers, 1137; Bees at the Michigan home 1017; Bees on our island 445; Bees and poultry 369, 445; Bee-keepers' workshop 236; Boy who was drowned on Sunday 833; Boys and cigarettes 1517; Boys, our American 1516; Boys, why bad 1518.

Carpenter-shop, my 672; Children, our 1517; Chicken-stealing 1449; Church, not going to, Sundays 833; Cigarettes and boys 1517; Circus and the boys 1018; Commissioners, county 38; Convention of the Anti-saloon League, State and National 1590; Corn, to grow 1075; Cotton's controllable hive 1136; Caucasian bees 753.

Doctors, quack 893.

Experiment station, Wooster 1075.

Flag, stainless 1595; Florida cottage 162; Florida home 161; Florida to Michigan 753; Folk, governor 1593; Fruits, uncooked 672.

Girl, the, that was lost 1317; God's gifts 525.

Hanley, governor 1317, 1590; Holden, Prof. P. G. 1075; Hold-ups 892; Home, sweet home 1194; Hungarians breaking the Sabbath 1454.

Juvenile court 1593.

Kansas City, false statements concerning 1380; Kansas temperance laws 1379.

Law enforcement at Medina 1318; Lawlessness and Saloons 1449; Lindsley, Judge 1593; Liquor enemy 1379; Liquor falsehoods 1379; Liquor-traffic sees its doom 1137; Lynching business 1518.

McClade's sermon 1194; Medicines, quack 894; Mosquitoes, all about 1385; Moth and rust 37.

Navigating the air 1016.

Organization 1317.

Pardon power abused 1451; Park, G. W. 953; Park's printing plant 954; Parents, duty of 1017; Poultry keeping at Florida home 369, 445; Prices of supplies 1132; Prohibition in Kansas 1137, 1379. Quacks and their medicines 892; Queens, mating in Florida 446.

Rain, making and stopping 1016; Rats in the winter-applis 1450; Root genealogy 834; Root, A. I., at Jenkintown 1132.

Saloon at Bingham 757; San Francisco earthquake 672; Sea-breezes and deep breathing 526; Search-and-Seizure law 1317; Secrets, selling 1384; Sunday balloon ascension 832; Sunday not day for outing 832; Sunday street-cars 832; Surveying in Michigan 754.

Tabernacle, hewed and built in 22 hours 39; Terry's new diet, 672; Thief, reformed 1452.

Water we drink, 525; What to do 369; Wilson, neighbor 755; Whisky, what it did for a bee-keeper 1137; Words, unkind 1132; Workshop, bee-keepers' 236.

Notes of Travel

Alfalfa in the Black Hills 1513.

Bees on our island 160; Bees, handling without smoke or veil 161; Black Hills of South Dakota 1443, 1513, 17514, 1582.

Caucasians in Michigan 1073; Caucasians at Washington 677; Caucasian bees on the island 676; Caucasians extra workers 1073; Cave, wind, of Black Hills 1448; Chickens on the Florida island 677.

Diet, Terry's 236.

Florida, leaving 598; Florida, off to 100; Fruits, uncooked 236.

Gasoline as a motor-power 523.

Honey from baby nuclei in Michigan 1073; Hot Springs of South Dakota 1513, 1582; House-building and furniture-making 225.

Island, ours 100.

Mulberries in the South 599.

Navigation on Sarasota Bay 523.

Orange-blossom honey 600.

Propelling boat to ward off cold 523.

Railway travel and ventilation 100; Raspberries in Florida 599.

Sailing on Sarasota Bay 523.

Transferring on our island 160.

Wind cave of Black Hills 1447.

High-pressure Gardening

All about cucumbers 1137.

Bacteria for sweet clover on the island 601; Basswood for fall planting 1385; Basswood, to grow 1513; Bees, handling without gloves 304; Blight, spraying for 1135; Budding apple-trees 1595.

Clover seed, where comes from 1015; Celery-farm in Florida 301.

Day's home 1596; Drainage tile, a new kink 1134.

Evergreen, ornamental 1514; Fly that ruins orange-orchards 303.

Grasshoppers 1136; Guavas 371.

Holden's corn-talk 1454.

Mushroom business 1453, 1595.

Nitro culture 102; Nitrogen bacteria 602.

Orange-blossom honey 601.

Paulownia 1385, 1198; Potatoes, seed, selecting 1135; Potted plants 372.

Rats, more about them 1454.

Strawberries in Florida 302; Strawberries on the Florida coast 602; Strawberry-gardening 302; Sweet clover in Florida 602.

Tomato-book, man's home 1596; Tomato-growing in Florida Keys 601; Truck-farms in Florida 302.

Wax-beans in Florida 303.

Health Notes

Chestnuts for diet 1453.

Doctoring without medicine 895.

Fruits, uncooked 1452.

Lemons for the cure of consumption 635.

Sitz bath, hot 896.

Terry's diet 1452.

Vertigo, or falling sickness 101.

Illustrations

Acklin, Mrs., cover, Feb. 15; Acklin, J. E., cover, July 1; Aikin sectional hive 732, 733; Aikin sectional brood-chamber 501; A. I. Root demonstrating at Jenkintown, cover, Aug. 15; Alexander and Elwood 153; Alexander apiary 1573, 1575; Alexander baby nuclei 1576; Alexander bee-yard 28, 1572, 1576; Alexander feeder modified 1256; Alexander, Frank 89; Alexander shaking combs 90; Alexander's evaporating-tanks 801; Alexander's feeder 499; Alexander's honey-strainer 27; Alexander's tank-room 1573; Alighting-boards, curved 744; Alighting-boards, adjusting 1573, 1575; Althea as a honey-plant 1303; Ant-proof shed for tropics 1055; Apiary of 360 colonies 516; Apiary with dirt floor 1422; Apiary in back lot 1502; Apiary averaging 100 lbs. 814; Apiary sheds in Idaho 664; Apiary in the shade 739; Apiary packed with building-paper 1308; Apiary with upper entrances 1498; Apiary, first-prize photo 739; Apiary, Alexander 1573, 1575; Apiary, Root's at Salem 1435; Apiary, South Florida 738; Apiary, Texas 1566; Apiary, P. Keating's 436; Apiary, Guthrie's cover, Dec. 1; Apiary, Townsend's 1241; Apiary, Peterson's 1302; Apple-blossom shade 298; Arizona scheme for shade 885; Aspinwall shipping-case 515; Aspinwall's hive and system 426, 429; Atwater, E. F. 589; Atwater's baby-nucleus yard 947; Atwater's heating-tank 25; Atwater's queen-cell cage 1070; Automobile and bee-keepers on cover, Nov. 16; Automobile to haul nuclei 1128; Automobile for hauling nuclei, cover, Sept. 1; Automobile, Doolittle's 1068, 1001.

Baby nucleus, Root's 18; Baby nuclei prepared for winter 1361; Bee on a Blossom 510; Bee demonstration at Akron and Medina 222, 225; Bee demonstration at Medina 1579, 1582; Bee demonstration, Wahl's 256; Bees as fertilizers 509, 511; Bees in open air 327; Bees on a stretcher 280; Bees, fracas with 1568; Bee-brush, German 610, 938; Bee-brush, Flory's 1255; Bee-cellar, see Cellar; Bee-keeper in parade 1128; Bee-keeper, blind, at work 228; Bee-keeper, youngest in Pennsylvania 1578; Bee-keeper, young 1188, 1432; Bee-killing, to avoid 819, 820; Bee-sheds in Idaho 664; Bee-shed for tropics 1055; Benton modified mailing-cage 668; Benton, Ralph, in Europe 1433, 1503; Benton's last postal 92; Bicycle pants-guards 297; Bigelow and his class at Medina 1579, 1582; Bigelow at Jenkintown 1066, 1067; Bigelow Educational hive 590, 592; Bigelow honey-carton 1584, 1585; Bigelow's apiarian laboratory 155, 157; Bigelow, E. F., cover, June 15; Birds' work on hives 1429; Boardman's house for wintering 1373; Bottom-board, Mansperger's 671; Bottom-board, double to keep down increase 825; Box hive, drumming bees from 1588; Boy and Japanese hive 1441; Boy and the bees 1127; Boy watching bees 1432; Boy bee-keeper 1577, 1578; Brood-chamber, Aikin's 501; Building material, cost of 491; Building-paper for winter protection 1308; Burn's heating-tank 26; Burt's method of ripening honey 1247.

Cage for bee demonstrations 221; Candied honey cut with a machine 1445; Carniolans at Jenkintown

1063; Cartons for two sections 96; Cartons, Bigelow 1584, 1585; Caucasian bees by Lyon 91; Caucasian caught in act 814; Cellar repository, Boardman's 1373; Cellars of concrete 1363, 1365; Cellar, bee, Lathrop's 226; Cellar, West's plan of 1181; Cellar, method of piling bees in 1182; 1183; Cell-building hive, Chambers' 294, 1059; Cement cellar-walls 1363, 1365; Chambers' non-swarming attachment 584; Chambers' cell-building hive 294, 1059; Chambers' cell-starter 1059; Chinaman and his bees 661, 663; Church's mating cage 1569; Church, C. M. 1570; Class in apiculture, Griffin's 585; Class in apiculture, Surface's 942; Clamps for wintering bees 1369, 1370; Climbing Cuban palm 364, 365; Closed-end frames, to handle 819, 820; Cluster, arrangement of the nucleus 670; Cogshall at Jenkintown 1062; Colony manipulated 1126; Colony removed from building 433; Colonies, 360 in one apiary 516; Combs built in open air 227; Comb honey properly packed 1246; Comb honey ripening off the hive 1247; Combs, removing from building 433; Comb-carrier, Alexander 89, 1575; Comb-honey attachments, Ferris' 880, 882, 941; Comb-honey carton, Bigelow's 1584; 1585; Comb-honey display from one hive 737; Comb-honey storage-crates 494; Comb-leveler, Whitney's 1189; Comstock, Anna B., cover, July 15; Concrete cellars, to make 1363, 1365; Crates for comb honey, Green's 494; Crowds at Jenkintown 1064, 1065; Cuban honey-house 94; Cuban method of climbing 364, 365; Cucumbers grown in greenhouse 509, 511; Cyprians, beware 1008; Cyrenius' hive-lifter 803.

Daisy fastener improved 1254; Demonstration of live bees, Wahl's 356; Doolittle system illustrated 444, 521, 522, 596, 652, 749, 751, 822, 952, 953, 1014, 1069; Doolittle and automobile 1001; Doolittle wide frame 598; Doolittle on mowing an apiary 595; Doolittle on taking off comb-honey 952, 953; Doolittle colony rich in stores 521; Doolittle taking off honey 1014; Doolittle at Jenkintown 1004, 1006; Doolittle queen-excluder 598; Doolittle shade-board 1253; Doolittle and automobile 1068; Doolittle on clean entrances 823; Doolittle's dream 1015; Doolittle's introducing-cage 823; Doolittle's method of lifting hives 1069; Doolittle's record-board 521; Doolittle, G. M., cover, April 1; Drumming bees out of box hives 816, 1588; Dzierzon, John 1508; Dzierzon's home and hive 1509.

Educational hive, Bigelow 590, 592; Elwood and Alexander 153; Entrance tangled with grass 823; Entrance-closing, Doolittle plan 1069; Entrances, closing, by Doolittle 444; Entrance, contracting 671; Entrance, ideal, for summer 1571; Entrance, V. Burt's 1571; Entrance-closer of bent wire cloth 418; Entrance-guards to keep out mice 1512; Exhibit by Hunt 1439; Exhibit of honey at Wisconsin fair 30; Exhibit in Australia 1500, 1501; Extracting-combs, fine set 1248; Exhibit, Creighton's 30; Extracting-frame, to brush 1244, 1245; Extracting with gasoline-engine 1242; Extracting-house portable 515; Extracting-house, Alexander 1574; Extracting-room, Alexander's 1572; Eye, swollen 1376.

Fairs, demonstration of bees at 222, 225; Family of honey-eaters 740, 1186, 1307, 1442; Family of honey-eaters, cover, Oct. 15; Feeding outdoors by Scholl 516; Feeder in bottom-board 824; Feeder, Alexander's 490; Feeder, bottom-board 1256; Feeder, Scholl's 494; Ferris' double-nest-hive 586; Ferris' comb-honey attachment 941; Ferris' double-brood-chamber hive 512, 513; Ferris' hive-lifter 1121, 1123; Ferris' apiary 513; Ferris' comb-honey attachment 880, 1184; Ferris' comb-honey supers 880, 882; Ferris, A. K., cover for March 15; Fertilizing-tent 1569; Field day at Jenkintown 1061, 1067; Field meet in Europe 1503; Flory's brush 1255; Foundation-fastener, Morgan's 99; Frames, to handle 819, 820; Frames, metal-spaced Morris' idea 442; Frame-holder for catching drip 1243; Frame-piercing machine 233; Frame-spacers, European 1009, 1010; Frame-tongs 441; Franklin's two-section carton 96.

Gasoline-engine for extracting 1242; German bee-brush 610, 938; Gibb's machine to cut candied honey 1445; Gilbert's bee-yard with dirt floor 1422; Girl finding queen, cover, Nov. 1; Glass to prevent robbing 1188; Goldenrod cover, Sept. 15; Grainger, E. 1366; Greenhouse, bees in 509, 511; Greiner's hive-carrier 440; Griffin's class in apiculture 585; Gulden's apiary 515; Guthrie's apiary, cover, Dec. 1.

Hatch's plan for bee-cellar 1311; Heating-tank for honey 25, 26; Heckson's metal-spaced frame 748; Hives manipulated by Doolittle plan 597; Hives picked open by birds 1429; Hive, 12-frame Ferry's 586; Hive, Holtermann's 290, 291; Hive, Aspinwall's 426, 429; Hive, Pearl Agnes 665; Hive-carrier, iron 520; Hive-carrier, Greiner's 440; Hive-carrier, West 1250; Hive-carrier, simple 1434; Hive-lifter, Ferris' 1121, 1123; Hive-lifter, Bailey's 1124; Hive-lifter, Holtermann's 1124; Hive-lifter, Cyrenius' 803; Hive-lifter, a take-off 1506, 1507; Hive-rabbit spacers 1009, 1010; Hive-rabbits, right and wrong way 500; Hive-stands to give foot-room 515; Hive-stand, Doolittle 596; Hive-tool, Chappell's 298; Hive-tool, handy 1422; Hive-tool, Mansperger's 671; Hoffman Heckson's metal-spaced frame 748; Hoffman Marback's metal-spaced 17; Holmes, Herman 159; Holtermann's honey-strainer 147; Holtermann's hive-lifter 1124; Holtermann's hive 290, 291; Honey as a food 1307, 1442, 740, 1186, 1307; Honey exhibit, see Exhibits; Honey exhibit in Australia 1500, 1501; Honey-eating family, see Families, Honey Eating; Honey-extractor, non-reversing 883; Honey-house 94; Honey-house, Townsend's 1242; Honey, selling at fairs 30, 222, 225, 1439; Honey-strainer, Alexander 27; Honey-strainer, simple 434; Honey-strainer, Holtermann's 147; Honey-strainer, Archibald's 939; Honey-tanks, Alexander's 1572; House-apiry, Suksdorf's 1185; Hunt's exhibit at Detroit 1439.

Increase prevented by double bottom-board 825; Italian apiary 1438.

Jap hive 1441; Jay with swarm on chin 1567; Jenkintown field day 1002, 1007, 1061, 1067.

Ketaing's home 435.

Laing, G. 1366; Latham's method of wintering 1361; Ling Sam's ranch 661; Lossing's automatic wheelbarrow 1257; Lumber, price of 491; Lyon and Boyden at Jenkintown 1061.

Manzaniti 360; Mating queens in a cage 1569; Mating-box arrangement of cluster 717; Mating-box frames 20, 21; Mating-box twin 18, 718; 1361; Mating-boxes, twin or triple 670; Mating-boxes, Root twin 17, 18, 718; Mating-yard; Atwater's 947; Metal-spaced frame, Heckson's Hoffman 748; Metal-spaced frame, Marback's Hoffman 17; Miller bottom-board 443; Miller, C. C., cover, May 15; Mowing apiary, Doolittle on 595; Mule for going to out-yard, cover, Nov. 15.

Nails in wax 1440; Nichols' method of packing comb-honey 1246; Non-reversing extractor, French 883; Non-swarming attachment, Chambers' 584.

Observatory hive, Savage's 1359; Ontario convention 1504; 1505; Ontario convention officers 1510; Ormsby section-protector 23; Overstocking illustrated 20, 21.

Pants, special, for bee-work 297; Pants-guards to keep bees out 297; Paper winter cases 1371; Pearl Agnes hive 665; Peterson's Texas apiary 1302; Phillips, Dr. E. F., cover, April 15; Piercing machine for frames 233; Plan of bee-cellar 1311; Poem, bees illustrated 1301; Poem on Langstroth 572; Poppleton and Selser in palms 742; Pratt at Jenkintown 1063; Press of old kettle 362, 363; Price of building material 491; Psalm from farm life 1587.

Queen-breeder, youngest 29; Queen-cage, Benton modified 668; Queen-cell cage, Atwater's 1070; Queen-cells from foul-broody hive 507; Queen-excluder, Doolittle 598; Queen-fertilizing tent 1569.

Rabbits to hive, right and wrong 500; Rabbit-spacers 1009, 1010; Record-board, Doolittle's 521; Reversible closed-end frames 1435; Robbing prevented by glass 1188; Root, A. I., cover March 1; Root, A. I., at Jenkintown 1009; Root, H. H., cover, May 1; Root, Allan Irving cover, Oct. 1; Root's apiary in the East 1435; Root's twin mating-box 18, 718; Rope for carrying hives 443; Rose of Sharon as a honey-plant 1303.

Sam Ling 663; Savage's observatory hive 1359; Scholl grabbing frames 1293; Scholl keeping up with the bees 73; Schoolteachers at Medina 1579, 1582; Schultz's apiary with shade 885; Scraping-box, Greiner's 367; Screen of bent wire cloth 418; Sectional hives, to use 732, 733; Section-protector 23; Selser as field-marshal, cover, Aug. 1; Separators of wire cloth 745; Separator, wire-cloth, burr-combed 437; Shade for apiary in Idaho 885; Shade-boards of half-barrel 874; Shade-board, Doolittle 1253; Shade-boards, Pearsall's 875; Shaffer, H. 886; Shaking a frame, Doolittle plan 652; 653; Shaking frames, right way 1293; Shed for wintering bees 212, 300, 1431; Shed for hives 299; Shedd's apiaries in Idaho 664; Shipping-case without glass 514; Shipping comb honey 1246; Smith, Mr. and Mrs. 1366; Solar wax-extractor, Keating's 436; Spacers on frame and hive 1009, 1010; Stanley & Son 945; Staple fastener for hive 443; Sting, effect of 1376; Stinging fracas 1568; Storage-tanks, Alexander's 801, 1572; Stretcher to carry bees to cellar 280; Sturm's entrance-guards 1512; Surface and his class 942; Surface, H. A., cover, June 1; Swarm on man's arm 1306; Swarm entering a hive 440; Swarm on man's chin 1567; Swarm 30 feet high 1125; Swarm, papa's 887; Swarm, Lyon's capture 813; Swarm, third prize 154.

There she is, daddy, cover, Nov. 1; Townsend on brushing frames 1244, 1245; Townsend's apiary 1241; Townsend's clamps 1369, 1370; Townsend's extracting methods 1242, 1245; Townsend's frame-holder 1243; Townsend's plan of bee-house 1372; Transferring bees 1497; Transferring illustrated 815, 818; Transferring apiary at luncheon 815; Transferring-table under tree 817; Twining, H. M., at Jenkintown 1306; Twin mating-box, Root 18.

Uncapping-knife, Townsend's 937; Uncapping-knife with thumb-piece 937.

Wax with nails in 1440; Wax-extractor, Keating's 436; Wax-extractor, solar and artificial heat 943; Wax-press, kettle outdoors 362, 363; West cell-protectors 891, 1057, 1058; West hive-carrier 1259; West's method of wintering bees 1181, 1183; Wheelbarrow, automatic 1257; Wheelbarrow, Doolittle's use of 202; White's apiary 1435; Who's afraid? 1127; Wilson, D. H. 1577; Winter cases of paper 1303, 1371; Wintering in clamps 1369, 1370; Wintering under shed 212, 300, 1431; Wiring frames, Atwater on 588; Wire-cloth separator burr-combed 437, 1395; Wire-embedding tool Miller's 1579; Wooster teachers at Medina 1579, 1582;

Contributors

Ahlers, H. C. 1059; Aiken, R. C. 500, 731; Alexander, E. W. 26, 87, 151, 210, 229, 286, 354, 423, 499, 508, 575, 648, 729, 811, 835, 994, 1058, 1297, 1357, 1377, 1495, 1573; Amons, B. A. 518, 1256; Amos, Mrs. A. L. 884; Ames, A. L. 1240; Anderson, J. L. 951; Andrews, F. D. 748, 951; Andrews, W. M. 825; Archibald, T. 939; Archibald, Robert 1511; Armstrong, A. C. 299, 948; Arenson, Arnt

362; Asbell, W. G. 831; Ashley, A. A. 670; Aspinwall, L. A. 426; Atwater, E. F. 25, 80, 215, 587, 663, 735, 884, 943, 946, 1070, 1237, 1305; Aulick, Dr. M. A. 1255.

Bailey, John 1124; Bailey, John Sr. 35; Balch, J. C. 1431; Baldridge, M. M. 1072; Barber, Ira 425; Barber, Isaac 810; Barkley, J. L. 98; Barnett, M. A. 441; Barkley, J. L. 1445; Bartlett, Ira D.

814; Bassett, Henry 1377; Baumgaertner, J. G. 216, 580, 827; Bearden, J. A. 741; Beaupre, L. 1188; Belshaw, Wm. 671; Bennett, B. S. K. 1117; Benton, Ralph 1433, 1502; Benoit, F. 743; Best, D. E. 1056; Betke, Herman 1444; Beuhne, R. 1240; Bigelow, Edward F. 156, 233, 591, 665, 746, 1583; Black, C. S. 744; Blake, B. W. 368; Boardman, H. R. 1371; Boelte, Dr. Phil. Max. 589; Bohrer, G. 280; Boyd, B. T. 830; Boyd, Frederick M. 830; Brackney, O. W. 231; Bradley, B. H. 1443; Bretsford, J. C. 519; Brewer, M. I. 1127; Briggs, F. P. 154, 440, 744; Brockwell, L. L. 36; Brown, A. B. 32; Brundage, G. 1127; Brunnich, Dr. 86, 1129; Bryant, Geo. W. 826; Burke, Mrs. W. M. 1130; Burns, A. J. 26, 219, 824; Buck, Mrs. Orville 830; Byer, J. L. 217.

Card, W. F. 1498; Card, Wendell T. 1013; Carey, R. G. 520; Case, Wm. W. 736, 951; Cary, W. F. 440; Chambers, J. E. 293, 582, 806, 1059, 1251; Church, C. M. 219; Chappell, R. D. 298; Church, C. M. 1568; Clark, A. A. 658; Clark, L. C. 1175; Claussen, W. R. 97; Cleaver, N. E. 1570; Clover, W. R. 301; Cogshall, D. H. 742; Cogshall, W. L. 744; Colahan, Francis J. 1007; Coles, J. D. 1068; Collins, Dele 228; Coltrin, E. P. 96; Colwell, A. M. 34; Comstock, Anna Botsford 995; Conner, W. W. 1129; Coons, W. H. 214; Cooper, J. F. 889; Corbett, G. W. Jr. 35; Craig, W. 1512; Crain, Calvin 825; Crane, J. A. 811; Crane, J. E. 816; Creighton, J. G. 81, 826; Cummings, Barnard 295; Cyrenius, F. H. 951.

Dadant, C. P. 1115; Darby, L. W. 1444; Davenport, C. 287; Davenport, Stephen 518; Davis, J. M. 506; Davison, W. T. 36, 212, 1256, 1431; Day, F. L. 35, 582; Dayton, C. W. 233, 811, 1430; Deadman, G. A. 434; Dean, J. S. 830; Dewey, E. H. 1240; Deyo, Geo. W. 1256; Dibbern, C. H. 437; Donaldson, D. 1589; Doolittle, G. M. 442, 520; Downing, D. D. 1378; Dreyer, W. H. 1072.

Eckler, C. F. 737; Egge, Jos. 516, 825; Evans, G. O. 593.

Farnsworth, D. D. 889; Farrar, C. D. 1118; Ferris, A. K. 429, 511, 586, 670, 803, 880, 940, 1006, 1121, 1184; Findlay, Wm. 746; Fisher, Ralph P. 296, 998; Fisher, B. L. 300; Fisher, A. E. 98; Fletcher, S. R. 1256; Flory, J. F. 1255; Franklin, Benj. 96; Fowler, J. M. 368; Fox, E. W. 1071; Fox, Franklin G. 82; Fox, Elias 297; France, N. E. 1309.

Gathright, W. C. 887; Gaul, J. E. 740; Getaz, Adrian 997; Gibb, Robert 1446; Gibson, E. M. 22; Gill, M. A. 671, 730; Gillette, C. P. 1445; Gilbert, W. R. 94, 150, 292, 508, 574; Gilstrap, W. A. H. 1067, 1177, 1187; Goff, James B. 439; Goldsborough, Arthur T. 602; Good, I. 1307; Grant, W. W. 1012; Gray, J. 885; Green, Stephen N. 1248; Greene, John T. 97; Greenough, W. I. 368; Greiner, F. 802, 877, 1000; Greiner, G. C. 85, 157, 213, 441, 502, 1238; Griffin, Lawrence C. 368; Gross, Gustave 1444; Gulden, L. M. 516; Gurtner, T. E. 1502; Gutton, J. W. 1442.

Hahman, Wm. 951; Hains, Ed 1180; Hale, Ralph I. 1445; Hall, D. S. 99; Hallock, T. P. 587; Halstead, F. W. 364; Hand, J. E. 657, 748; Hanselman, E. H. 232, 738; Harris, W. D. 1589; Hatch, C. A. 20, 1310; Heckson, John 748; Heidorn, Henry 949; Hershisser, Orel L. 575, 1312, 1367; Hesse, A. J. 516; Hickox, W. 660; Hill, W. A. 234; Hine, W. L. 301; Hobbie, P. R. 831; Hochstein, C. F. 93, 234; Hofmann, E. L. 1509; Holden, B. J. 831; Holtermann, R. F. 146, 288, 365, 503, 804, 938, 1125, 1427; Hopkins, I. 218, 1187; Horst, Will A. 1013; Howard, C. H. 1013; Howe, J. L. 299; Howell, E. D. 368, 517, 671; Hoyt, L. H. 95; Hull, W. W. 230; Hunt, E. M. 514; Hunt, Wm. C. 513; Hurst, David S. 1013.

Ingersoll, G. W. 1189.
Jackson, Mrs. Fred O. 1188; Jones, N. M. 230; Johnson, C. J. 86; Johnson, E. J. 442; Johnson, W. 300; Jones, F. H. 745; Jones, Wm. M. 827, 889.
Kanagy, A. H. 441; Keller, G. W. 1378; Keyes, D. R. 1130; Kilgore, S. G. 1131; Koehler, Louis C. 298; Koontz, A. 1443.

LaBerge, D. 1589; Lamb, Mrs. Jos. 98; Latham,

Allen 430, 655, 1361, 1638, 1499; Lathrop, Harry 225, 742; Lawmaster, L. A. 218; Leach, D. C. 1176; Lewis, H. H. 659; Lichtwer, Rudolph 519, 825; Lindgren, Eloy 1071; Lockhart, F. A. 29, 506; Long, Irving 519, 1188; Loomis, Chas. B. 1192; Lossing, William 1257, 1428; Lupton, Mrs. A. S. 1588; Lyon, D. Everett, 92, 509, 814.

Maag, Wm. 747; Macdonald, D. M. 33; Macklin, Chas. G. 1441; Mansperger, H. 671; Massie, T. K. 654; Matty, E. 36; McCann, F. 1255; McColley, R. L. 1190; McCorkle, J. R. 439; McCready, W. F. 143; McEvoy, Wm. 288; McGlade, Frank 1175, 1506; McGregor, Alpine 999; McKnight, W. S. 879; McLaughlin, E. J. 513; McNay, Frank 34, 888, 1257; Melville, R. J. 1012; Miller, Dr. C. S. 577, 883, 939, 1236; Miller, Norton C. 519, 828; Miller S. E. 1578; Mills, Albert I. 827; Mitchell, S. H. 1435; Moeller, Chas. 98; Mohler, G. H. 1191; Mooney, J. R. 1444; Moose, Monroe 825; Morgan, Frank Q. 1499; Morgan, W. F. 99, 367; Morris, D. L. 1443; Morris, K. B. 442; Morrison, S. W. 1256; Morrison, W. K. 84, 361, 1501, 1504, 1508, 1512, 1576; Mottaz, A. 34; Moyer, H. M. 1186.

Neilson, D. 1512.

Oberlitter, A. J. 1446; Olmstead, C. A. 1375; Oosterberg, A. W. 745; Ormsby, J. W. 23; Orton, Percy 507.

Palfornon, Rev. W. L. 1130; Parish, W. M. 594; Pashley, Leon 1588; Pearce, I. D. 36; Pearce, Q. A. 581; Pearson, W. H. 83; Peirce, E. W. 300, 1118; Penn, Enoch 359; Phillips, J. A. 299; Phillips, E. F. 99, 232; Piper, H. 888; Porter, E. F. 439; Porter, Wm. 1072; Posey, L. 1256; Powell, I. L. 831; Powers, F. A. 1120; Pratt, E. L. 1428; Pratt, W. H. 831; Priest, W. H. 518; Prisk, Wm. E. 29; Prothero, F. W. 1129; Pryal, W. A. 435; Pulley, James M. 83.

Quail, T. J. 1512; Quirin, H. G. 745, 1378.

Ramer, P. B. 368; Reddett, Henry 886, 1072; Reiman, Frank 1178; Rich, Geo. W. 1008; Richard, J. 230; Richards, J. E. 97; Richardson, F. B. 1119; Ridley, J. 651; Roach, Mrs. J. M. 232; Roberson, Albert 231; Roberts, W. G. 230; Rohrig, Wm. 655; Rouse, J. W. 1427; Roys, F. E. 231.

Sager, C. W. 748; Savage, Daniel F. 1358; Sayer, Aiken 1510; Schneider, H. C. 1432; Schwer, Matt. S. 232; Secor, Eugene 364, 1299, 1359; Selser, W. A. 799, 815, 1306; Senff, Wm. 234; Simmins, Samuel, 807; Shaw, J. W. K. & Co. 1512; Sherburn, Roland F. 81; Sherwood, E. E. 298; Shiber, Geo. 729; Shockey, Ira 1256; Sibille, L. 1190; Simmins, S. 22, 86, 650; Simmins, Richard 593, 1189; Smith, Harvey 1586; Smith, Jay 1192; Smith, J. DeWitt 831; Snodgrass, R. L. 602; Snyder, Penn G. 1071; Stachelhausen, L. 1009; Stanley, Grant 36, 220, 233, 1374; Steffy, Seward 889; Stewart, Henry 228, 441, 1190; Still, C. A. Jr. 33; Stone, Art 1377; Stowe, F. P. 889; Stratton, H. B. 215; Strock, Wilson 1588; Sturm, G. J. 1512; Suksdorf, Adolph 1185; Swain, R. M. 235; Surface, H. A. 232, 594, 734, 1378.

Taft, J. W. 442; Terril, H. B. 1129; Thomas, F. C. 96; Thompson, J. N. 234; Titoff, A. E. 1586; Todd, C. L. 828; Townsend, E. D. 579, 936, 1363, 1425; Trachsel, C. & E. 234; Trachsel, E. 234, 829; Transient, 661.

Utter, J. W. 1377.

Wahl, L. F. 355, 433, 1184; Waite, E. E. 1298; Warner, Chas. 441; Washburn, D. E. 1511; Weber, C. H. W. 99; West, J. D. 36; West, N. D. 1056, 1181, 1249; Wheeler, H. S. 827; White, A. E. 504; White, Anson S. 1434; White, F. P. 231, 594; Whitney, Wm. M. 230, 812, 1191, 1446; Wickson, E. J. 1446; Wilder, J. J. 35; Williams, Edgar 31; Williams, Sussan E. 1254; Williams, Geo. W. 439; Williamson, J. D. 1191; Wilmer, L. H. 1187; Wilson, C. T. 745; Wilson, D. H. 1578; Wilson, L. L. W. 1577; Wilson, Henry 1255; Wilson, J. K. 888; Wood, B. W. 234; Wood, Delos 432; Wood, Mary 97; Wood, R. G. 96; Woodbury, G. B. 1248; Woodward, C. E. 24, 594; Worrel, S. W. 97; Wray, Ed. 744.

Yates, A. W. 826.
Ziemer, A. A. 513.

Books for Bee-keepers and Others.

Any of these books on which postage is not given will be forwarded by mail postpaid, on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the book-seller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. We very much desire that those who favor us with their patronage shall not be disappointed, and therefore we are going to try to prevent it by mentioning all the faults, so far as we can, that the purchaser may know what he is getting. In the following list, books that we approve we have marked with a *; those we especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice that you can judge of the size of the books very well by the amount required for postage on each.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

Postage.]	[Price without postage.
8 Bible, good print, neatly bound	20
10 Bunyan's Pilgrim's Progress**	40
6 Christian's Secret of a Happy Life,** cloth ..	25
1 Gospel Hymns, consolidated, Nos. 1, 2, 3, and 4, words only; cloth, 10c; paper.....	5
2 Same, board covers	20
3 New Testament in pretty flexible covers.....	05
<i>One-third off on all Gospel Hymns mentioned above.</i>	
5 New Testament, new version, paper covers.....	10
15 Story of the Bible**	1 00
Years ago, when Huber was a little boy, he got hold of this book and read it clear through, asking his mother questions without number all along through the book. When he got to the end he turned over to the fore part and commenced to read it through again. We laughed at him somewhat, but let him go on. But when he started the <i>third</i> time I remonstrated. Now, this illustrates what sort of a book this is. We sold hundreds of them; but finally, when the book got to be old, it was taken out of our book list. I do not know just why; but nevertheless orders have kept coming for that wonderful book by Charles Foster—the Story of the Bible. Almost any child will read it if he gets a chance; and who can tell the effect it may have in fixing his young mind upon things that are good and pure and true? By buying them in considerable quantities we are enabled to furnish such a large book (notice the postage is 15 cts.) for only \$1.00.	
4 Stepping Heavenward**.....	18

BOOKS ESPECIALLY FOR BEE-KEEPERS.

20	A B C of Bee Culture, cloth.....	1 00
	Bienen-Kultur, by Thos. G. Newman.....	25
	This is a German translation of the principal portion of the book called "Bees and Honey." 100 pages.	
	Bienenzucht und Honiggewinnung.....	25
	Or "Bee Culture and the Securing of Honey," a German bee-book by J. F. Eggers, of Grand Island, Neb. Postage free.	
15	Cook's Manual, cloth.....	1 00
5	Doolittle on Queen-rearing	95
	Dzierzon Theory.....	10
15	Langstroth Revised, by Chas. Dadant & Son.....	1 10
10	Quinby's New Bee-keeping.....	90
5	British Bee-keeper's Guide-book, by Thomas William Cowan, England &.....	95
5	The Honey-bee, by Thos. William Cowan.....	95
3	Merrybanks and His Neighbor, by A. I. Root....	15
10	The Honey-makers, by Miss Margaret W. Morley.....	1 40

This is a story of the life of the bee, told in very interesting style—how it lives, gathers honey, and all about it. While clothing the general subject with an air of poetry, it seems to be entirely within the limits of known facts while attempting to deal with them. We believe it will give all thoughtful bee-keepers a greater liking for their business to read it. Probably it has more to do with the curious traditions connected with bees than any other book of the kind.

10 The Life of the Bee	1 30
Thos. Wm. Cowan editor of the British Bee Journal, in his review of Maeterlinck's work, says: "Not since the appearance, in 1876, of Bucher's 'Mind in Animals' have we had a book about bees more charming, or one that we have read with greater pleasure, than Maeterlinck's 'Life of the Bee.'"	

Beetkeeping in Jamaica. By F. A. Hooper, Kingston, Jamaica. Paper covers.....	25
5 Forty Years Among the Bees. By Dr. C. C. Miller, Marengo, Ill.....	95
15 Modern Bee-farm. By S. Simmins. New edition; cloth bound.....	1 85

MISCELLANEOUS HAND-BOOKS.

5	A B C of Carp Culture, by Geo. Finley	25
5	A B C of Strawberry Culture,** by T. B. Terry.. New edition, revised and enlarged; paper, 45c; cloth, 68c; by mail, 75c.	
5	A B C of Potato Culture, Terry** New edition, revised & enlarged; paper, 45c; cloth, 68c, mail 75c. This is T. B. Terry's first and most masterly work.	
8	Barn Plans and Out-buildings*.....	90
	Canary Birds, paper.....	50
2	Celery for Profit, by T. Greiner**	25
	The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.	
15	Draining for Profit and Health, Warring.....	85
8	Domestic Economy, by I. H. Mayer, M. D.** ...	30
	This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is \$1.00, but by taking a large lot of them we are enabled to make the price only 30 cents.	
10	Fruit Harvesting, Storing, Marketing, etc.....	75
	It has been well said that it is an easier matter to grow stuff than to sell it at a proper price after it is grown; and many men fail, not because they are inexperienced in getting a crop, but because they do not know how to sell their crops to the best advantage. This is the first book of the kind we have had as an aid in selling. It not only tells all about picking, sorting, and packing, but gives all the best methods for storing for one or two days or a longer time. It also tells about evaporating and canning when there is a glut in the market. It discusses fruit packages and commission dealers, and even takes in cold storage. It is a new book of 250 pages, full of illustrations. Publisher's price, \$1.00.	
	Farming with Green Manures, postpaid**..... 90 This book was written several years ago; but since competent labor has got to be so expensive, and hard to get, many farmers are beginning to find they can turn under various green crops cheaper than to buy stable manure, and haul and spread it—cheaper, in fact, than they can buy fertilizers. This book mentions almost all plants used for plowing under, and gives the value compared with stable manure. Some of the claims seem extravagant, but we are at present getting good crops, and keeping up the fertility, by a similar treatment, on our ten-acre farm.	
7	Farm, Gardening, and Seed-growing**	90
10	Fuller's Grape Culturist**.....	1 15
5	Garden and Farm Topics, Henderson**.....	60
12	Gardening for Pleasure, Henderson*.....	1 10
	While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part, and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds, without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 246 pages and 134 illustrations. (Retail price \$2.00.)	
12	Gardening for Profit**.....	1 10
	This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts (Retail price \$2.00.)	

8 | Gardening for Young and Old, Harris**..... 90
This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3 | Grasses and Clovers, with Notes on Forage Plants..... 20
This is by Henry A. Dreer, author of the book "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10 | Greenhouse Construction, by Prof. Taft**..... 1 15
This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

12 | Greenhouse Management, by Prof. Taft**..... 1 15
This book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruits and flowers. The publisher's price is \$1.50; but as we bought quite a lot of them we can make a special price as above.

5 | Gregory on Cabbages, paper* 20
5 | Gregory on Squashes, paper*..... 20

5 | Gregory on Onions, paper*..... 20
The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

5 | Handbook for Lumbermen..... 05
5 | Home Pork-making; 125 pages, illustrated..... 40

I think it will pay well for everybody who keeps a pig to have this book. It tells all about the care of the pig, with lots of pictures describing cheapens, appliances, all about butchering, the latest and most approved short cuts; all about making the pickle, barreling the meat, fixing a smoke-house (from the cheapest barrel up to the most approved arrangement); all about pig-troughs; how to keep them clean with little labor; recipes for cooking pork in every imaginable way, etc. Publisher's price is 50 cents, ours as above.

15 | How to Make the Garden Pay**..... 1 35
By T. Greiner. Those who are interested in hot-beds, cold-frames, cold greenhouses, hothouses, or glass structures of any kind for the growth of plants, can not afford to be without the book. Publisher's price \$2.00.

5 | How We Made the Old Farm Pay—A Fruit-book, Green..... 10
Interest that characterize its author, T. Greiner.

10 | Irrigation for the Farm, Garden, and Orchard* 85
By Stewart. This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills to take the place of rain, during our great drouths, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

3 | Maple Sugar and the Sugar-bush**..... 25

5 | Manures; How to Make and How to Use Them; in paper covers..... 30

6 | The same in cloth covers..... 65
Nut Culturist, postpaid..... 1 25

3 | Onions for Profit**..... 40
Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

10 | Our Farming, by T. B. Terry**..... 75
Same, paper cover..... 50

In which he tells "how we have made a run-down farm bring both profit and pleasure."
If ordered by express or freight with other goods, 10c less.

8 | Practical Floriculture, Henderson*..... 1 10

10 | Profits in Poultry* 1 00

10 | Small-Fruit Culturist, Fuller 75

2 | Sorghum, Stock Beets, Strawberries, and Cement Floors. By Waldo F. Brown..... 08

This little book ought to be worth its cost for what is said on each of the four different subjects; and the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or any thing else. In fact, if you follow the exceedingly plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.

2 | Sweet Potatoes; Forty Years' Experience with. By Waldo F. Brown **..... 08

This little book, by a veteran teacher at our farmers' institutes, ought to be worth many times the price to everybody who grows even a few sweet potatoes in the garden. It also gives full particulars in regard to handling and keeping this potato, which is difficult to keep unless you know just how.

10 | Talks on Manures* 1 35

By Joseph Harris. Written conversational style, which makes it very interesting reading. It covers the subject very completely; contains numerous analyses of manures and comparative tables. The use of technical language is avoided, which makes the book of greatest value to the practical farmer. A book of 366 pages, nicely bound in cloth.

5 | The New Rhubarb Culture**..... 40

Whenever apples are worth a dollar a bushel or more, winter-grown rhubarb should pay big. It does not require an expensive house nor costly appliances. Any sort of cellar where it will not freeze is all right for it; and the small amount of heat necessary to force the rhubarb costs very little. The book is nicely bound in cloth, full of illustrations, mostly photos from real work, 130 pages. Every market-gardener should have this book, for the lessons taught indirectly, in regard to forcing other crops besides rhubarb. Publisher's price 50c.

2 | Treatise on the Horse and his Diseases..... 5

5 | Tile Drainage, by W. I. Chamberlain..... 35

Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge.

5 | Tomato Culture 35

In three parts. Part first.—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second.—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third.—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general.

3 | Vegetables under Glass, by H. A. Dreer**..... 20

3 | Vegetables in the Open Air* 20

This is a sort of companion book to the one above. Both books are most fully illustrated, and are exceedingly valuable, especially at the very low price at which they are sold. The author, H. A. Dreer, has a greenhouse of his own that covers one solid acre, and he is pretty well conversant with all the arrangements and plans for protecting stuff from the weather, and afterward handling to the best advantage when the weather will permit out of doors.

3 | Winter Care of Horses and Cattle..... 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects for the Microscope**..... 47

8 | What to Do, and How to be Happy while Doing It 65

The above book, by A. I. Root, is a compilation of papers published in *Gleanings in Bee Culture*, in 1886, '7, and '8. It is intended to solve the problem of finding occupation for those scattered over our land out of employment. The suggestions are principally about finding employment about your own homes. The book is mainly upon market-gardening, fruit-culture, poultry-raising, etc. Illustrated, 188 pages, cloth.

8 | Same, paper covers..... 40

THE A. I. ROOT CO., Medina, Ohio.

Gleanings in Bee Culture PREMIUM OFFERS

CONDITIONS

The following offers are self-explanatory in most cases. The purpose of these is to induce both present and prospective subscribers to interest others in GLEANINGS IN BEE CULTURE. A few general rules may be of service in using these offers.

1. Trial subscriptions are offered only for the uniform time of six months, and must be in each case a new name—that is, the name of some one who has not been a subscriber to GLEANINGS during the preceding year.

2. Any one may send in subscription orders, claiming any of the following premiums, whether a subscriber or not. If he desires to send his own subscription, with a club of two or more subscriptions besides his own, it will count the same as the name of any other subscriber he may send.

3. Please note that our premiums are divided into three classes, as follows: For six months' trial (new) subscriptions; for yearly subscriptions (new); for yearly subscriptions (renewal).

4. Premiums should be claimed when the orders are sent, if convenient. They may be claimed later on if mention is made, when sending the subscription, that it will be claimed later.

5. These premium offers supersede all former offers, which are canceled at this date.

For New Six Months' Trial Subscriptions.

ANY one of the following premiums may be selected for each trial subscription sent us with 25 cts. As many premiums may be claimed as you send subscriptions. If a subscription to one of the papers is selected, it will apply to either new or renewal subscriptions to that paper.

Premium A. For one trial subscriber we will advance your own subscription three months.

Premium B. One year's subscription to Farm News with Prof. Holden's Corn Book, postpaid.

Premium C. One year's subscription to Greene's Fruit Grower.

Premium D. One year's subscription to Poultry Success.

Premium E. Two years' subscription to the Apple Specialist.

Premium F. Two years' subscription to the Farm Journal, Philadelphia.

Premium G. Any one of the Swarthmore books or Modern Queen-rearing, by Phillips, postpaid.

Premium H. One copy Reliable Poultry Remedies, 84 pages 6 in. x 9 in., publisher's price 25c.

Premium K. One copy Winter Care of Horses and Cattle, by T. B. Terry.

Premium L. One Perfect pamphlet preserver for GLEANINGS. Postage, 7 cts. extra.

For New Yearly Subscriptions.

ANY one of the following premiums may be selected for each new yearly subscription sent us with \$1. As many premiums may be claimed as you send subscriptions. If a subscription to one of the papers is selected, it will apply to either new or renewal subscriptions to that paper.

Premium 1. For one new yearly subscription we will send GLEANINGS one year to your own address; or one Style D GLEANINGS binder, postage 15 cts. extra.

Premium 2. One year's subscription to the Strawberry; publisher's price, \$1.00.

Premium 3. One year's subscription to Photographic Times; publisher's price, \$1.00.

Premium 4. One A B C of Bee Culture, cloth bound, postage 20 cts. extra.

Premium 5. One How to Keep Bees, cloth bound, by Anna B. Comstock, postage 10 cts. extra.

Premium 6. One Doolittle's Queen-rearing, cloth bound, postage 10 cts.

Premium 7. One Langstroth on the Honey-bee, revised, postage 15 cts.

Premium 8. One Forty Years Among the Bees, by Dr. C. C. Miller, postage 10 cts.

Premium 9. One Standard Root Smoker, postage 25 cts.

Premium 10. One F. F. Fountain Pen No. 2, postpaid.

Premium 11. One untested Italian queen, Root strain, golden or leather color, sent at our convenience in May, June, or July.

Premium 12. Four Swarthmore books, postpaid.

For Renewal Yearly Subscriptions.

ANY one of the following premiums may be selected for each renewal yearly subscription sent us with \$1. As many premiums may be claimed as you send subscriptions. If a subscription to one of the papers is selected, it will apply to either new or renewal subscriptions to that paper.

Premium N. One copy of any of the following books, the publisher's price of which is 50 cts.: Poultry House and Fixtures; Artificial Incubating and Brooding; The Chick Book; Eggs and Egg Farming; Plymouth Rocks, Leghorns, Asiatics; Ducks and Geese, Turkeys, Bantam Fowls.

Premium O. Either of the following books, described in our book catalog: The A B C of Strawberry Culture, The ABC of Potato Culture.

Premium P. One untested Italian queen, either golden or leather colored, in June or July when we have a surplus.

Premium R. For a renewal yearly subscription we will advance your own subscription six months; or send you a Style C GLEANINGS binder, postage 10 cts. extra.

Premium S. One Junior Root Smoker; postage 20 cts. extra.

Premium T. One pair cloth bee-gloves, with or without fingers, postage 7 cts.

Premium U. One Porter honey-house escape, postpaid.

Premium V. One year's subscription to the American Poultry Journal.

Premium W. For three renewal or two new yearly subscriptions to GLEANINGS at \$1.00, we will send, postpaid, one No. 602 bee-keepers' pocket tool-kit. See page 972, July 15th GLEANINGS.

Send all subscriptions to

The A. I. ROOT COMPANY MEDINA, OHIO



GLEANINGS IN BEE CULTURE

THE A. I. ROOT CO.
MEDINA, OHIO, U. S. A.

Western Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusively, at Root's Factory Prices.

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

Six Per Cent Discount For Cash Orders Received in January

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CINCINNATI.—The nice weather holds back the demand for comb honey. Crops seem to be exceedingly short, and producers in the West keep the prices high. We quote as follows: Fancy water-white and No. 1 white clover, 14 to 16; No. 2, 12 to 14. Extracted seems to be more plentiful, and we quote same in barrels, light amber, 5½ to 5½; in cans, ½ ct. more; white clover, 7 to 8. Beeswax, 28 to 30. C. H. W. WEBER, Dec. 18. 2146-8 Central Ave., Cincinnati, O.

SCHENECTADY.—The market is well cleaned up on all grades, and white clover is really becoming scarce; but the demand is gradually diminishing also, which prevents prices advancing to any extent. We quote fancy white clover, 15; No. 1, 14 to 16; No. 2, 12 to 13; buckwheat, 11 to 12; extracted, light, 6½ to 7½; dark, 5½ to 6. CHAS. MCCULLOCH, Dec. 20. Schenectady, N. Y.

BUFFALO.—White comb honey is in very good demand now. Prices do not advance, but stock is getting quite low in the market. Buckwheat sells when offered very low. Mixed is hard to sell. Extracted sells slowly. White comb honey, No. 1 and fancy, 13 to 14; No. 2 and fancy, 11 to 12; No. 3, 10 to 11; buckwheat, 9 to 11; extracted white, 6½ to 7; extracted, dark, 5 to 5½. Beeswax, 28 to 30. Dec. 12. W. C. FOWNSEND, Buffalo, N. Y.

ATLANTA.—Comb honey is very scarce with us at this writing, and we are selling what little we get as follows: Fancy, 12½ to 14; A No. 1, 12 to 12½. Beeswax, 27½ to 30. JUDSON HEARD, Dec. 18. Atlanta, Ga.

KANSAS CITY.—The honey trade is a little dull here on account of the holidays, 24-section fancy white selling as low as \$3.00; market about \$3.15; amber, \$2.75 to \$3.00. Beeswax, 25. We look for the market to pick up after the holidays. C. C. CLEMONS & Co., Dec. 19. Kansas City, Mo.

ST. LOUIS.—Since our last, of Dec. 7, our honey market is unchanged in prices, but the demand for extracted honey is not as brisk as it has been, and some of the lower grades are accumulating, especially in barrels. We quote: Fancy white comb honey, 15 to 16; No. 1, 13 to 14; amber, 12 to 13. Extracted California, light amber, 6 to 6½; white at 7; Southern in barrels, 4½ to 5½; in cans, 5½ to 6. Beeswax, 28.

R. HARTMANN & Co.,
Dec. 18. 14 So. Second St., St. Louis, Mo.

TOLEDO.—The market on comb honey is not as strong as last quotations. Prices have weakened somewhat, on account of the holiday rush. We quote fancy white at 14½ to 15; No. 1, 13½ to 14. The demand for extracted honey remains firm, and prices are good. White clover in barrels brings, in a retail way, 7 to 7½; cans, 7½ to 8½. amber in barrels, 5 to 5½; cans the same. Beeswax, 26 to 28. GRIGGS BROTHERS, Dec. 18. Toledo, Ohio.

TORONTO.—Honey market is looking up a little, but prices remain the same. Firms who purchase large lots claim they can get all they require at the old prices yet, although the demand is a little brisker. Dec. 15. E. GRAINGER & Co., Toronto, Can.

CHICAGO.—The market continues to rule steady, there being a fair demand for the best grades of comb honey, other kinds selling slowly with prices unchanged from our last quotations.

R. A. BURNETT & Co.,
Dec. 18. 199 South Water St., Chicago, Ill.

FOR SALE.—500 cases of light amber extracted honey, at 5c, f. o. b. Selma, Cal. Gathered mostly from alfalfa. O. L. ABBOTT, Cor. Secretary Cal. Bee-keepers' Association.

FOR SALE.—Three barrels of buckwheat extracted honey: new barrels; weight, 390 lbs. net each, at 6c on car. Sample free. E. D. TOWNSEND, Remus, Mich.

FOR SALE.—Clover or buckwheat extracted honey. Write for price, and quantity desired. Sample, 10 cts. Comb honey all sold. C. B. HOWARD, Romulus, N. Y.

FOR SALE.—Buckwheat honey, in 60-lb. cans, at 6 cts. C. J. BALDRIDGE, Homestead Farm, Kendaia, Seneca Co., N. Y.

FOR SALE.—Extracted honey—fancy white, 6½ cts.; fancy amber, 6 cts.; ¼ cent less in five-case lots or more. C. C. CLEMONS & Co., Kansas City, Mo.

WANTED.—Comb and extracted honey. State quality, quantity, and price. JUDSON HEARD & Co., Atlanta, Ga.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage. O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

THE FRED. W. MUTH CO.,

51 WALNUT ST.,

CINCINNATI, OHIO.

FOR SALE.—Finest quality of white sage and orange bloom honey, 6 cts. Wild alfalfa and buckwheat, 4½ cts. Discount on large lots; all in new cans.

FRANK McNAY, Redlands, Cal.

FOR SALE.—2000 lbs. buckwheat comb, capped nearly as white as clover, 12c per lb.; extracted, 7 to 8½c, according to quantity and quality wanted. Sample for dime.

QUIRIN-THE-QUEEN BREEDER, Bellevue, O.

FOR SALE.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.

HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.

R. A. BURNETT,
199 South Water St., Chicago, Ills.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.

GRIGGS BROS., Toledo, Ohio.

WANTED.—Clover and basswood extracted honey; also No. 1 amber honey. Send sample, and state quantity and price, delivered at Preston.

M. V. FACEY, Preston, Fillmore Co., Minn.

WANTED.—Comb honey at improved prices. Write us what you have to offer.

H. R. WRIGHT, Albany, N. Y.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.

EVANS & TURNER, Columbus, Ohio.

WANTED.—I will pay spot cash for one to ten tons of water-white or amber extracted honey at railroad station.

C. W. DAYTON, Florence, Cal.

Chas. Israel & Brothers

486-490 Canal St., New York.

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc

Consignments Solicited. Established 1875.

All the year round.

We are prepared to supply queens any month in the year. We have secured the services of one of the best breeders, and use select imported stock. Prices as follows:

Untested Italians	66
Tested	\$1 00
Select tested	1 50
Extra select	2 50

We do not guarantee impossibilities, such as sending queens to cold climates in winter, but for any reasonable distance and time we guarantee safe arrival. Write for further particulars.

A. COMES CASSERES,
15 Orange St., Kingston, Jamaica.



Red Clover Queens for 1906.

Let us book your order this winter. Untested, 75c; tested, \$1.00. Let us make and quote you special prices on your 1906 supplies. New factory. New goods. Order now.

G. Routzahn, Biglerville, Pa.

PURE ITALIAN QUEENS.—From red-clover and five-banded breeders. Untested, 75c; select untested, \$1.00; tested queens, \$1.50; select tested, \$2.50. Safe arrival guaranteed.

H. M. PARKER, JR., James Island, S. C.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

A GOLD MEDAL

at the World's Fair

St. Louis, 1904.



**CLEANEST,
COOLEST,
STRONGEST,
UP-TO-DATE.**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order.

It has no snout to clog with soot.

It gives a light or dense volume of cool smoke, at operator's option, 3 to 5 hours at one filling.

Guarantee: Simplicity, quality, efficiency, durability.

The General Manager of the National Bee-keepers' Association wrote me:

Platteville, Wis., Oct. 23, 1904.

I have given your Twentieth Century Smoker a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

Yours truly,

N. E. France.

Prices: By mail, one, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

F. DANZENBAKER, - MEDINA, OHIO.

GOLDEN Opportunities!

EXIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Send free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

J. W. WHITE

Gen. Indus. Agt., Portsmouth, Va.

Seaboard Air Line Railway

100 SPECIAL PRIZES

Besides our regular premiums of Post Cards, Books, Eggs for Hatching, Cash Commissions, etc., for getting subscribers. Write at once for sample copy, blanks, etc. Also souvenir bee post cards. . .

Poultry Item : : Fricks, Pa.

Gleanings in Bee Culture.

Devoted to Bees, Honey, and Home Interests.

Circulation 25,000. Reaches every State and sixty foreign countries.

Established in 1873. 52 pages, semi-monthly.

Published by The A. I. Root Company, Medina, Ohio, U. S. A.

A. I. ROOT, Editor Home and Garden Department.

E. R. ROOT, Editor Apicultural Department.

J. T. CALVERT, - Business Manager.

A. L. BOYDEN, - Advertising Manager.

TERMS---\$1.00 per annum; two years, \$1.50; three years, \$2.00; five years, \$3.00, In Advance.

Postage is Prepaid by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU. 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS. 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO. 24 Castle St. *Per year, postpaid, 6/.*

Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publishers.

Find enclosed for which please send me Gleanings in Bee Culture months, and as per offer
Please continue sending Gleanings until otherwise ordered.

NAME

POSTOFFICE

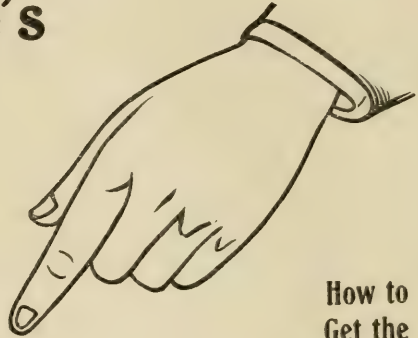
COUNTY

STATE

DATE

If you want Gleanings discontinued at expiration, check here ()

Take McClure's Magazine All Winter Free as a Test.



How to
Get the
Magazine

I'll send it free for three months.

At the end of that time, if you like it—if you have decided that McClure's Magazine is wholesome, educational, interesting reading for yourself and every member of your family—if you have come to feel that you just can't afford to be without it, send me one dollar, only, for a full year's subscription.

If you do not like McClure's—do not want to have it continued—just say so—drop me a line saying not to send it, and telling why you do not like. There will be nothing to pay, and the three copies you will have received on trial—they will be absolutely free. If I did not feel pretty sure you would like McClure's, could I afford to make an offer like this?

And if you should find that you do like it, wouldn't you regret every day you had delayed asking to be put on the list? . . . Better ask to-day.

Up-to-date Farming says: "We admire McClure's, and read it. It is about the only magazine in which every thing is good, and appeals to me. It is one, too, that will satisfy the farmer and his whole family."

It can't all be told here—fill in the coupon and see for yourself; you take no risk. Send in the coupon, TO-DAY.

Do You Want Your Boy to be a Lincoln?

You know it by heart—the story of Lincoln's greatness—the country-boy, self-educated. . . . But Lincoln did not educate himself on cheap, trashy novels, and the sensational story papers with which the country is flooded.

The country lads and lasses who emerge into the world to become famous are they who have been silently reaching out for the things of the great real world.

McCLURE'S MAGAZINE is read in the very best homes by nearly 2,000,000 readers.

Why not have it read in your home, for the entertainment and uplifting of every member of your family?

Famous authors, poets, statesmen write for McClure's. President Roosevelt, ex President Cleveland, Gladstone, Mark Twain, Rudyard Kipling, General Miles, Walt Whitman, Bret Harte, Huxley, and Robert Louis Stevenson are only a few who have written for McClure's. This next year there will be stories and articles

by Jack London, William Allen White, Myra Kelly, Booth Tarkington, and others. McClure's is the greatest feast of good things literary ever offered. Now, are you going to enjoy it?

COUPON

EDITOR McCLURE'S MAGAZINE.

New York City.

I accept your offer to test your magazine. Enter my subscription for one full year.

After receiving three months' sample copies, I will pay one of two things,—either send you \$1.00 for the full year's subscription, or write you to stop the magazine, when you are to cancel this subscription and the sample copies are to be free to me as a test.

Name _____

O. Address _____

Rate _____

39

S. S. McCLURE

Editor

McClure's Magazine

New York City

CONTENTS OF THIS NUMBER.

MARKET QUOTATIONS.....	4
STRAY STRAWS.....	13
EDITORIAL.....	14
Entomology, Value of.....	14
Honey-flow and Warm Nights.....	14
Literature, Mæterlinck's.....	14
Commission Houses, Fake.....	14
Index, Value of.....	15
Caucasians, Titoff on.....	15
Mating-box, Root.....	18
Honey, Slow Sale of.....	19
CONVERSATIONS WITH DOOLITTLE.....	19
GENERAL CORRESPONDENCE.....	20
Colonies, Number in Hatch's Yard.....	20
Honey to the Acre.....	21
Foul Brood Cured without Drugs.....	22
Black Brood, Alexander Plan Indorsed.....	22
Section-protector, Ormsby's.....	23
Comb and Extracted in Same Super.....	24
Workers, Laying.....	24
Grading.....	24
Frame, Hoffman, Woodward on.....	24
Honey-tank Heated by Steam.....	25
Honey Warmed in Large Tank.....	26
Honey-strainer, Alexander's.....	26
Tanks, Evaporating.....	26
Pails, Alexander's.....	26

Apiary, Alexander's.....	28
Queen-breeder, Youngest.....	29
Exhibits at Fairs.....	29, 30
Advertising at Fairs.....	31
HEADS OF GRAIN.....	31
Italians Discussed.....	31
Clover, Sweet, in Alabama.....	32
Tanging Swarms.....	32
Exhibition, Bee, Suggested.....	33
Hive-stand, Cement.....	33
Yield, Remarkable.....	33
Tool, Hoffman Frame.....	34
Propolis, Preventing.....	34
Hives, Large.....	34
Bees, Destroying, in Minnesota.....	34
Storm-door at Entrance.....	35
Swarming with Virgin Queen.....	35
Gallberry.....	35
Bees Wintered without Loss.....	35
Enemy of Bees, a New.....	36
Tar Paper over Hives.....	36
Colonies, Wintering Tiered-up.....	36
Wintering in Smoke-house.....	36
Colonies Wintered in Chaff Hives.....	36
OUR HOMES.....	37
CONVENTION NOTICES.....	53
SPECIAL NOTICES.....	53

INDEX TO ADVERTISEMENTS.

Banking by Mail.	
Savings Dep. Bank Co.....	40
Bee Smokers.	
T. F. Bingham.....	40
F. Danzenbaker.....	5
Arthur Rattray.....	52
Bee Supplies.	
J. H. M. Cook.....	52
D. Cooley.....	53
W. T. Falconer Mfg. Co. Back Cover	
Geo. E. Hilton.....	41
M. H. Hunt & Son.....	49
Kretschmer Mfg. Co.....	41
G. B. Lewis Co.....	12
Marshfield Mfg. Co.....	41
Walter S. Powder.....	51
Page & Lyon.....	50
W. H. Putnam.....	52
Arthur Rattray.....	52
A. H. Reeves.....	53
The Root Co., Syracuse, N. Y.....	49
C. M. Scott & Co.....	52
St. Croix Valley H. Ass'n.....	52
I. J. Stringham.....	52
C. H. W. Weber.....	3
A. G. Woodman Co.....	9
York Honey & Bee Supply Co.....	50

Bees and Queens.	
A. Gomes Casseres.....	5
D. E. Lyon, Ph. D.....	41
H. M. Parker, Jr.....	5
J. R. Rambo.....	40
G. Routzahn.....	5
C. H. W. Weber.....	3
Comb Foundation.	
Hildreth & Segelken.....	52
Dadant & Son..... Back Cover	
Gus Dittmer.....	50
Educational.	
Home Instructor.....	47

Fences.	
Brown Fence & Wire Co.....	54
Coiled Spring Fence Co.....	54
Kitselman Bros.....	54
Honey-buyers.	
See Page.....	5
Honey for Sale.	
Fred W. Muth Co.....	5
See Pages.....	4, 5
Household Supplies.	
J. B. Williams Co.....	43
Incubators.	
American Incubator Co.....	45
Banta-Bender Mfg. Co.....	46
Buckeye Incubator Co.....	46
Cycle Hatcher Co.....	46
Chas. A. Cyphers.....	45
Cyphers Incubator Co.....	46
M. M. Johnson Co.....	46
J. W. Miller Co.....	46
Racine Hatcher Co.....	46
Reliable Incubator Co.....	46
Geo. H. Stahl.....	46

Machinery.	
American Harrow Co.....	42
Baleman Mfg Co.....	42
Electric Wheel Co.....	48
Lyons Engine Co.....	10
Mauson Campbell Co.....	43
Medina Concrete Co.....	40
F. E. Myers & Son.....	54
Ohio Carriage Co.....	42, 43, 54
Seneca Falls Mfg. Co.....	54
Stromberg-Carlson Tel Mfg. Co.....	47
Magazine Combinations.	
Compendium Subscrip. Agency.....	11
Miscellaneous.	
Chas. H. Manley.....	54
Rochester Radiator Co.....	54
Seaboard Air Line R. R.....	5

Poultry Supplies.	
Berry Golden Rule Poultry Farm.....	45
Humphrey.....	47
F. W. Mann Co.....	47
R. F. Neupert.....	45
Stratton Mfg. Co.....	47
Publishers, Bee-Journal.	
W. Z. Hutchinson.....	9
The A. I. Root Co.....	6
Geo. W. York & Co.....	9
Publishers, Magazine.	
S. S. McClure.....	7
Publishers, Poultry-paper.	
The Howard Pub. Co.....	45
Inland Poultry Journal.....	45
Ohio Poultry Journal.....	45
The Poultry Gazette.....	45
Poultry Item.....	5
Publishers, Agricultural-paper.	
Farm and Stock.....	45
Farmers' Call.....	53
Fruit Grower Co.....	48, 54
Southern Fruit Grower.....	53
Successful Farming.....	53
Seeds and Trees.	
W. F. Allen.....	48
Darling & Beahan.....	42
L. J. Farmer.....	43, 48
Gage County Nurseries.....	43
Gardner Nursery Co.....	48
German Nurseries.....	48
Hillside Nursery.....	48
Jewel Nurseries.....	48
Louis Roesch.....	48
St. Louis Seed Co.....	48
Sheerin's Wholesale Nurseries.....	8
Storrs & Harrison Co.....	48
C. H. W. Weber.....	3
Wants and Exchanges.	
See Pages.....	44

TREES 400,000 apples budded on French apple roots, \$4.00 to \$10.00 per 100; 200,000 apples on Western apple roots, \$1.00 per 100 less. 20,000 Carolina poplar, 6 to 8 feet, 8 cts.; 8 to 10 feet, 10 cts.; 10 to 12 feet, 12 cts. 60,000 California privet, 18 to 24 inches, \$18.00 per 1000; 2 to 3 feet, \$25.00 per 1000; 3 to 4 feet, \$27.00 per 1000. Boxing free. Sheerin's trees are the life study of three generations. Not grown on contract by cheap nurseries. Our 120-page catalog will tell you all about it. Free to everybody.

Sheerin's Wholesale Nurseries, Dansville, New York.

Back to his First Love,

Bee-keeping, has gone the editor of the Bee-keepers' Review. For three years he was without bees, when the longing for them became irresistible, and, last year, he started in with 20 colonies, increasing them to 104, and, in the December Review, he tells how this was accomplished, how the bees are being wintered, gives a beautiful picture of his apiary, and then outlines his plans for starting a series of out-apiaries another season, in the raspberry region of northern Michigan.

He will be glad to have you read this article, and then, if you can offer any suggestions or criticisms, he will pay you for them.

This issue also has a two page description of the new book, Advanced Bee Culture, together with a clubbing offer in connection with the Review.

Send ten cents for this issue, and it may apply on any subscription sent in during the year.

W. Z. HUTCHINSON, Flint, Mich.

Dadant Methods of Honey-production

Beginning January 1, 1906, Mr. C. P. Dadant will begin in the WEEKLY AMERICAN BEE JOURNAL a series of articles describing in detail the very successful methods of the Dadants in the production of large crops of honey. To the one who wishes to make money in keeping bees, this Dadant series of articles will be worth—well, who can estimate their value?

CANADIAN BEEDOM

This is a new department in the WEEKLY AMERICAN BEE JOURNAL, conducted by Mr. Morley Pettit, a very successful bee-keeper in Canada, whose honey crop the past season was 40,000 pounds. He will have something worth while to say in his department, not only to Canadian bee-keepers, but to all others.

SOUTHERN BEEDOM

This is another new department to begin in the WEEKLY AMERICAN BEE JOURNAL January 1, 1906. It will be conducted by Mr. Louis H. Scholl, of the Texas State Agricultural College, in charge of the Experiment Station Apiaries, numbering some 250 colonies. It will be a great department for Southern bee-keepers.

The foregoing are only SAMPLES of the good things to be in each number of the old WEEKLY AMERICAN BEE JOURNAL for 1906. And the cost is only \$1.00 a year—less than two cents a copy. Every bee-keeper who wishes to succeed should have the AMERICAN BEE JOURNAL, no matter how many other bee-papers he may be taking. Sample copy free, or a three-months' trial trip for 20 cents. Address

George W. York & Co., 334 Dearborn St., Chicago, Ill.

Michigan Distributors

—FOR—

G. B. Lewis Co.'s Beeware,
Dadant's Foundation.

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service. Regular discounts allowed.

SPECIAL. A quantity of Dovetail and Wisconsin hives, slightly damaged by water, in packages of five at \$1.25 per hive for 1½ story 8 frame; 10 frame, \$1.40 per hive. Satisfaction guaranteed.

ADVANCED BEE-VEIL. Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

A. G. Woodman Co.,
Grand Rapids, Mich.

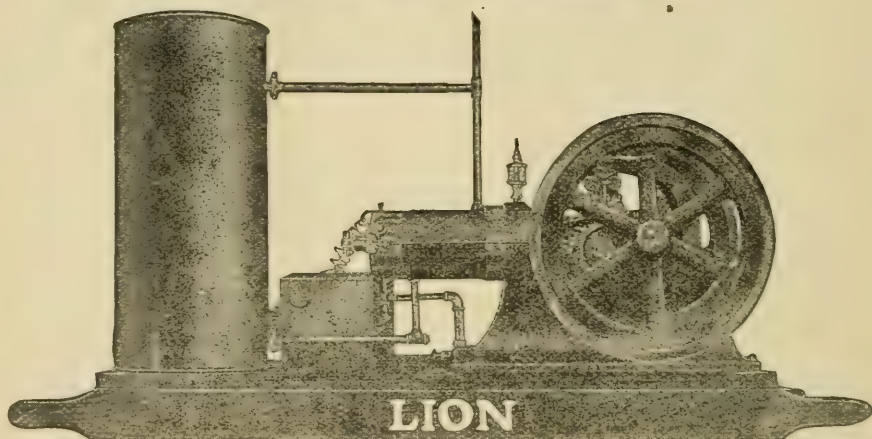


YES! WE ARE SELLING GAS AND GASOLINE ENGINES.

DIRECT FROM FACTORY TO USER.

The secret of our success in this field, hitherto unoccupied, is the extraordinary pains we take in teaching the purchasers of "Lion" engines how to operate them intelligently.

THIS ENGINE IS NO EXPERIMENT.



The "Lion" Gas and Gasoline Engines are simplicity simplified; they are used for all purposes where power is required, and will be found the most economical in operation.

WRITE US A LETTER LIKE THIS TODAY.

LYONS ENGINE COMPANY, Lyons, Mich.

Gentlemen: I am about to purchase a gas or gasoline engine for.....
 purposes, and wish you to send me full particulars about your approval offer as advertised in "Gleanings in Bee Culture."

Name..... Town..... Yours very truly,
 State..... Street No. or P. O. Box.....
 R. F. D.....

When writing, please state definitely for what purpose you wish to use this engine, and whether gas or gasoline for fuel. This information is very important to us.

Send for descriptive catalog and further information in regard to our special "installment plan" of purchase. If you are thinking of buying a gas or gasoline engine, it will be worth your while to see how cheaply we can sell you a high-grade engine.

LYON ENGINE COMPANY, Lyons, Michigan

PLEASE REMEMBER WE SEND THE ENGINE, NOT THE ENGINE AGENT.

MAGAZINE COMBINATIONS

Subscriptions may be sent to one or different addresses. We make a specialty of quoting prices on your own combinations. We will meet or beat the price of any agency or publisher. **FREE:** Send us any three clubs at advertised prices and we will give you any magazine of Class A free. Catalog Free. Agents wanted.

CLASS I

Agricultural Epitomist (three years)	50
American Farmer	50
Beauty and Health	50
Boys and Girls	50
Book-keepers' Bulletin	50
Cooking Club	50
Church Woman's Magazine	1 00
Farm News	50
Farmers' Institute Bulletin	10
Farm and Fireside	50
Farm and Home	50
Farm Magazine	50
Fruit Grower (until Jan. 1)	50
Green's Fruit Grower	50
Housekeeper	60
Home Magazine	35
Ladies' World	50
McCall's and pattern	50
Poultry Success	50
Western Review	50
World's Events	1 00
Woman's Work	1 00
The Woman's Journal	50

CLASS A

American Boy	1 00
American Thresherman (after Jan. 1)	1 00
American Inventor	1 00
American Education	1 00
American Nut Journal	1 00
American Industries	1 00
American Dressmaker	1 00
At Home (Kentuckian)	1 00
Cosmopolitan	1 00
* Commoner	1 00
Church Economist	1 00
Dixieland	1 00
Farm Journal (five years)	75
Farm, Field, and Fireside	1 00
Four Track News	1 00
Fruit Grower (after Jan. 1)	1 00
Gleanings in Bee Culture	1 00
* Good Housekeeping	1 00
Harper's Bazar	1 00
Kindergarten Review	1 00
Magazine of Mysteries	1 00
Madame	1 00
Merchants' Guide (new)	2 00
National Daily Review (the woman's daily)	1 00
Naturepath and Herald of Health	1 00
New York Tribune-Farmer	1 00
New Thought	1 00
Ohio Teacher	75
Pearson's	1 00
Pictorial Review with pattern	1 00
Pilgrim	1 00
Physical Culture	1 00
Railway Critic	1 00
Silver Cross	1 00

Success	1 00
Talent	1 00
Town and Country Journal	1 00
* Woman's Home Companion	1 00
World To-day	1 00
Youth	1 00

* Add ten cents to club for this magazine.

CLASS B

Appleton's Booklovers	3 00
Current Literature	3 00
Outing	3 00
Burr McIntosh	3 00
Independent	2 00
Journal of Education	2 50
Lippincott's	2 50
Reader Magazine	3 00
Review of Reviews	3 00

GLEANINGS IN BEE CULTURE—

With any one of Class 1	1 25
" two " 1	1 50
" three " 1	1 75
" one " A	1 50
" two " A	2 00
" one of Class 1 and one of Class A	1 75
" two of Class 1 and one of Class A	2 00
" one of Class 1 and two of Class A	2 25
" one of Class A and one of Class B	3 00
" two of Class B	4 00

Gleanings in Bee Culture	\$1 60	Our Price, \$2
Color Way	2 00	
Gleanings in Bee Culture	\$1 00	Our Price, \$2
The Musician	1 50	

Gleanings in Bee Culture—

With any one of Class 1	1 50
" Madame	1 50
" Tom Watson's	1 75
" American Magazine	1 75
" National Daily Review	1 50
" McCall's and pattern	1 25
" Lippincott's	2 50
" Burr McIntosh and one of Class A	3 00
" Booklovers and two of Class 1	3 00
" Talent	1 50
" Keith's on Home Building	2 00
" Searchlight	2 00
" Review of Reviews and Cosmopolitan	2 50
" American Magazine (Leslie's) 14 months, commencing with November; Suburban Life, and Pearson's (Harper's Bazar or World To-day in place of Pearson.)	2 50
" Review of Reviews and Woman's Home Companion	2 50
" Review of Reviews, Cosmopolitan, and Scribner's	5 50

Our References: F. and M. Bank, Bath, New York. Address

COMPENDIUM SUBSCRIPTION AGENCY

138 HOWELL STREET, BATH, NEW YORK

A CARLOAD OF PAPER

was used in printing the 1906 edition of the Lewis Catalog now out. Send for one at once. Each copy is a work of art; better, larger, grander than ever. It's free for the asking.



Agents Wanted for Lewis' Goods by the Carload

For Maine

New Hampshire

Vermont

Massachusetts

Connecticut

Rhode Island

North Carolina

For South Carolina

Mississippi

Alabama

Georgia

Florida

Louisiana

Southern Ohio



Liberal territory given. . . . For further particulars address Home Office.



G. B. Lewis Company

Manufacturer - of - Bee-keepers' - Supplies

Watertown, Wisconsin, U. S. A.

GLEANINGS

A JOURNAL DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS

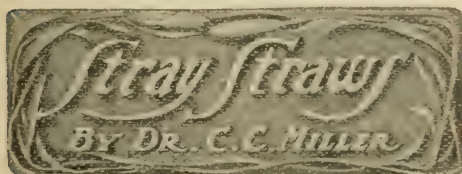
BEE CULTURE

ILLUSTRATED
SEMI-MONTHLY
Published by THE A. I. ROOT CO.
\$1.00 PER YEAR MEDINA, OHIO

Vol. XXXIV.

JAN. 1. 1906.

No. 1



THANKS, Dr. Phillips, for facts about the Breeders' Association, p. 1303—been longing for something of that kind. Here go my two dollars to Washington.

JUST WHY does J. A. Green want to extract from a foul-broody hive first, p. 1299? If to avoid getting foul combs in clean colonies, one would think the foul combs should be extracted last; but there may be some other reason.

IF LAND AGENTS in any part of the country complain that they can not get free advertising in GLEANINGS, it will hardly be those Texas fellows—unless they're very unreasonable. [You will not forget that Texas is the largest State in the Union. It has immense areas, as yet with scarcely any settlers on them. It is these unoccupied fields that bee-keepers should go to rather than squat down in some territory already overstocked with bees.—ED.]

NEVER did I feel better satisfied with the time of cellaring my bees than this year. They had frequent flights till Nov. 28, and on that day it was 62 degrees, and they flew from 8 A.M. till after 3 P.M. Next morning it was 22 degrees, with a little snow, and they were hustled in. There has been one day since when it was warm enough for bees to fly; and if I had known that in advance, the bees would have been left out for it. But if they had been left out, and then the flight day hadn't come, they would have suffered for it. If it were to do over again I would not do any thing different. Take bees in the next day after their last flight, but don't take too many chances on a flight day that may never come. I'd rather take them in ten days before the last flight day than two days after.

ARE YOU NOT a little premature in your conclusions about cellaring bees early or late, Mr. Editor, page 1302? Your two lots were taken in three weeks apart, the second lot having the benefit of a second flight, that flight, I suppose, being just before cellaring. That three weeks used up more bees and more stores out than in. Why shouldn't it? But wait till next spring before you conclude that there was any "folly" about the three weeks' delay. The three weeks of greater cold cost more bees and stores outside, while the three weeks' confinement cost nothing inside. The confinement costs nothing; but the *last three* costs, and costs heavily, if it follows a confinement of four or five months, and it may turn out that more will be lost by the extra confinement than was saved by the earlier cellaring. [We have our colonies all marked in the cellar, and, according to your suggestion, we will note their comparative conditions when taking out next spring.—ED.]

REV. CHARLES SCANLON'S speech pleased A. I. Root, p. 1333. I understand Mr. Scanlon is set aside by his denomination to spend his entire time working against the liquor business—the only man in the country occupying that unique position that I know of, although you may possibly tell us of others, Mr. Editor. If each denomination were to pick out its best men for that work, there would be fewer pastors dumb on the subject. [I do not know of another case where a denomination is putting one of its own ministers in the field devoting his whole time to the subject of temperance. But I do know that there are many ministers now employed by the Anti-saloon League in the various States of the Union who devote their entire time to fighting the liquor evil; and, by the way, as I personally know, some of these men during the time the legislature is in session sometimes spend fifteen or twenty hours in solid work a day, all because the harvest is great and the laborers are few. But, thanks to the Lord, there are tenfold more laborers in this special field now than there were a few years ago.—ED.]

"PULVERIZED (not confectioners') sugar" is recommended for candy, p. 1301. If you buy in Marengo, both will come out of the same barrel. In M. Ward's catalog, "Confectioners' XXXX powdered" rates a trifle higher than "Powdered," which looks as though "Confectioners'" should be the better. I wonder what's what, anyhow. [I learn from Dr. E. F. Phillips that a little starch in powdered sugar will do no harm. Mr. Benton uses just the ordinary pulverized article worked up into a good stiff dough. In a few days this may require a little more sugar as the dough softens up. Those who have received queens from the Department will remember that the candy-hole in the cages for holding it is lined with beeswax, and then covered over nicely with a piece of thin foundation. The purpose of this is to confine the moisture of the candy so it will not become too dry and hard. This has particular reference to queen-cage candy. That which is used for feeding bees in winter is made in precisely the same way, although it is not so important to have the candy "just right."

PROF. COOK, in his department, p. 1296, doesn't say a word about getting a bigger crop of honey, but spends his time talking about mandibles, neuroptera, and things. GLEANINGS isn't an entomological journal, but a bee journal; and when we pay our money for it we want something that will tell us just how to get the biggest crops of honey. But—but—hold on, young fellow—and I want to speak more particularly to younger readers—you take the advice of one who is no spring chicken, and who has spent many a year with the bees, and do you read every word Professor Cook gives about the classification and the structure of the bee. Every item you get in that line will help to make your world just a little bigger and brighter, life a little more worth living. An intimate knowledge of the structure of the bees will help to make play out of your work with them instead of drudgery, and will help you to live longer, and so to get more honey. It will also help, at least a little, to make you manage them more intelligently. Don't stop at reading once: read over and over, and study till it is clear. It may seem like drudgery, but it will pay well. I wouldn't give up for a good deal the little I know about how a bee is put together.

YE EDITOR asks, p. 1292, "But is it true, doctor, that you generally have hot nights during the honey-flow?" I've shut my eyes and tried hard to think what is the right answer to that question, and really I don't know. Without having kept an exact account, it isn't easy to recall just the exact proportion of cool nights; and possibly an exact account would show more cool nights than I had supposed. Here's one thing I do know: We always count on our best flows when we have nights so hot that we have to hunt around for a spot cool enough to sleep. Now, it's just possible that, instead of hav-

ing all the increase credited to the better flow after a hot night, at least part of it should be credited to the better wax-working during hot nights. [In this locality we very seldom have it so hot as to make it decidedly uncomfortable at night. Whenever I can not sleep, and feel I am suffering from lack of air and a good cool breeze, my physical condition is to a great extent overbalanced by the feeling that this will be just right for nectar secretion. But going back to the point of discussion, if there should be a spell of cool nights (and your locality could hardly be exempt every season) the protecting-cases will be a great advantage; and if the nights should turn very hot they will do no harm. The chances are they would be an advantage, taking the seasons as they come and go.—ED.]

"WARNING against reading brilliant but ruinous attacks on the marriage relation in the books and plays of Shaw and Mæterlinck was delivered by Dr. Felix Adler in an address before the Chicago Ethical Culture Society yesterday. 'To know the manners of disreputables of the other half is not to know life: it is to know death,' was Dr. Adler's declaration. 'You arise from such a book and go back to the purity of your home life feeling that you have been debased. . . Among the social insurrectionists who avow egotism as their principle is to be found Mæterlinck. Admitting his delicate workmanship, his Monna Vanna is a brief that passion, if only strong enough, is justified in breaking all bonds.' Prof. Adler's closing words were, 'Don't read these books or see these plays—don't.'"—*Chicago daily*.

Some months ago I objected to unsoundness in Mæterlinck's beautiful and brilliant work on the bee—not so very much of it, but the rottenness is there all the same, and all the worse because insidious, so beautifully clothed that good men have read the book and praised it without stint without ever noticing the evil that was in it. Let us keep clear of poison, even when offered in a gilded cup. [I shall have to confess I have not read Mæterlinck as I suppose I should. Depending on the favorable comments of others we cataloged it along with other bee books. I will investigate.—ED.]



IRRESPONSIBLE COMMISSION HOUSES.

BE careful about shipping honey to a new commission house or to a new firm advertising to buy honey outright. If you are at all in doubt, write us first. We have already had a case in hand where a party shipped

to a new concern. Investigation revealed the fact that the parties could not be found at the address named, and the honey is gone, nobody knows where.

Be careful especially about sending honey on *outright sale*. Always get your money first or else ship C. O. D.—that is, send a bill of lading to a bank for collection before the honey is turned over.

OUR INDEX FOR 1905; SOME VALUABLE LESSONS TO BE LEARNED FROM IT.

We are inclosing in this issue the index for 1905. Actual count shows there are 1840 references. This will give our readers some idea of the scope of GLEANINGS for the past year.

I suppose the average person will throw the index aside as being of little or no value to him. Let me assure him that he is making a mistake. Perhaps he thinks he could not find what he sought, even if he tried. Again he is mistaken.

This list of subjects was prepared with a great deal of care, some being "cross-indexed," as the same catch-word may not occur the same to every one looking the matter up. For example, there was considerable discussion during the past year on the scent of bees as a factor in introducing. One reader might think of the word "*odor of bees*." By consulting the index he will be referred to "*scent of bees*." Another subscriber might think of the word "*introducing* as affected by the scent factor." So we place it under both catch words; viz., Scent and Introducing.

There are comparatively few subjects cross-indexed in this way—only the most important, and such as are susceptible of one or more catch-words, all equally good. The subject of *robbers*, for example, will be found under the head of *robbing* only, for the reason no one would think of looking under another heading.

I have dictated almost every line of this index to W. P. Why did I do it? For the simple reason that the editor is supposed to know what subjects are important, and what is the subject-matter of any item or article in the journal throughout the past year, almost at a glance.

LESSONS TO BE LEARNED.

An index may be used in a way that will impart a great deal of information. One may have read the journal for a year very carefully, and may suppose that he is quite familiar with its contents, and with all the conclusions arrived at; but if he will take up one special subject in connection with the index he will be surprised to see how his impressions will be corrected. As the discussion on any particular subject continues, new sidelights are thrown in. The danger is that these last sidelights may outshine the important sidelights of *earlier* discussion. In order to get a perfectly unbiased and unprejudiced view of the whole subject, the index should be carefully consulted, looking up each reference.

I respectfully suggest that all our principal correspondents go over this index carefully to freshen up their memories regarding some of the important discussions of the past year. The knowledge of what has been said and done is very important to enable the writer to prepare new matter on that particular subject.

One is almost amazed at the amount of discussion on the Hoffman frame last season. One writer would condemn it roundly, and another would indorse it in the strongest language. In one issue the frame was relegated to the scrap-heap, and in the next it was regarded as the *ne plus ultra*. But if one will go over all the discussion from beginning to end he will be impressed by the fact that the Hoffman is popular, not because *every* one considers it the best frame, but because so large a percentage prefer it to any thing else. It is the old, old story, that you can not make one shoe fit every foot. We must not only have shoes of different sizes, but shoes of different styles. A shoemaker who would try to force on his patrons only one style of shoe, and sell only that kind, would be not only shortsighted from a business point of view, but half crazy as well. The manufacturer who would sell only one kind of frame or section, and only one style of hive, would get only a part of the trade.

There are several other valuable lessons that may be gained by a careful study of a good index. I am frank to confess that, in the preparation of the one for last year, my own view of things apicultural has been very materially broadened, not to say modified. I am reminded of the old story of the two knights, who, approaching each other, met under the overhanging sign of the Big Dragon. One made a reference to it as being blue, and the other corrected him by saying it was red. Words led to blows; and when each was thrown on the other side of the sign, each saw that the other was partly right, and harmony was soon restored. Shall we not, in the discussions during the new year, be more charitable toward each other's views, especially when we take into consideration the two factors of environment and the previous training of the "other fellow"?

WHAT THE RUSSIAN REPRESENTATIVE TO THIS COUNTRY HAS TO SAY OF CAUCASIANS.

OUR readers will remember that The A. I. Root Co. had in its apiaries for a part of two seasons a representative of the Russian government, Mr. Abram Titoff, who came to America to study bee-keeping. After leaving here he worked for about two months in the height of the honey-flow with E. W. Alexander. He then attended the National convention at St. Louis, where he read a paper on Russian bee-keeping. He came back to Medina, and last February went to California to work with some of the extensive bee-keepers of the sage districts.

In the mean time we had lost track of

him, and possibly would not have heard of him even now but for the fact that editorially I spoke of the Caucasians as being disinclined to take feed out of feeders, and that we were fearful they were too good-natured to be good for any thing.

Dear Mr. Root:—Allow me to say a few words concerning the Caucasian bees. In your editorial in the Nov. 1st issue you claimed that Caucasian bees were not able to get food from the feeders. From the experience I have had with them I must say I have found it not so. Last summer I received a number of queens from Caucasus; successfully introduced them, and, before winter came, I had some colonies of Caucasian bees. To six of these colonies I was forced to give a syrup as they had not enough honey in storage. I fed them from the division-board feeder (made of galvanized iron). To each colony was given about 12 lbs. of syrup, and all this food was taken in a very short time. This shows that Caucasians are not only smart enough to get food, but they will accomplish it without sacrifice—not one bee was drowned in the syrup.

In your case I think there was some other cause for not eating food, but not a peculiarity of this race of bees.

As for the color of bees, there are three kinds of Caucasians: The yellow, the dark yellow, and the dark. From your words on page 1180 I conclude that you have in your apiary the dark Caucasians. The yellow Caucasians are not much different from Italians in color.

Los Angeles, Cal., Dec. 8.

A. TITOFF.

I have asked Mr. Titoff to tell us more about the Caucasians in Russia, especially the yellow stock of that blood. As there seems to be some conflict of opinion in this country, a statement from a native of Russia, who probably knows as much about these bees as we do of Italians, would be of more than ordinary interest.

THE NATIONAL CONVENTION AT CHICAGO.

THIS has come and gone. While it was not as large or representative as some of our previous conventions, yet what it lacked in these respects was fully made up in the high quality of the discussions and the men present. Indeed, I believe that they were of a higher order than we ever had at any previous meeting. For example, the discussion on the subject of swarm control, at the first session, brought out men and methods in a way that had never before been done. As I sat at the feet of the Gamaliels who handled this subject in a masterly way, I was impressed with the feeling of how little of the science of swarming I actually knew.

This discussion was only a sample of other good things we had at this convention. I will endeavor to give a brief digest of it in later issues of this journal. In the mean time, those who are not already members of the National should enroll at once in order to secure the official report, taken by the official stenographer in full. This report will be well worth a dollar, to say nothing of all the other benefits that one may secure through an organization that is now nearly 2500 strong. Send your dollar to Mr. N. E. France, Platteville, Wis.

Unfortunately there was at this convention a prolonged discussion over a proposed amendment to the constitution; and when we got through *we were almost where we started*. This seems to be unavoidable under our present rules. But this convention

was in this respect no worse than some of our other ones—indeed, I believe it was far better; but several at the various conventions have at various times expressed themselves as being very sore because they are compelled to hear wrangling over amendments and parliamentary tactics when they had come hundreds of miles to learn something from their brothers about bees. I respectfully suggest to the board of Directors and to the management in general that some plan be formulated whereby proposed amendments may be discussed in the bee journals, where those not interested are not *compelled* to give up any of their valuable time, and where, too, the *whole membership*, or so much of it as is interested, can have a hand in it. It would be well to take into consideration that it costs each one who attends these conventions anywhere from 50 cents to \$2.00 per hour for the two and a half days of the convention.

Mr. Dadant made a good presiding officer—strictly impartial and absolutely fair; and no blame attaches to him for the length of the discussion referred to. But, more anon.

Regarding the question as to whether I should accept the office of Director of the National, to which I have been recently elected, I have finally decided to take the advice of my wife, and have, therefore, tendered my resignation. There are plenty of strong available men who can serve in the capacity of Director far better than I; and I feel satisfied that the Executive Committee will make a wise appointment. As before stated, this action is not based on any dissatisfaction with the policies of the National nor toward its officers. Indeed, I most heartily approve of that magnificent organization, and shall do all I can to help it.

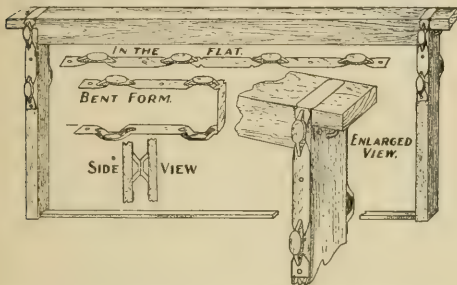
MR. and Mrs. A. I. Root are now settled on an island off Osprey, on the west coast of Florida. He has taken with him a select breeding-queen, and is going to try some experiments in breeding select drones.



METAL-SPACED HOFFMAN FRAMES.

For some years we have been looking for a metal-spaced Hoffman frame that would retain practically the advantages of the one all of wood, and yet sacrifice none of its good features. We believe we have now secured it. We asked the foreman of our machine-shop, Mr. Frank G. Marbach, to devise some form of metal spacer, preferably of stamping, that could be attached to a regular standard thick-top frame having end-bars the same width from top to bottom, and the same width as the top-bar itself. How well he succeeded will be made plain by the illustration herewith.

It will be noted that the raised projections, or bosses, are stamped at regular intervals in a narrow strip of tin. The lateral projection of these bosses is equal to just half the distance between the end-bars when properly spaced; and when these end-bars are $1\frac{1}{8}$ inches wide there will be a $\frac{5}{16}$ -inch space between them when separated $1\frac{3}{8}$ from center to center. The depth or projection of the bosses will, therefore, be just half, or $\frac{5}{16}$ inch. As they are stamped right out of the sheet metal they will be very strong, especially as they are stiffened by the ribs or braces on each side. But primarily the object of these ribs is to prevent



MARBACH'S METAL-SPACED HOFFMAN FRAME.

these raised projections from catching or hooking on each other when these frames are inserted into or removed from the hive by providing a sliding contact over the bridge-like ribs.

The whole strip with its raised projections is bent in the form of a letter U, and slipped over the top-bar and end-bar, binding both together.

One objection to the Hoffman is that the projection of the top-bar that rests on the hive-rabbit being so frail it is liable to split or break off; but this band of metal firmly binding it to the end-bar will make this impossible on this frame. As the raised projections are united by strips of metal they will always be equally distant apart, so they will always register—that is to say, come directly opposite each other when the frames are in the hive.

Another objection that has been raised against the regular Hoffman was that, if it were not nailed up right—the V edge always the same way—its value would, to a great extent, be destroyed. The new Hoffman can not be put up wrong, for it has no rights and left. No matter how the spacers are put on, they will always come right.

The appearance of the frame put up with this spacer with its bright metallic binding is very neat. In fact, we may say it is the handsomest frame, and at the same time the strongest, of any put out heretofore. It may be handled in precisely the same way as the Hoffman; and, no matter how abundant the propolis may be in any locality, these small metal surfaces can not be glued together.

The usual objection, that this being a metal spacer will interfere with the uncapping-

knife for extracting, may be possibly urged; but in talking with some of the extracted-honey men at the National convention, who, by the way, generally approved this frame, it does not appear that this objection would be as serious in actual practice as in theory. In all cases where metal spacers are used, the uncapping-knife must be handled in a slightly different manner. It is the general practice to start the blade of the knife (when the frame is stood on end) at the bottom edge, or what would be near the end-bar now at the bottom. The knife is then worked seesaw fashion upward until it is almost up to the other end of the bar at the top. It is then withdrawn, when the other edge of the blade is entered just below the upper end-bar, meeting the first cut, when the whole film of capping will drop away free. But I was told that one could use the uncapping-knife with metal-spaced frames in the regulation way, using one cutting edge throughout. A little care on reaching within a quarter of an inch of the metal will prevent dulling the knife.

It should not be understood that this metal-spaced Hoffman will supplant the regular all-wood Hoffman. The probabilities are that the great majority of Hoffman users will still prefer the old standby, as propolis is not a serious enough problem to interfere with its use in most localities. This new frame is merely offered to suit conditions where propolis may be unusually abundant, or to meet the preference of those who do not want any sticking at all of the frames; and those who wish something which can be picked up out of the hive singly or in pairs *without a pry at any season of the year, anywhere*, need to look no further.

N. B.—This frame can be used interchangeably with the regular Hoffman frames in the same hive, without modification.

THE ROOT TWIN BABY MATING-BOXES.

As intimated in our Dec. 1st issue, p. 1244, we now recommend a twin mating-box, using a frame three to the L., in preference to the small Swarthmore or Pratt box containing two frames, six of which would just fill the regular standard Langstroth. This box is almost cubical in shape, and is divided centrally from top to bottom with a thin veneer partition-board. This is made thin in order that the warmth of the two clusters may be the better combined into one cluster. In each division there are two little frames, three of which, as explained, will just go inside of the regular standard Langstroth frame, the division being made on perpendicular lines, see Fig. 2. In order to make these hang in the hives in the little twin mating-box a little piece of folded tin slides over each end of the top-bar, as shown at F and G. These can be slid back as shown at B, Fig. 2, or shoved out as shown at A and F. When used in this latter position, they serve as a projection which rests on a wooden rabbet in the little hive. When the frames are to be filled out with drawn comb

and brood in all stages, the projection is slid back until its end is flush with the end-bar. They can then be inserted in a regular standard Langstroth frame, and early in the season can be filled with drawn comb and brood in all stages. When once so filled they can be slipped out of the frame with adhering bees, and two of them (when the metal projections are slid out) inserted into one side of the twin mating-box. When in position they hang on rabbets like the unspaced Langstroth frame.

Tacked to the veneer division-board is a small piece of enamel cloth. This is used on these small hives because it will peel over without disturbing the cluster; for experience has shown that it is desirable to handle these small bunches of bees without smoke. So small a cluster can very easily be scented to an extent that it loses its body or individual odor, when it will attack its own queen — something that would not be likely to happen with a large colony of bees.

The twin mating box, instead of being made up of $\frac{3}{8}$ stuff, is constructed of boards fully $\frac{1}{2}$ thick. The object of this is to make a warmer box, and at the same time provide for feeding-troughs on each side, as at C and

The whole combination makes a very warm mating-box; and when we further combine the heat of two clusters into one,

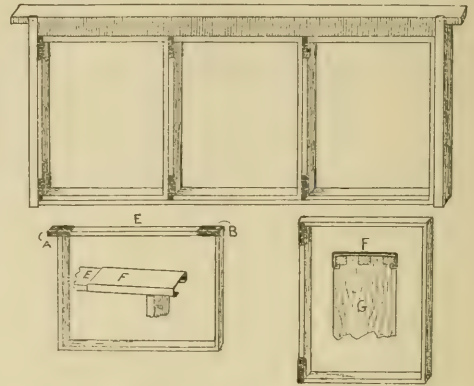


FIG. 2—THE ROOT NUCLEUS FRAMES FOR TWIN MATING-BOX.

we have what is to all intents and purposes one cluster of bees, so far as heat units are concerned, twice the size it really is. There is a ventilating-hole at A, and an entrance at B.

Experience has shown that these larger clusters are better and actually cheaper, because they will maintain their strength throughout the season. While it is perfectly practicable to mate queens in smaller boxes, yet we found last season that it was necessary to renew this small force every so often. This was not only a nuisance, but actually resulted in the loss of more bees throughout the season than would take place from the larger box here shown.

I learned one fact from Mr. A. K. Ferris, of Madison, Wis., which may make it possible for even the smallest cluster of bees to maintain itself and rear brood throughout the season. Mr. Ferris says all that is necessary is to space the frames further apart than the regulation distance of $1\frac{1}{2}$ or $1\frac{3}{8}$ from center to center; that when the frames are very small it is necessary, in order to keep up brood-rearing, to have the little bunch of bees covering the brood twice or three times as thick as it ordinarily is. He explains that, when the frames are spaced wide, and the box sufficiently large to accommodate the spacing, a comparatively small cluster will maintain itself throughout the season by rearing brood and bees.

But there are other reasons why the large mating-box built on the dual plan will be desirable; and, all together, the arrangement here shown will prove to be more satisfactory, mainly because it will stand cool weather, especially cool nights. I found at the National convention that two other bee-keepers have been working along the same lines — namely, the adoption of a twin mating-box of practically the same size. One box was exhibited by Mr. Arthur Stanley, Dixon, Ill., and the other by Mr. A. K. Ferris, as above mentioned.

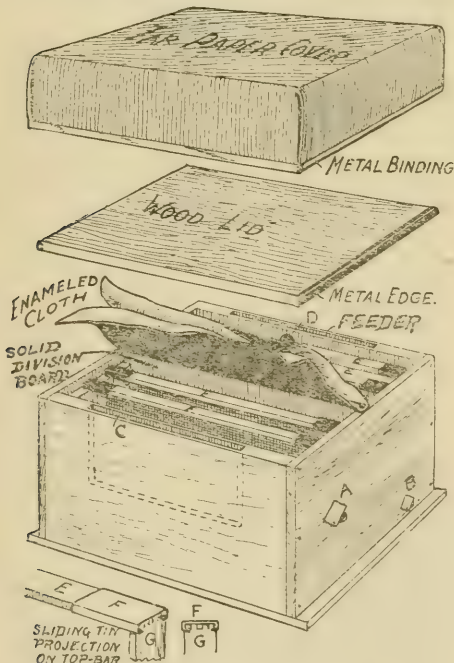


FIG. 1—THE ROOT TWIN MATING-BOX.

and B, Fig. 1. These are mortised out with a chain mortiser, and extend to the dotted lines as shown in Fig. 1. To this feeding-trough a small hole is made, through which bees enter to secure the food. A small wooden lid is placed on top of the enamel cloth, covering both sides, and telescoping over the whole is a cap of Neponset paper.



WHY DOES HONEY SELL SLOWLY?

"Say, Doolittle."

"Yes, Clark."

"You remember that question from the question-box at Syracuse before the Onondaga Co. Bee Convention of three days ago, regarding honey selling slowly this fall and winter?"

"Yes."

"What was the conclusion in the matter? I had to come away before the discussion had fairly commenced."

"I could not stay till the discussion was ended; but one of the ideas that was advanced was that adulteration had largely to do with the matter, in that it made the common people suspicious of all honey; consequently there was an under-consumption of our product through this suspicion."

"Do you believe that?"

"I do believe that there is an under-consumption of honey, and quite agree with the idea brought out — that, with less than half a crop of honey in the United States the past year, honey rarely ever sold as slowly as it has been doing for the past three months."

"Yes, that part I agree with. But do you think that the cause is the adulteration of honey, or, rather, that there are stories in circulation to the effect that honey is largely adulterated?"

"I think that this may have something to do with the matter. Don't you?"

"Do you remember when there was such a great cry a few years ago in the agricultural papers about oleomargarine, and how the markets would be ruined for butter, and the dairymen find themselves out of employment, unless the thing was stopped?"

"Yes, I remember how the papers were filled with the subject of oleomargarine, and about the great injury it was, and would be likely become, unless there was some law passed regarding the matter."

"Well, did the oleomargarine matter cause butter to sell more slowly?"

"But there was a law passed that caused oleomargarine to be sold for what it was, and not for butter."

"Correct. But was there an under-consumption of butter during this oleomargarine scare?"

"I do not fully remember."

"If you will study up I think you will find that there was no less butter on the tables in the homes and hotels of the country during those times than there was before or since, in proportion to the means with which the people had to purchase. So far

as my memory serves me, the cry of adulterated butter cut no figure as to making the people use less butter."

"That is something I had not thought about in my reasoning that the adulteration scare had to do with a lack in the call for honey."

"Then look at the liquor business. All admit that the larger share of the whisky drank is adulterated with the rankest poison, and some of it to such an extent that there is little if any pure whisky about it. Yet statistics tell us that the consumption of liquors, per capita, is greater to-day than it ever was before. Does the cry of adulterated liquors cause a slowness of their sale?"

"If you state the case correctly, it would seem not."

"It looks to me that this laying of the trouble of a lack of an energetic call for our honey to an adulteration scare is far fetched, and that it is not a reasonable ground for such bee-keepers as Doolittle, House, Bet-singer, Kinyon — yea, and the *bee papers* generally to take. Facts in other matters show that the cry of adulteration does not scare consumers of other products quite so easily."

"Aren't you coming out pretty strongly in this matter?"

"Possibly so; but I like to see people reasonable in the position they take — yea, more: I like to have them dig deep enough into a thing to know for certain whereof they affirm before they make an assertion."

"Without stopping to argue further along the adulteration line, allow me to ask how you account for this slowness in sale of our honey; for we all admit that there is not the demand for honey which we wish there was."

"Simply on the ground that the great mass of our people do not consider honey as something which it is necessary that themselves or their families have. In other words, the desire for honey is not so great as it is for butter, whisky, tobacco, etc. Their *butter* they must have or the dinner is not worth the eating. The whisky they *must* have, even if it means sorrow, ruin, and crime to themselves, their families, the nation, and the world. Their tobacco they *must use*, even if their clothes are ragged and their shoes are out at the end of their toes; and the tea-drinking habit must be indulged in whether there is any honey on the table or not."

"But don't you think that we could educate the people to a point where they would consider honey of as much a necessity to them as tea, and the things you have mentioned?"

"No, never."

"Why not?"

"Because when you get them educated, and the time comes from straitened circumstances that they must retrench, they never retrench in favor of honey. Did you ever know of a family giving up their butter,

sugar, tea, or tobacco for honey? And even without the straitened circumstances, after once having honey, and knowing of its goodness, many families which I know of tell me that they can make a good sugar syrup for their buckwheat cakes, a syrup that answers all purposes, and that at a cost of less than one-half of what they have to pay me for my honey. And other families which I know of will buy honey of me if I go personally and press it on them each year, but will never come to me or any other bee-keeper after it. But they would go miles and miles after their tea, tobacco, sugar, and butter, with honey right at their next door, before they would use the honey as a substitute for either."

"Well, you are advancing some new thoughts—thoughts that are, perhaps, well worth thinking over. But in your ground there is very little hope. Is there no remedy?"

"I see only one."

"What is that?"

"Let the bee-keeper stop putting the rosy side of apiculture before the public all the time, thus putting more bee-keepers into our already overstocked honey-field. Give the truth of the thing as it is, and make the question of more or better bee-keepers the prominent one for a while. Then with fewer and better bee-keepers as a basis, and a goodly lot of energy spent in a house-to-house canvass each year with our honey, perhaps we who are in it may be able to hold on and make a living out of our bees. What do you think of the proposition?"

"This is a little new to me, and I wish a little time to think over the matter. Meanwhile I will give your ideas to the readers of GLEANINGS, and let them do some thinking with us, for 'in the multitude of counselors there is wisdom.'"



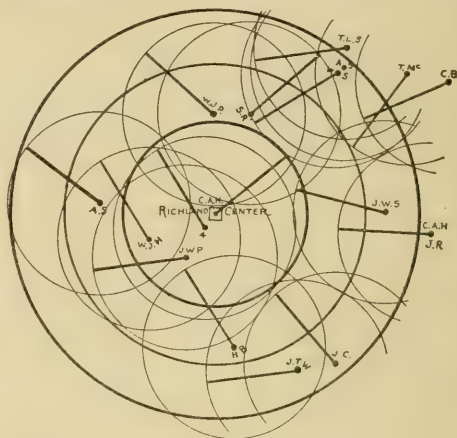
POSSIBILITIES.

How Many Colonies can be Kept in One Yard?

BY C. A. HATCH.

Richland Co., Wis., has long been noted for its honey production. Even 50 years ago, before there was any settlement by the white man, and the native Indian roamed its hills and valleys, white hunters used to invade its borders with oxen and wagon to get a load of wild honey and venison for winter use. The larger part of the county being heavy timber, of which basswood formed a considerable part, the reason for

the honey-production is not far to find. Now these noble trees that waved their branches in welcome to morning sunshine and breeze are no more. They have fallen to the needs of the farmer for tillable land or pasture, and to the greed of the lumber-man and excelsior mills. A few specimens in some wood lot, or on some inaccessible hill-side pasture, are about all that is left.



While the bee population is as large as or larger than ever, it must look to other sources for nectar.

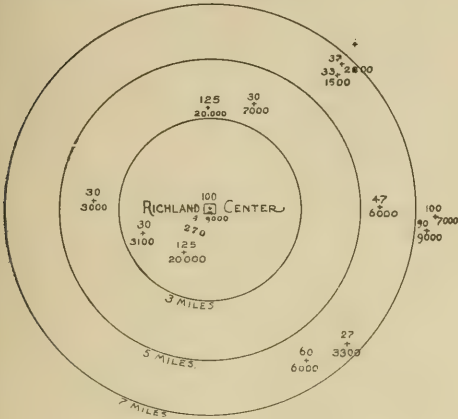
The white-clover pastures and alsike meadows are common, and rich in nectar; but weather conditions are so necessary to these plants for best nectar secretion that we are always handicapped thereby. If we could have the warmth and sunshine of California during clover bloom, not even the famous sages would excel it for quantity or quality. The result would be startling.

This year there was not to exceed one day in six that was favorable, and yet the average from clover at my home yard was about 20 lbs. of surplus. What would it have been with six times as many working days? It would have been more than six times as much, for most of the idle days were when bloom was at its best.

To show up some of the possibilities of a given territory, and shed some light on how much honey can be produced on a given area, I have made what might be called a bee and honey census of a piece of land 14 miles in diameter, and having Richland Center for its center. If there is any place stocked up to the limit, it would seem as if this is the one. With a sectional map of the county before me, and locating each bee-man, and assuming 3 miles as the limit of a bee's flight, and drawing a six-mile circle around each apiary, the map looked like some geometrical figure based on a combination of circles. No one man could claim undivided territory.

Above is the map. The heavy-lined circles represent distances, as three miles, five miles, etc. The light lines are for each man's territory. The straight lines are to

show which is each man's three-mile limit. The whole number of bees in the seven-mile limit is, or was in 1904, about 745 colonies, and is more now. The honey product was 80,000 lbs., to say nothing of the bees located just over the seven-mile limit that had one-half their range inside.



The second map shows the range-lines omitted, and the number of colonies and their product.

HOW MUCH HONEY TO THE ACRE?

Wouldn't it be nice to know how much honey could be produced on one acre? Then all one would have to do would be to count up the acres, multiply by the product, and how easy it would be to tell how many bees could be kept on a given area! But if it were possible by some method to ascertain just how much honey a given acre has on it to-day, it might not be the same to-morrow. The weather might be such that it would be doubled; or, on the other hand, it might be cut off entirely. So it is safe to assume it is one of the problems that will never be solved. Some solid facts of actual production are of more account than any amount of theorizing. Making a rough estimate from the actual yield of our Richland apiaries, I figure out that $2\frac{1}{2}$ lbs. per acre is or was approximately the product. When we consider that perhaps not over a third of the area is honey-producing it increases the product to 7 lbs. I do not know but one might as well guess at once, for there are so many modifying conditions that even figures are not reliable.

How many bees in one location, is another problem that will never be solved. Once I thought I knew that 50 colonies was the limit at one of my apiaries; but I finally increased to 75, and finally to 100, and then I was sure the limit had been reached. But a bee-keeper bought the adjoining farm, and moved in another 100 colonies, only 40 rods from mine, and they have all done well, and now I am forced to admit I know but little about the matter. There are places in this county where, in good years, 500 colonies could be kept with profit in one loca-

tion, and in poor years 50 would have to be fed.

The destruction of our basswood timber has reduced the honey-producing capacity of our county by more than one-half on one hand, and the planting of clover has increased it somewhat; but I do not think it equal to the loss. Let us figure on what might have been. This county has 16 townships, and we will assume that it has room for ten seven-mile circles like the one at Richland Center, or had before the timber was cut off. There would be a product of ten times 80,000, or 800,000 lbs. of honey.

Now, do not get excited and all move to Wisconsin, for if you do you will be disappointed. Most of the good locations are now stocked, and the ax of the woodman is not withheld. The destruction of our woodland goes on, and it is only a question of a few years when basswoods will be no more.

Richland Center, Wis.

[This problem of how many colonies can be kept in one locality is a very interesting one. I explained on page 1324, last issue, how it was that Mr. Alexander is able to maintain an apiary of 750 colonies all in one yard. Where basswood or buckwheat is at all prevalent, a larger number of colonies can be accommodated in a given area than where clover is the sole dependence. We have commonly placed basswood at the head as a honey-plant; but from what I saw at the Alexanders I should place buckwheat a very close second. Now, then, when your basswoods are all cut off in Wisconsin, as they certainly will be, you will probably find it impossible to maintain so many colonies and so many apiaries so close together. From what you write I should judge the basswood is still a very important factor in the aggregate honey crop in your locality. While young trees are doubtless coming up, it is the *forest* trees—the trees from which lumber is made—that yield the bulk of this white honey.]

In the great majority of localities in the United States, bee-keepers are suffering from overstocking. As there are many locations in the United States capable of supporting bees, it seems strange that one bee-keeper should ever think of locating within a few hundred yards of another one, even if he consulted his own interest. A bee-yard, or several of them, can easily be moved five, ten, or twenty miles; but better by far for the producer to move his family to the center of his aggregation of bees, and thus get into territory that is comparatively free. Louis H. Scholl, our Texas correspondent, showed in our last issue, page 1294, that there were many desirable locations in Texas still open, but undeveloped by the bee-keeper or the ranchman. I know this to be a fact; but these locations may be remote from centers of population, and even from small towns.

The other question, as to the amount of nectar per acre, is also an interesting one, and GLEANINGS will be very glad to publish any data that bear on this subject.—ED.]

CURING FOUL BROOD WITHOUT MEDICATION.

The Alexander Treatment for Black Brood Successful with Foul Brood in England.

BY SAMUEL SIMMINS.

I am glad to see by your issue of Nov. 1 that Mr. Alexander has been able to apply to the cure of black brood the very same treatment which I have for many years advocated as a certain cure in the case of foul brood.

In my 1888 edition of a "Modern Bee-farm," and again in the issue for 1893, I laid great stress upon the necessity of removing the old queen where disease was found, and then introducing a young and vigorous one after an interval which would allow of the bees removing the foul matter.

In *Bee Chat* during 1898, '9, I repeatedly insisted upon the great necessity of this all-important point, and in the issue for August, 1899, this fact of allowing an interval without breeding was again set forth in the clearest possible manner, pages 27 and 29.

The several propositions then published in *Bee Chat* were reproduced in the 1904 edition of "A Modern Bee-farm," and on page 121 you will find these words: "These, being queenless for a period, cleaned up every vestige of the disease before the young queen again made up a brood-nest. . . . *Make a note of this last fact in big capital letters*, for I have never known Italian or Carniolan bees (with a virgin queen), when fairly numerous, to refuse to clear out all evidence of disease during the active season of honey-gathering. . . . It is simply a question of manipulation by the bee-keeper at the right moment; for, strange as it may appear, the above results were attained without medicine in any form."

Again, on page 123: "The disease was not only once but repeatedly disposed of without destroying the combs, without medicine, and with no manipulation of the diseased cells whatever."

"There was in each case granted an interval of two to three weeks without a laying queen, during which space of time, the population being numerous, and honey coming in, all the diseased matter was disposed of. Even then we have been taught to believe the bees could not dispose of every cause of infection. But what are the facts? The bees having thoroughly cleared out every particle of soil suitable for the germs to thrive in — and *this they will not readily do all the time they have a laying queen*, etc."

The foregoing, including the italics, is reproduced from *Bee Chat* for 1899; but whereas Mr. Alexander destroyed his queens right away, I find, except in extreme cases, the better plan is to keep them going with swarms upon new foundation so that there will be no loss of brood. I have also shown in my work, and in a previous article in GLEANINGS, how these swarms may be made with no danger of carrying disease; while the young bees left on the old combs with-

out a queen (or with a queen-cell or virgin), are even better situated for cleaning them out, and there is not so much fear of fresh honey clogging the cells.

Moreover, in suitable weather two or three lots can be swarmed into one to great advantage, in that there is little if any loss of actual honey-gathering, and rather an increase instead of a ruinous stoppage in breeding; while the old queenless stocks may or may not be doubled up according to the requirements of the apiary.

The introduction of a young and vigorous queen after the interval without a fertile queen is a principle I have strongly advocated for the *past twenty years*; and though I have shown how it can be made effectual, even without medicine, very few would believe me; while in your own case, while admitting that I had made a study of the subject, you apparently went on to think the bees in England must be more immune than those with you, which, however, is not the case. As a matter of fact, my law will hold good for all who care to follow it.

Then why advocate the izal treatment? Because, first of all, it is a preventive, and immediately checks infection, so that one knows that, in using it, he is keeping every thing clean. Next, it is useful when ordinary manipulations are not possible and the bees are not sufficiently active to help themselves. Thus if a stock is fed up with izal in the syrup in autumn, they have a safeguard all through the dull springtime, and are probably cured before the honey season opens. Lastly, it helps those bee-keepers who can not make up their minds that, even in the active season, the bees can be helped to get rid of the disease without medication.

In conclusion I will now say that I have been able to go a long step beyond all these manipulations, in that I am curing with no medicine, no swarming, and no broodless interval. I am able to put my queens right on to combs full of brood more or less diseased, and these queens walk right through it, and bring the stock out clean every time. I don't think there is any class of bee disease to which they will not put a stop.

Broomham, Heathfield, England, Nov. 24.

THE ALEXANDER METHOD FOR CURING BLACK BROOD ENDORSED.

Also a Cure for Foul Brood.

BY E. M. GIBSON.

It was with a great deal of interest that we read the cure for black brood in GLEANINGS, page 1125, by E. W. Alexander, and our interest was all the more intense as it corroborates some experiences we have had with *foul brood* this past summer. We had foul-brood colonies in two apiaries which were queenless for some time on account of our discontinuing queen-rearing, thinking that our apiaries were as good as lost when we found we had foul brood. Just at this critical time GLEANINGS came to the

rescue and told us that the introduction of young Italian queens was a great factor in the abolishment of the dread disease, on which we resumed queen-rearing. By the time we had queens to introduce, our colonies, I should imagine, were just longing for queens, and had had the requisite time for perfect housecleaning. They have never had foul brood since the introduction of these young queens, and some of them had it very badly indeed. My partner said to me one day as we were looking through them, "I believe we have found a cure for foul brood, viz., keeping them queenless for a time," and proposed putting our queens, which are all young, into nuclei, giving the bees time to clean up and then return them. He urged me to write you, giving our experience; but I said you would laugh at us for thinking that such a simple thing could cure foul brood; and if there was any thing in it it would have been discovered long ago. Nevertheless, we had decided to try it provided it makes its appearance in the spring.

In your footnote you say, "The question may naturally arise now whether the Alexander treatment would not prove equally effective in the cure of foul brood." When the tenacious matter Mr. A. speaks of can not be removed by the bees they eat the combs out and build them up anew, as we have seen in hundreds of instances this year. In fact, one-half or two-thirds of our colonies got rid of it without any assistance in that way.

In our management of diseased colonies we have found the less room they have the better. Unless they are *very* strong, or you have plenty of brood to give them, they should be confined to a single hive. Do I hear some one saying, "I guess it was not genuine foul brood"? The foregoing experience was with *real* foul brood.

Mr. Alexander's article gave us great encouragement, and several points from which to work, the most important of which is the matter of time to keep colonies queenless. We had feared that the method, so far as our experience had reached, would necessitate keeping colonies so long queenless as to reduce them so much it would be impossible to receive any benefit from them for that year.

Jamul, Cal., Nov. 17.

[I have read both of these articles with more than ordinary interest. To say that the Alexander treatment, or the Simmins treatment, whatever we may call it, gives us hope of curing foul brood as well as black, without destroying combs, is putting it very mild indeed. But the thing I can not understand is this: Honey is known to be a medium for carrying foul brood. Supposing that the germs of this disease are in honey that is sealed up in combs in the hive under treatment, if the bees clean out the brood-combs containing the dead matter, what is to prevent reinfection of the new brood fed on this honey? We have demonstrated time and again that honey from a diseased hive

will carry the infection to another one perfectly healthy. I can explain this peculiar phenomenon in the case of black brood, because I understand from the inspectors that this disease (black brood) is *not* carried through the medium of the honey.

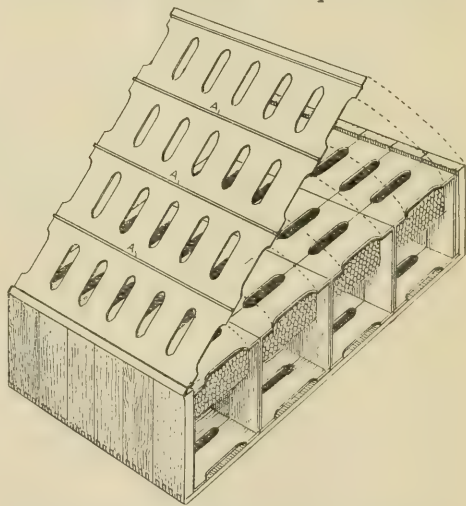
The articles by Mr. Gibson and by Mr. Samuel Simmins are both encouraging; but I must confess to a feeling of doubt that the treatment will prove effective for foul brood where the combs of honey actually contain the germs of the disease and are left in the hive. If all such combs be removed, extracted, and honey boiled, then I can see how, if the combs be given back, the bees would clean them up and remove the infection. — Ed.]

A SECTION-PROTECTOR.

A Device for Keeping the Sections Clean.

BY J. W. ORMSBY.

I will try to give you a description of the device I have been using this season for keeping my sections clean. First, I use the ordinary section-holder, which prevents the bottom of the sections from being dirty, and then I have cut from zinc a piece the exact size to cover the sections in the super, with the beeway the same as the bottom of the section-holders, which I place on the top of the sections the same as a queen-excluder



should be used. This prevents the bees from traveling over the sections, and consequently all I have to clean is the beeway above and below in the sections, which I trim with a very sharp knife.

To remove the sections from the super, proceed in the ordinary way. Knock out the wedges and upset the super on a bench or table, and the section will come off easily, and this prevents the protector from getting kinked or bent, as it comes off last. In using this we can leave the sections on any length of time, and they can't be soiled.

Bonsall, Cal.

J. W. ORMSBY.

[This method of protecting the tops of the sections is not new except in the use of metal instead of wood. In the case of the section-holder, nothing thicker than zinc could be used. The objection to this and any other like arrangement is the fact that sections will shrink and swell under varying conditions, getting the opening to the sections out of register with the openings in the zinc board; and unless the zinc lies perfectly flat, and in perfectly tight contact with the top of the sections, there will be strong red streaks of propolis along the edges and between the metal of the sections. In my opinion a far better arrangement is a single-tier wide frame having a top-bar and bottom-bar corresponding with openings in the sections. The shrinkage in the case of one top-bar covering a single row of sections would be very slight; but a very small swelling in the size of the sections with your arrangement would result in the outside rows being out of alignment with the openings. —ED.]

PRODUCING COMB AND EXTRACTED HONEY IN THE SAME SUPER.

Laying Workers; Grading Honey.

BY A SOUTH GEORGIAN.

My plan of producing comb and extracted honey in the *same* super is the same in principle as the Townsend. It was original with me, as I hit upon it by accident. I had transferred a box hive, and had enough comb to fill 15 Danzenbaker frames, so I put ten combs in the lower story and five in the top one; and to fill out the empty space I put in sections. The bees filled these sections quicker than I had ever seen sections filled before, and this set me to thinking. I decided the *ready-built* combs at the side of the sections had given the bees the "upstairs fever." I now put an extracting-comb (Danzenbaker shallow) at each side of the super, and filled in the space between sections. If the stock is a weak one it will also pay to put a comb in the middle of the super, putting it nearer to the colder rather than nearer to the warmer side of the hive. I am satisfied the bees work with twice the vim with this plan than without it. It has, however, the objection Mr. Green made to it, i. e., the sections are harder to clean of propolis by this plan. I use the one-sided fences suggested by the editor, to prevent the combs from being attached to the fences. The objection Mr. Green makes is, I think, overbalanced by the better-filled sections.

I used successfully the same plan of increase as the Alexander before I saw it in print. It, too, was original with me.

Although I have no black brood nor foul brood, as I know of neither in Georgia, I read Mr. Alexander's article with interest. I hope his plan will work; but, as he says, make the bees *queenless* for twenty days. I want to ask a question for the benefit of others who might not think of it. In the A B C book, Mr. Editor, you tell us not to al-

low a colony to be queenless more than *ten* days if we don't want to have laying workers. Would not laying workers defeat the object of having the bees queenless? I wonder if Mr. Alexander had any laying workers in any of the great number of queenless colonies he had under the treatment. Laying-worker colonies are bad things to manage. I had one the past season. I would have tried the plan of grafting the cells they kept starting, with larvæ from my breeding queen, but I am not steady-handed enough to handle such delicate propositions and be successful; so as an experiment I took some strips of comb with fertilized eggs in the cells, and stuck them on the *outside* of a division-board feeder I had in the hive, and, presto! they reared them a queen that has restored the colony to normal strength, from those strips, when previously they would not start cells on combs of young brood and eggs placed in the hive. Some may say I am mistaken about this, but I am not.

The past season two of my colonies reared queens from eggs that produced 90 per cent of five-banded bees, and the bees of those queens are all uniformly marked with three orange-yellow bands, yet I have reason to believe that these queens were mated to black drones. Is it possible that queens reared from five-banded stock, if mated to black drones, will produce all three-banded bees? The reason I think the queens mated to black drones is because their bees are much "sassier" than the bees of their mother, and run like blacks when the hive is opened.

Does the Danz. $4 \times 5 \times 1\frac{1}{2}$ section hold a full pound with you? It would have to be filled by pure Cyprians or Holy Lands, and grade "extra fancy" to weigh 16 oz. here. Equal amounts of fancy, A No. 1, and No. 1 will not average over 12 ounces to the section here. Perhaps you may think I have made a mistake in the grading. No, I have studied carefully the rules you give in GLEANINGS for grading, and know I have not made a mistake. It seems to me a "pound" section ought to weigh 16 oz. when filled; but if it will not increase the price paid to producer any to have it so, I do not care to have it do it.

Glennville, Ga.

MERITS OF THE HOFFMAN FRAME.

Some Points in Mr. McGregor's Article Considered.

BY C. E. WOODWARD.

On page 1127 appears an article written by Mr. Alpine McGregor, entitled "The Hoffman Frame." After a careful reading of said article I was very much surprised to learn that it has taken him all of these long years to learn that it is far inferior to the old hanging frame. If the frame is as bad as he says it is, why should he not have found it out sooner? If said frame is good for the farmer it must be equally good for

the beginner; and if this statement stands true it must also be good for the expert bee-keeper, of which all is true. Mr. McGregor states that he has been using them ever since their introduction by the Root Co., except the two last years. Now, how much cold cash do you suppose he has lost on the use of this frame? I too have used this frame ever since it was put out to the bee-keeping public. I used them by the hundreds in the United States, and have used them by the thousands here in Cuba. I have built up over 4000 colonies in this country on these frames, and I confess that I have no desire to be rid of them till I can find something better than the old hanging frame to replace them.

I admit that the Hoffman frame does not suit me in all respects; but I shall stand by the Hoffman until I'm sure I have something better for those who are not satisfied with it because their locality is so bad for propolis.

I know a very good spacer is the one which I describe on page 1249. The points of bearing are so small that the bees have not room to place enough propolis to cause the spacer to break. The great trouble with the Hoffman frame is that most of the bee-keepers have not yet learned how to nail them up properly and use them as they should. It is a well-established fact that the most of the propolis is always at the tops of the frames and hives; hence the breaking-off of the spacers. But do not all kinds of frames break sometimes through manipulation? I find that all kinds of frames will sometimes break.

In my judgment the proper place for spacers is on the top-bar; and your correspondent is at the present time working along that line, but without using nails or staples, for they are not suitable for the up-to-date apiarist.

Matanzas, Cuba.

A STEAM-HEATED HONEY-TANK.

Steam a Necessity in a Large Apiary.

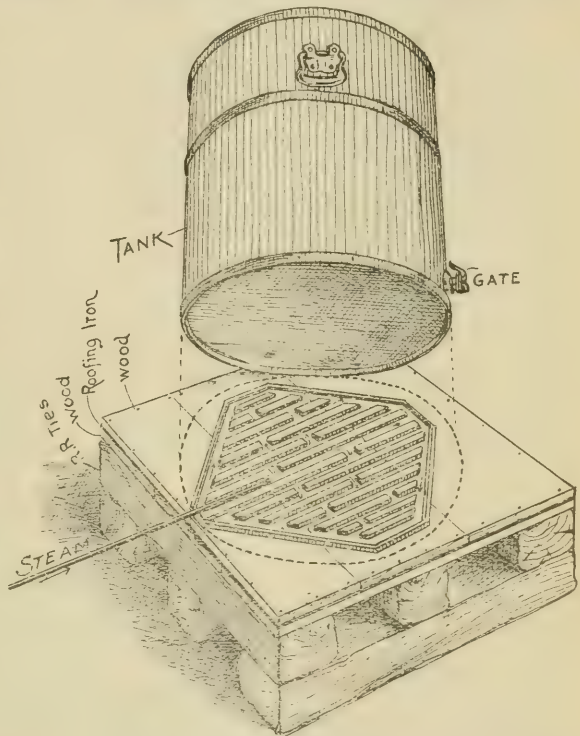
BY E. F. ATWATER.

Perhaps a description of our tank might be of interest to some, especially those who are putting up honey in the Aikin bags. No matter how long our thick honey may stand, all specks of wax and other impurities will not come to the top. Soon after filling the tank therefore (our first tank holds 4500 pounds), we arrange to heat the honey to perhaps 140 degrees. The tank stands in the unbroken sunshine, and is painted a dark brown, to absorb as much sun heat as possible. The cover is of the same color.

The tank rests on a platform, raised about

18 inches. The lower layer of boards is covered with some old flat iron roofing. On this is another layer of boards. On this platform short strips of 1x2 are nailed, leaving open spaces, as shown by the cut. Around the outside, strips of one-inch stuff are nailed so as to fill the open spaces except at one place, where the steam is to be introduced.

Now, with your tank full of honey resting on the waffle-iron platform, introduce your steam and keep it there until the honey is heated to your satisfaction. If you do this on the morning of a bright sunny day, by night you can skim off all impurities. So long as our honey can circulate freely, there



is no danger of overheating until the mass is hotter than 140 degrees. If your honey is different in this respect, I suppose you will need a more expensive tank, with double bottom, to contain hot water. Some may not have steam available, but the extensive bee-keeper should have it, for wax-rendering, cleaning cans, foundation-making, etc. We have an old boiler that cost us about \$10. It is not necessary to carry more than 15 pounds of steam, though more is sometimes convenient.

Meridian, Idaho.

[This arrangement is very simple; and where one can get a jet of steam cheaply, probably there can not be any thing better. But I imagine that the majority of bee-keepers would not be fortunate enough to be able to purchase a second-hand boiler for \$10.

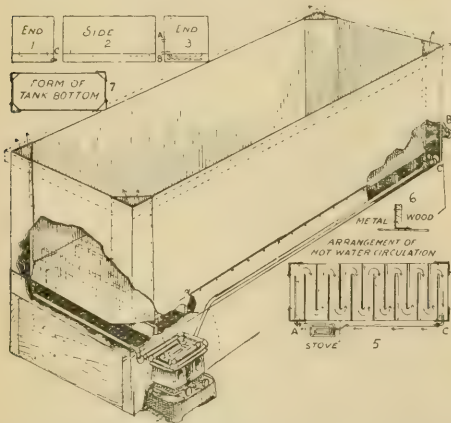
A farm boiler can be purchased for perhaps \$25. In the absence of anything to furnish steam, the arrangement next shown by A. J. Burns would be very satisfactory.—ED.]

WARMING HONEY IN A LARGE TANK

B the Use of an Oil-stove.

BY A. J. BURNS.

I have read with interest Mr. Greiner's method of warming honey, page 597, and quite agree with him on the desirableness of warming honey before being drawn from the tank. We used to have a saying back in Ohio, "Slow as molasses in winter." I found that honey, thick as mine is, is so slow, even in this warm country, that my patience ran out long before the honey would; and while my honey goes through a screen with meshes six to the inch in the bottom of the extractor, to keep chunks of comb out of the pipe that conducts the honey into the tank in the basement. As it leaves the pipe it passes through a fine wire screen, thence through a pretty heavy cheese-cloth before it drops into the tank; and even then enough particles of comb go through to cloud the honey very much, and it takes a number of days standing to bring all this to the top. Three or four years ago I finally hit upon a plan that I like better than Mr. Greiner's, which is shown in the accompanying drawing. Mr. Greiner's tank, when full, weighs 400 pounds; mine, when full, weighs 4000, which weight must have a solid, smooth bottom to rest on.



I heat with hot water, which almost entirely obviates the danger of burning or over-heating. In brief, my tank has a double bottom in which are arranged a series of partitions, which, in connection with a coil of pipe outside the tank, under which I put a wickless oil-stove, I keep a current of hot water passing continually between the bottoms, much upon the plan of a water-back and pressure boiler used in furnishing hot water in houses, but I don't need the pressure boiler.

Lusardi, Cal.

[The plan of your honey-tank to be heated with hot water is excellent, although I must say that I am surprised that so small a stove would be capable of heating or warming up 4000 lbs. But if you have tried it, and it works (and I have no reason to doubt your word), then any one else can safely make one like it. A honey-heater like yours, or the one illustrated above, would be a very valuable adjunct to an apiary, especially where large crops of honey are produced. Generally speaking, an oblong or square tank is much more expensive to make than a round one of the same capacity. The same method of heating could be applied to a round tank as well as to one oblong like the one here shown.—ED.]

A GOOD HONEY-STRAINER.

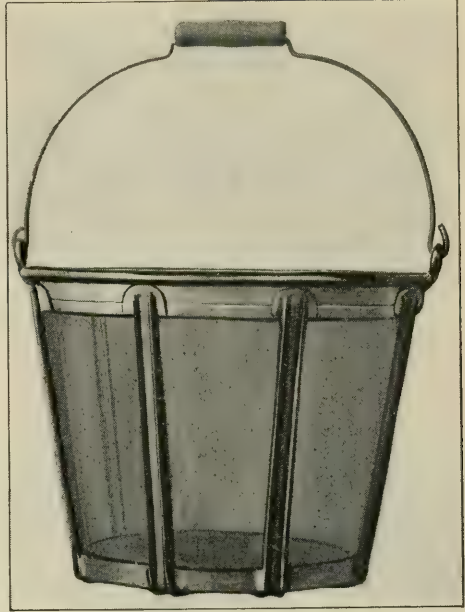
Honey-evaporating Tanks; Importance of Not Extracting too Close; a New and Enlarged Building.

BY E. W. ALEXANDER.

This is one of the handiest and best strainers that was ever used for straining honey. A tin-smith can make them by cutting off the top of a stout tin pail 2 inches, then make a frame of folded strips of tin, soldering these strips to the top rim of the pail you cut off, then line the inside of this frame with the same fine copper wire cloth that is used for milk-strainers, and you will have a strainer that will never clog or run over, as the honey can run through the sides all around as well as the bottom, and it will take out every particle of foreign matter from your honey, and with proper care will last a lifetime. I now have three that I had made over 25 years ago and they are apparently good for 25 years more. The way we use these strainers is this. Our honey-tanks are covered with sheeting except about two feet at one end; this has a board on with a hole cut in the center that will let the strainer go down through as far as the rim that has the wire cloth fastened to. Then the pipe that conveys the honey to the tanks has an elbow on, that we turn down over the strainer. This conducting pipe is made in sections about 12 feet long, of heavy tin, and has a bore of about 2 inches. We keep it painted on the outside to prevent rusting. Now when all is ready we start the extractor and our honey is delivered and strained into the tanks and we don't have to pay any attention to it whatever. This way of handling large quantities of honey is one of the corners we must cut which I spoke of in my last article.

Now in regard to these buildings you saw in last issue. They are cheap and movable, put together with iron bolts, and were used years ago in our out-yards, when I had that foolish idea that, in order to get good results from our bees, it was necessary to have them scattered around the country, in apiaries of only about 100 colonies in each. But

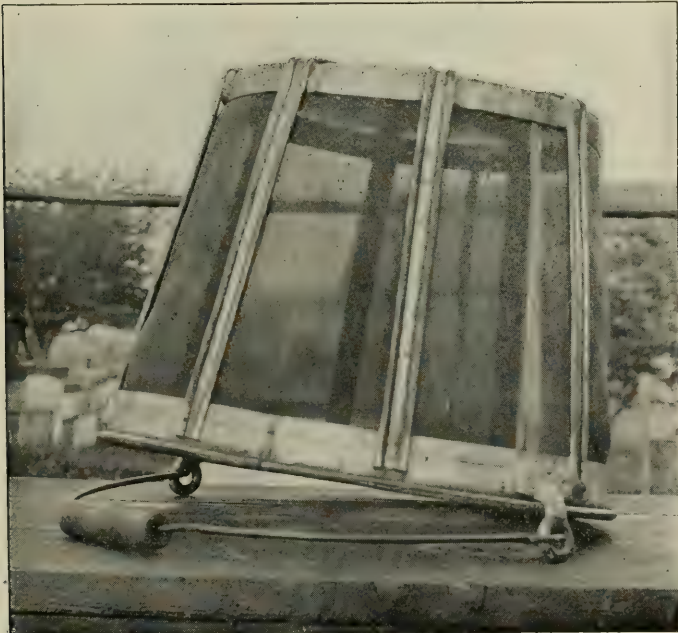
to return to our subject, here is the matter of winter stores for our bees which is one of great importance. It is so easy to take their honey from them with the extractor that many inexperienced bee-keepers frequently take too much from their colonies, thinking they will gather enough later on to carry them through the winter; but often the harvest closes sooner than we expect, then you are in a bad shape, with a large number of light colonies on hand and no honey coming in. I have been right there and know what it is to be caught in this way. In order to avoid light colonies in the fall, let your bees fill up their hives with the first honey of the season, and see they have a plenty of it capped over before you put on your extracting-supers. It is so natural for them to store their honey above their brood, that, unless you take especial pains to see that they have a nice lot of capped honey in the lower hive, before you commence to extract you will be liable to have many light colonies for winter. We always save when extracting some nice heavy combs of capped honey to give any light colonies we might find shortly before putting them away for winter. Now as some of you have recently seen photos of our apiary, I wish to tell you of the changes we have just made. First, we have removed several apple-trees from the bee-yard, as we don't like any shade among our hives. Then we have taken away those small buildings, and in their place we now have a fine building 24×56, which has a good cellar under it that will give ample room to winter 1000 colonies. In this building we can store all our extract-



HONEY-STRAINER PAIL—TOP VIEW.

ing-combs and, in fact, every thing connected with an apiary of 1000 colonies, including all the necessary barrels to hold their honey. It is two stories high, which gives us a chance to use the pipe again to convey our honey from the extractor to the tanks which we value so much. We thought we

had some things quite handy before, but now it will not require more than half the labor to handle our honey that it has in the past. And now, my friends, I hope that you have seen something in these two articles on extracted honey that will awaken a new interest in you toward your bees; for surely if we expect to produce large quantities of either comb or extracted honey, we must have every thing as convenient as possible, for, to a certain extent, we are in competition with those immense sugar-refineries where millions of dollars are invested; and in order to hold our part of the trade, and bring honey into general use, we must cut corners here and there and everywhere so that we can produce honey cheaper



E. W. ALEXANDER'S HONEY-STRAINER PAIL.

in the future than we have in the past. Think it over between now and spring, and then with renewed energy and perseverance push bee-keeping in whatever part you have chosen until you stand well forward in the line of progress and improvement. Hoping you have your bees well cared for, and that they will go through the winter in good condition, I will close by wishing you all a prosperous New Year. —
Delanson, N. Y.

[The buildings containing the two storage-tanks mentioned by Mr. Alexander in our last issue are shown in the middle background of the accompanying half-tone seen just below. I endeavored to get an interior

a strainer outside of an extractor. The wire cloth is the finest mesh brass procurable, and will strain out every particle of dirt. The great difficulty with ordinary honey strainers is that they do not present a large enough surface of straining material to the honey. Too many of the strainers have a horizontal surface which soon clogs with sediment and dirt. The Alexander pails are perpendicular as well as horizontal wire cloth, and for holding large extractings at a time these pails answer perfectly. Of course, they gather up refuse, and the strainers begin to work slower; but the pails are so easily dumped and cleaned that this really is no objection.

I have asked Mr. Alexander to give us a



A PART OF THE ALEXANDER APIARY WITH THE HONEY-STORAGE BUILDING WITH THEIR EVAPORATING-TANKS IN THE BACKGROUND.

view of the building showing the tanks, but was unsuccessful. These tanks are oblong, and, as nearly as I can remember, 4 ft. deep, 4 or 5 feet wide, and 10 or 12 feet long. They present a large amount of surface of honey to the air for the further ripening of the honey. As the buildings are small inclosing them, a great amount of the sun's rays is absorbed, making the room itself hot where the honey is. It is very thick when it comes out of the combs, but is made thicker still by standing in this building after storage.

I witnessed the work of these pail strainers, and must say that, in my opinion, they are the best thing I ever saw in the way of

picture of his new extracting-house. This he will probably do, and describe it more fully in a later article, although I must confess to a feeling that the little building which he has now discarded strikes me as being one of the most unique little structures for extracting I have ever seen. For out-yard work I can't conceive of any thing more suitable.

In our next issue Mr. Alexander will describe his method of taking off the honey from the hives; how he carries the combs to and from the building, and, in short, how he makes it possible to get along with so small a structure in the handling of so many colonies.—Ed.]

A YOUNG QUEEN-BREEDER.

BY F. A. LOCKHART.

I am mailing you a picture of the youngest queen-breeder in the world so far as I know. This very young queen-breeder, Lester C. Lockhart, was born June 23, 1901; and ever since he began to walk he has been among the bees with me, and seemed to take great interest in them. This summer, on his birthday, I gave him seven small hives of Carniolan bees, and told him he could have all the money for the queens he would catch and cage from these hives (by the way, he has quite a little bank account of his own). Of course, I was careful to show him how

HONEY EXHIBITS AT FAIRS.

BY WM. E. PRISK.

Inclosed is a photograph of my exhibit at the Wisconsin State Fair. They say it was very fine, and I received many first premiums. The four corners are all glass filled with 4×5 sections of honey. In the center of the pillars, on a table, are 7 dozen bottles of pure white-clover extracted honey. The arch is painted white, and has four kinds of bottled honey and four different kinds of packages. Right back of the pillars are two tables which you can not see. One table has 11 dozen bottles with twelve kinds of honey. The other table has three different



THE YOUNGEST QUEEN-BREEDER IN THE WORLD AND HIS BEES.

to open a hive, take out a comb, look for a queen, and how to catch her and the worker bees and put them in the cage, etc.; and before the season closed he became quite an expert considering his age. In the picture he is telling the artist how to catch and cage a queen. He gets stung once in a while, but doesn't seem to mind it much. The seven small hives of bees were made from one strong colony of the gentlest Carniolans I ever saw. No smoker and quite often no veil are used when opening hives. I trust this very young queen-breeder will soon tell the readers of GLEANINGS, in his own childish way, what he knows about his little pets.

Lake George, N. Y.

kinds of honey in round pyramids. Next to the tables are three square glass show-cases on top of each other. The bottom show-case has four perfectly filled and capped extracting-frames, large frames, and also four shallow frames. The rest of the case has sections weighing 2 lbs. up to $\frac{1}{2}$ lb. The next show-case has all the different kinds of sections. The top case is full of $3\frac{1}{2} \times 5 \times 1\frac{1}{2}$ sections.

Next comes the shipping-cases, 80 in number, 24-lb. cases, painted in blue and natural finish, also grained in oak and mahogany, equal number of each. On top of the cases is a show-case filled with different kinds of comb honey. Next came the honey-cans,



A FINE HONEY EXHIBIT AT THE WISCONSIN STATE FAIR BY WM. E. PRISK.



CREIGHTON'S EXHIBIT AT A LOCAL PICNIC.

from 5-gallon up to 1-lb. cans. The cans are painted blue, red, and yellow. Next came sample cases of honey and bees which you can not see. Every thing was grained in oak and mahogany, giving it a fine appearance. I had about 4500 lbs. of very fancy honey, about equal parts of comb and extracted. They gave me a fine place in the center of the agricultural building. All sample cases of comb honey were in $4 \times 5 \times 1\frac{1}{8}$ sections. The 80 cases were of all kinds of sections, and, though I use all kinds, I prefer the 4×5 . All sections were perfectly filled, weighing over 15 oz. each.

Mineral Point, Wis., Oct. 9.

ADVERTISING BY MAKING EXHIBITS AND TALKING BEES.

BY J. G. CREIGHTON.

The photo I am sending you is taken from an exhibit I made Aug. 26, at a local picnic. My left hand is on an extracting-frame of honey. I had this in a glass case so it would not attract the attention of the bees in the neighborhood, and so keep the people away from the exhibit, for I wanted them to ask me questions about this frame of honey. I would show them the extracted honey in the bottles, and explain to them how we took it from just such sealed frames of honey. The most attractive part of the display was the one-frame observatory hive of golden Italian bees, with square sections, so I could explain to them how we produce comb honey. I could show them the mother of the bees, in the act of depositing eggs in the cells; also the larvæ, and bees hatching out of the cells. All were much interested, from the children to the old people. I had also three cakes of beeswax on a case of 2-lb. sections of honey. I put up these 2-lb. sections for the occasion, as I think that they make a better appearance than the smaller section. I am one of those who believe it was a mistake to do away with the larger sections, for I can produce more honey with them than I can in smaller sections; and in our county I can sell just as much of it.

In front of me are seven bottles of extracted honey and a cake of beeswax on a case of $\frac{1}{4}$ sections of honey. Over half of the people who looked at the beeswax did not know what it was, and soon began to ask questions, "How do you make it? and what kind of molds did you mold it in?" I explained to them that I melted it by steam, and put the molding on top of it by running it hot into a vessel of cold water.

I believe that, by making these exhibits, we can build up a home market for our honey, and will not have to put it on to the market at wholesale prices. But it will not do to put your exhibit on the stand and then go off and leave it, as many do. You want to stay with it, and answer questions, and talk bees and honey.

Harrison, Ohio, Oct. 10.

[Bee-keepers for the next few years will realize the importance of advertising their business at all large public gatherings. Just now there is no more interesting subject to the general public than bees and the production of honey. Popular demonstrations with live bees in connection with exhibits, as described by our two correspondents, will have a very strong tendency to stimulate the local market for honey. I expect to preach this doctrine clear up to fair time, and even after that time if it be necessary to get our brethren to realize what they can do in the way of advertising *their own business* and nearly doubling their net returns. What is the use of sending every pound of honey to the city, where markets are liable to be glutted, when you can keep that same honey at home, save the freight on it, commission, drayage, and breakage, and get practically double prices? But, more anon.—ED.]



QUESTIONS CONCERNING ITALIAN BEES AND DISEASES OF BEES AND CATTLE.

1. Is it a fact that most of the Italian bees resist bee diseases? Are there very many instances where the blacks have had foul brood? My bees have something very serious—either pickled or black brood. The dead larvæ, in some cases, rope slightly, and have the smell that foul brood is said to have, resembling black brood a great deal. I have had several colonies that had the disease, that showed scarcely any healthy cells in the hive. The Italians I had, that were pure, did not have the disease enough to hurt them seriously for the honey-flow.

2. I am thinking of moving my bees up close to the pasture fence. Would the cattle and horses learn to keep away from that side of the fence when the bees are cross, or would there be danger of the animals staying by the fence and being stung to death?

3. Are the Italians inclined to sting a few feet from the hive when working heavily, and unmolested, as the hybrids are apt to do?

4. Is straw a good packing material? I had six hives in a shed last year, four inches apart, packed tight with straw, with the result that they wintered very poorly. The bees faced the south, and were kept dry. Were they packed too closely, or what was the trouble?

EDGAR WILLIAMS.

Pierpont, O., Nov. 1.

[1. The reports from York State show that black bees are much more liable to con-

tract black and foul brood; and after having once gotten the disease are more liable to succumb to it. From your description it is apparent that you have either black or foul brood. I would advise you to try next season the Alexander cure, which cure might also be effective in the case of foul brood.

2. If you own the pasture and the cattle, there may be no objection to your moving the bees up to the fence line; otherwise I would not do it. Sometimes in the height of the honey-flow, when the bees are flying strong and low, they will attack cattle, but usually not enough to do any serious damage. If there is a hedge fence six or eight feet high, you could put your bees as close to the line as you desire, for that would compel the bees to fly high to get over the fence. The cattle or horses would not learn to keep away from the fence even if the bees were disposed to molest.

3. It is well known that Italians are much gentler than hybrids. Any bees in the height of the honey-flow, if their line of flight is interrupted close to the entrance, are liable to sting. Probably hybrids would be worse in this respect than Italians.

4. Straw is a fairly good packing material, and there is no reason why you should have lost your bees unless the fronts of the hives were exposed to the prevailing winds, and the entrances were too large. For outdoor wintering, especially when the hives face the north, I would not have the entrances larger than 8 inches wide by $\frac{1}{4}$ deep. In the case of weak colonies the entrances should be correspondingly smaller. Along toward spring, with a hooked wire rake out on the first warm day all dead bees that may be clogging up the opening. For this you will probably need the assistance of a smoker to prevent attack.—ED.]

SWEET CLOVER AS A FORAGE-PLANT IN ALABAMA; AS A LAND-RESTORER IT HAS NO EQUAL.

We grow a great deal of sweet clover here; and after reading what has been said in GLEANINGS I inclose a few facts concerning it in this section. They may not be worth publishing, yet they may show forth some of the good points of sweet clover, which have been doubted by so many.

After reading the articles on pages 1120 and 1121 concerning sweet clover I have come to the conclusion that those people who speak against it haven't tested far enough to learn the many redeeming qualities of sweet clover outside of a remarkable honey-plant.

As a whole this section of country grows a large quantity of sweet clover, or melilotus, as we call it. In the first place it was sown on waste places to redeem the land. As a land restorer or enricher it has no equal here. Then the cattle-men began to see and learn of its value for pasture. There is no grass or clover here that fattens cattle so fast as sweet clover does. A cattle-raiser informed me the other day that people had

told him that it wasn't sweet clover, but Johnson grass, that fattened his cattle. "But," said he, "I noted that my cattle didn't gain so rapidly after the sweet clover had gone."

It makes good feed when cut at the proper time, and the stock relish it very much, leaving their other hay to seek out every spear of sweet clover, and eating even the coarse stalks.

But right here, in my best judgment, is where the good qualities of sweet clover have been overlooked. Sometimes, if not quite often, when stock have not been raised on sweet clover they have to learn to like it; but after once learning they never cease to make use of an opportunity to help themselves to the once distasteful stuff. I have known of horses that, when first brought to this section, wouldn't eat sweet clover at all; yet in a short time they had learned to like it so well that, if turned out to graze, you would see them leave all other grasses and seek out a green plot of sweet clover, there to feed on their choice of the field.

I can not speak for other sections of our country; for no doubt soil, climate, etc., make a great difference; but here in our lime land sweet clover is fully appreciated and much valued as a feed, pasture, and land-enricher.

A. B. BROWN.

Sybil, Ala., Nov. 14.

[This only confirms hundreds of other testimonials we have had. It is indeed a travesty on modern legislation that in a large portion of the States of this Union there are laws classing sweet clover as a noxious weed, and requiring its destruction along with the weeds just when it begins to yield nectar. We have a pamphlet on the subject of sweet clover, which we send out free to bee-keepers to hand out to their farmer neighbors; and they should make an effort to have the law, or that portion of it classing sweet clover as a noxious weed, amended. The time will come when farmers will be growing sweet clover on their farms the same as they grow timothy. When that day arrives, our annual honey-yields will be materially increased.—ED.]

THE CUSTOM OF BEATING TIN PANS, AT THE ISSUING OF A SWARM, ABOUT 2300 YEARS OLD.

Hands across the sea! Pass on the handshake to my fellow-teacher Professor Bigelow, and tell him that Alfred the Great is not in it. Away back at the dawn of the Christian era Pliny wrote, "To cause a swarm of bees to settle you must strike on brazen vessels." Claudian, fourth century; Virgil, 70 B. C., and even Aristotle, 384 B. C., mention the playing on "vessels of brass" as a custom universally prevalent. Ovid wrote, probably about the year 1, "They report that honey was discovered by Bacchus. He was proceeding from the sandy Hebrus, accompanied by the Satyrs, and they were come to the flowery Pangæum, when the cymbal-bearing hands of the attendants gave

forth a clang. Behold, impelled by the sound unknown winged creatures swarm together, and the sound which the brasses produce the bees pursue. Bacchus collects them as they flit about, and shuts them up in a hollow tree, and he has his reward in the discovery of honey.

Ovid was a contemporary of Christ; but the worship of Bacchus was introduced to his country more than five hundred years earlier, so that we may presume the tradition of "tanging" is of that age at least. This presumption (if not certainty) is confirmed by the fact that Aristotle draws several of his facts and statements avowedly from the writings and observations of others who lived before his time.

Alfred the Great was born in 849 A. D. Tanging was known to bee-keepers about 1400 years earlier.

Banff, Scotland. D. M. MACDONALD.

A BEE AND HONEY EXHIBITION.

I notice Mr. Morrison's communication in GLEANINGS for Oct. 15, suggesting a show of bees, honey, and supplies, and referring to the horse, dog, poultry, and pigeon men as being active in that way. I would suggest that Boston, with its large local population to draw from, is a good place for a nucleus. I am personally well acquainted with the detail of the various dog, poultry, and pigeon exhibits held here for a number of years, and I am also interested in various shows of these fanciers on both sides of the water. There is a great deal of work in their preparation. I am engaged now on the preliminary work of the Boston Terrier Club specialty show, which has become an annual affair. The New England Kennel Club holds annual dog shows here, usually at a profit. This club made a good-sized profit last year. The poultry people did not have an exhibition last year, but I understand one is on the tapis for Jan., 1906. There are numerous shows of these fanciers in our near-by towns and cities, one of which is passed through about every 15 minutes on the cars, and I think that, by judicious advertising, such as has been done by the fanciers referred to, the public could be interested (the big population of our suburbs I mean); and if such a show were held after due publicity is made through the city and local press, there would be a good show of attracting the public where and when they could be educated in the mysteries of eating honey, for that is the main question; and it is so often that I am asked, "How do you eat it?" that I have frequently to demonstrate.

JAMES M. PULLEY.

Boston, Oct. 23.

[The A. I. Root Co. has already been testing this matter in the city of New York. We made an effort to get into the Madison Square poultry show, but did not succeed. Another and a smaller one we did get into, and there gave daily demonstrations in connection with a stereopticon and moving-picture outfit. The results showed that there

was no better way to advertise honey to consumers who need to be informed of the facts after they have had their heads crammed with newspaper and cyclopedia lies about the honey business. Local bee-keepers, where rightly situated, should make an effort to get into the poultry shows with their bees and honey. But be sure to convince the management that no "bees will get loose to sting the chickens and the dogs." □

With regard to Boston, I would suggest that you confer with Mr. F. H. Farmer, who represents the Root Co. in that city. Possibly he could be induced to make an exhibit another year. We shall, of course, be glad to assist.—ED.]

A CEMENT HIVE-STAND; JAPANESE CLOVER AS A HONEY-PLANT.

Next year, for hive-stands, I intend to make frames about three feet square, and dig out enough so that I can sink them just about level with the earth. Then I'll take one part cement to five parts of sand, mixed to a mortar, and pour it into these frames and scrape it off level with a straight-edge. Two hives will then rest on each stand. The idea of this is that, when the hives are set on, no grass can come up within six or eight inches of the hive; and the cement, being level with the earth, a lawn-mower wheel can run right over it and get every sprig of grass and still not bump the hive.

Will bees work on Japanese clover if they have nothing else to work on? It is everywhere here and in full bloom, and I have never been able to catch a bee on it.

Overton, Tex.

C. A. STILL, JR.

[Your concrete hive-stands would be excellent but somewhat expensive. Four bricks would be almost as good, and a great deal cheaper; or, better still, four wooden stakes a foot long driven into the ground. These should stick up just high enough to support the bottom-board square, letting it tilt forward slightly.

I do not know much about Japanese clover. Will some subscriber please inform us? —ED.]

A REMARKABLE YIELD FROM A COLONY ON SCALES.

Since locating here I have become so interested in growing citrus fruits that my groves of several kinds of orange and lemon trees take most of my time; but I can not be content without bees, and have an apiary of 240 colonies located between the orange-groves and sage-covered hills.

I have practiced keeping a record of one good colony on scales for the past thirty years, and this year breaks all my records for duration of yield—six months constant yield—April 4th to October from orange, button sage, white sage, and wild buckwheat; total gain, 481 lbs., also greatest gain for one week, May 11 to 17, was 12, 12, 15, 22, 24, 14, 16 lbs.; total for week, 115 lbs. from a colony confined the entire season with zinc excluder to eight Langstroth brood-combs and 16

to 24 extracting-combs. I have no swarming. The flow was very heavy from orange, but most of it was lost, as most colonies were not strong enough to store so early, and weather was unusually cool in April, so my general crop is only fair.

Redlands, Cal., Oct. 14. FRANK MCNAY.

HOFFMAN-FRAME TOOL; PROPOLIS, HOW TO KEEP IT OFF.

I have long wanted to say something about the discussion on the Hoffman frame. A very important factor has been neglected — that is, the proper tool to use in connection with them. I believe it was described in GLEANINGS once or twice before. It is simply a pryer and hook made of the narrowest piece of seat-spring steel you can get. Hammer and grind sharp one end; draw the other in the form of a shank like that of a large file; have the end $\frac{3}{8}$ in. wide; turn square, also $\frac{3}{8}$ of the end; file it sharp, chisel shape; let the whole tool be 10 or 12 in. long. Such a tool will promptly fetch them out for me, and also most conveniently, no matter how much glued. When much strength is necessary, use the wide end; otherwise insert the hook end between the frames to pry apart; then push the hook underneath the end of the top-bar furthest from you, holding the nearest end with the left hand. I have used the Hoffman frames ever since you put them out, and like them well.

When you work in propolis time or localities, do not forget to grease your hands. It is much easier to keep propolis off the hands that way than to wash it off when once on. The wide end is specially to pry apart hive-stories.

A. MOTTAZ.

Utica, Ill., Nov. 7.

[There has been considerable said in these columns about different solvents for removing propolis, but very little comparatively regarding satisfactory methods for preventing this deposit on the fingers. Last year one of our correspondents did mention that a little oil on the fingers would prevent their being soiled. There are certain seasons of the year when propolis is abundant; and if grease of some kind will do the work, by all means use it. If any of our subscribers have had any experience I should be glad to have them tell us about it. — ED.]

LARGE HIVES; DESTROYING A PART OF THE APIARY TO KEEP DOWN INCREASE.

I am an amateur in bee-keeping, but have been an attentive reader of your journal during the past year. There are one or two points I should like further light on. First, to what extent are very large hives efficacious to prevent swarming? More honey and less trouble — that's what we all want. Why, some years even the veterans up here leave swarms hanging on trees because every old hive, keg, and box on the farm is full. One man last fall had increased to 100 stands; killed 70 and wintered 30. This year he has but 70 in all — 40 to kill.

Very few in this vicinity care to winter more than about ten stands, on account of the time and attention required to handle the increase.

Another question I am after information on is the distance bees will work from their hives. Most people, I believe, claim three miles or thereabouts. One of your correspondents, however, argued half to three-fourths of a mile only. The latter strikes me as correct.

A. M. COLWELL.

Waconia, Minn., Oct. 26.

[It is too bad to see such a wholesale destruction of bees. Some enterprising beekeeper in the vicinity should buy them cheap. You had better do it yourself, and sell them to your bee-keeping friends at a profit. Do not let any "old-timer" destroy good property like that.]

Large hives, when run for extracted honey, with proper management, will prevent swarming almost altogether. The Dadants, with their large Quinby hives, have, I think, not to exceed over two per cent of swarming in a season. For particulars you are referred to "Hives" and "Swarming" in our A B C of Bee Culture.

The distance bees will fly in quest of stores varies according to the locality. The average flight is not much over a mile and a half, although they will often go three miles. In our issue for Dec. 15 I pointed out how the Alexander bees would go five miles. Bees will often fly across a valley or across a body of water further than they will fly over level ground more or less covered with woods and underbrush. — ED.]

SOME OF THE HONEY-PRODUCING PLANTS OF EASTERN NORTH CAROLINA.

On page 1031 Mr. W. R. L. Dwyer, of Hillsboro, Ohio, wishes to know some of the honey-producing plants of this section, the usual production per colony, length of honey-flow, and quality of honey.

In answering Mr. Dwyer's questions I am sorry to state that modern bee-keeping in this section is in its infancy, so I can not give him the exact information on the average production per colony, but I should say about two supers per colony. I hived a swarm this spring in a Danzenbaker hive on half-inch starters, and in five days the brood-nest was two-thirds full of snow-white honey; but before the bees began work in the supers that flow gave out, and since then there has been scarcely any flow at all.

Fully a third of the bees in this section have died from starvation this year — something which has not happened before in years. All of my weak colonies died in spite of all the feeding I did, the web-worm eating up the comb. Such a year as this, I have been told, has never been experienced before. One bee-keeper in another section says, "We are about to lose the seed of bees over my way."

The general quality of honey here is well flavored, thick, and what I should call amber, although the whitest honey I ever saw

came from this section. It was snow-white, and came from the highland black gum.

The honey-producing plants and trees here are as follows: Maple, holly, gallberry, poplar, black gum, hickory (honey dew), fruit-trees, corn, cotton, cow-pea, blackberry, goldenrod, grape, persimmon, plum, strawberry, sumac, watermelon, squash, pumpkin, and cucumber. Some of our large truck-farms afford quite a field for the bees during the trucking season.

Currie, N. C. G. W. CORBETT, JR.

PLACING A STORM-DOOR OVER THE ENTRANCES OF COLONIES WINTERED ON THE SUMMER STANDS.

After bees are properly fed in September, and packed with four inches of forest leaves, I find it a good plan to place a small box, open at one side, about 6×6 by 18 in., over the entrance. This keeps out the snow, and provides a place where the bees may carry out their dead. It also gives them plenty of air. No matter how deep the snow, it always works satisfactorily. For the last eight years I have removed the snow in spring to let the bees fly if necessary.

I have some fruit-trees in my apiary, and I find in every case the bees in the shade do better than those exposed to the sun.

Bracebridge, Ont. JOHN BAILEY, SR.

[I am not sure but this storm-door idea is a good one. We proved last winter and the winter before that, if the entrances could be protected with loose straw or snow, bees could be kept warmer in the hive. But the difficulty we encountered was that snow would melt over the straw, freeze up the mass, and sometimes close the entrance hermetically. This generally killed the colony. The storm-door would obviate this, I think. These could be made of small drygoods-boxes that you could buy at stores, at a small cost, or perhaps they could be had for taking them away.—ED.]

BEEES SWARMING OUT WITH A VIRGIN QUEEN.

Mr. Doolittle's conversation in the July 15th number was of special interest to me, for I had just been having a number of swarms come out with virgin queens in the very same manner described by Mr. Muth-Rasmussen. The first cases noticed were from colonies from which all but two frames of brood had been removed in forming nuclei. Some of the bees had left the various nuclei and returned to the old stand. These, together with those left at the time of dividing, made quite a fair swarm. When the virgin, reared from the one or more cells left on the two frames of brood came out for her mating-flight a portion of the bees swarmed out with her. In some of these cases I chanced to be standing beside the hive at the time, and opened it at once. A most careful search failed to discover any eggs, unsealed brood, or queen-cells in the hive. There were only two frames that had any

brood, and this was not only sealed but nearly all hatched. These swarms in question seldom settled (though they sometimes did), and did not remain in the air as long as most normal swarms. In two to five minutes they were all back in the hive. An examination three days later showed the young queen laying nicely. Later in the season I had a number of strong colonies which had, by repeated attempts at swarming, lost or killed their clipped queens. To some of these, where needed, I gave a ripe queen-cell or a newly hatched virgin. On the fifth or sixth day afterward the swarm would come out with the virgin, then ready to mate. Some of these colonies had no brood of any kind, because so much time had elapsed since losing their old queen. Three or four days after these swarms came out I would find eggs. I have all my hives numbered, and keep a careful record of each colony, and am just as certain that these were genuine cases of a swarm leaving its hive with no means of rearing a queen as I am of anything pertaining to bees. F. L. DAY.

Detroit City, Minn., Nov. 6.

THE GALLBERRY OF THE SOUTH AS A HONEY-PLANT.

The value of this great honey-plant is not known much to the bee-keeping world, and it is placed in the list of minor honey-plants in the bee-books. But it should have due credit for the hundreds of tons of very fine honey it yields.

As far back as I can trace bee-keeping definitely (89 years) it has not failed to yield a crop of honey. It is seen mostly on waste land; and, although it grows only 7 or 8 feet high, it is very thick. The beds never die out, and begin to bloom the second year of growth. It blooms about the first of May (after all cold weather is over), and continues for 30 or 35 days.

I have counted 3000 blossoms on one bush $\frac{1}{2}$ inch in diameter.

Its honey is a very light amber color, thick and pleasant to taste. I have seen but very little granulated, and that was extracted too soon. I have some samples that are very old, and it has not changed in color. This honey is not known much in the North, and perhaps never will be, as there will never be enough raised here to fill the demand in the South. J. J. WILDER.

Cordele, Ga., Aug. 12.

HOW TO WINTER BEES IN DANZENBAKER HIVES WITHOUT LOSS.

This is the way I winter bees on the summer stands in Danzenbaker hives. I take off all supers containing sections about September 1, so that the bees are compelled to place all honey gathered after that in the brood-nest. This gives them ample time to ripen it thoroughly and place it where they want it. I want them to have plenty of stores so that they will be in position to breed rapidly the following spring. The honey gathered from this time on until frost

will be from heartsease, etc.; and as it is dark, it is not as salable as light honey, although just as good for wintering purposes. After removing the supers I place as many thicknesses of paper as I can get (which sometimes is 18 or 20) down between the outside frames and the sides of the hive, folding the paper in such a manner that it extends up several inches above the top of the hive body. I now place an empty super on the hive, lay two sticks about the thickness of a leadpencil across the tops of the frames so that the bees can pass from one frame to the other without going around below. I now place a piece of old well-propolized carpet over the frames and put a good wheat-chaff cushion on this and replace the roof. When cold weather arrives I place an outside box over each hive, with two or three inches of air-space on all three sides as a windbreak.

With this system of wintering I have not lost a single colony in five years with the exception of the winter of 1903, when they ran completely out of stores and starved. I have never had a case of spring dwindling or a queenless colony show up in spring. By this method I have hives fairly boiling over with bees at the first appearance of white clover; and, to be honest about it, I would not give a great deal to have them insured. Nisbet, Penn. GRANT STANLEY.

[The plan here described would, in my opinion, give very good results.—ED.]

IS THERE A NEW ENEMY OF BEES?

I noticed on page 1084 that Dr. Thos. J. Brown, of Tennessee, describes a case of the very same affection I tried to describe to you on p. 1028. The only difference there is, I saw and destroyed a small worm, not much like the old moth-worm, which you said it was. I am still impressed with the idea that we have a new bee-enemy—certainly one I don't remember noticing before, and I have kept bees for quite a number of years. If Dr. Brown had made a close examination I think he might have seen what I saw. Mine attacked a colony of beautiful Italians, and I think it would have destroyed them had I not taken it in time. I have not seen a case of it in my little apiary since. L. L. BROCKWELL.

Edlow, Va., Oct. 21, 1905.

[I would suggest that Mr. B. or any one else who has seen these peculiar worms send specimens of comb containing them to the Department of Agriculture, Division of Apiculture, Washington, for examination. If they are not a moth-worm, then let us know what they are.—ED.]

TAR PAPER OVER THE HIVES IN WINTER.

I have put my colonies away in their "long winter gowns," with tar paper cut into squares, and put on top of the hives, and folded down so as to reach below the supers

which contain the cushions. I have done this chiefly to guard against any possible leakage from melting snow, of which we have from two to five feet. I am wintering outdoors. I. D. PEARCE.

Guler, Wash., Oct. 20.

[Your plan ought to give good results in your climate.—ED.]

WINTERING TIERED-UP COLONIES.

Kindly tell me how the tiered-up colonies are wintered. I have several. Would it be proper to take off one story, where there are two, and give the queenless one a queen? Hartstown, Pa. J. D. WEST.

[As a general thing a two-story colony can easily be crowded into a one-story at the approach of cold weather. It would be bad policy to separate the two stories and introduce a queen to the queenless portion. The stronger we can have our colonies for winter the better.—ED.]

WINTERING BEES IN A SMOKE-HOUSE.

I intend to winter my four colonies of bees in a house 4×6 that is frost-proof. We used to smoke meat in it, so it smells of smoke a little. Would this be injurious to the bees?

Can I feed sugar syrup in a Miller feeder to my bees in winter? C. J. JOHNSON.
Falun, Wis., Nov. 16.

[The smoke will do no harm. The temperature, however, should not go below 40 nor above 55. A house that is merely frost-proof is not enough. It should be capable of maintaining a uniform temperature, or nearly so; otherwise it is better to pack the bees good and warm outdoors. A building 4×6 is decidedly small, and you could not, therefore, expect to put in more than ten or twenty colonies. So many bees would make the room too warm, resulting in their flying out and thus weakening the colonies.—ED.]

CELLAR-WINTERED COLONIES IN CHAFF HIVES.

I own 80 hives of bees. I have always kept them in the cellar, but I have put 35 of them in chaff hives. Will they keep in the same cellar with those not in chaff hives, or would you advise me to keep them out of doors? E. MATTY.

Syracuse, N. Y., Nov. 12.

[I would put the chaff hives outdoors, and compare results with those in the cellar.—ED.]

NO MORE SEED.

I have been getting letters from bee-keepers wanting seed from the little snow-drop bush in my yard that I wrote you about a short time ago. Please tell your readers that I have no more seed. Velpen, Ind. W. T. DAVISON.



Lay not up for yourself treasures upon earth, where moth and rust doth corrupt, and where thieves break through and steal; but lay up for yourself treasures in heaven, where neither moth nor rust doth corrupt, and where thieves do not break through nor steal.—MATT. 6:19, 20.

My attention was called to the above text recently by finding a book on the table of a relative of mine. The title of the book was "Moth and Rust." It instantly occurred to me that the book must be something remarkably good; and although it was a very entertaining piece of fiction it had very little to say about that beautiful text. After my attention was called to it, the text seemed to unfold and spread out. It was to me, as I have often mentioned before, a "shining light." It seemed as if I could see those wonderful words emblazoned on the vault of heaven in letters of fire. It comes from that celebrated sixth chapter of Matthew, where Jesus seems to be giving his friends wholesome advice and instruction. He commences the chapter by admonishing us not to do our alms before men; and he tells us when we pray to go into our closets and shut the door. Then he tells us about avoiding vain repetitions, and finally gives us that prayer which has been repeated thousands of times, over and over, and yet few seem to comprehend or grasp the wonderful instruction and truth in that prayer. Finally, when the chapter is about half finished he admonishes us not to lay up for ourselves *treasures on earth*. Oh dear! what a scramble there is for earthly treasures! not only in the way of deal, but under the influence of strong drink, wretches calling themselves men knock down poor hard-working people to get their watches or little hoard of hard-earned savings! And that is not all. Helpless women—women who teach school for a living—have been knocked down in the streets of the cities of *Ohio* just so that some low fiend could grab from them the small pittance they had earned by honest toil. We wonder how anybody calling himself a *man* could get to such depths of selfishness and depravity.

And yet these drunken highwaymen are hardly more to be despised than the millionaires who get their wealth by stealing from the honest tax-payer. The words "moth and rust" took my attention. Mrs. Root spends a great part of her time in house-cleaning. It is hard work. She does it herself, mostly, because nobody else does it exactly to her notion. She says that, unless the house is cleaned about so often, and the clothing, carpets, etc., gone over faithfully and carefully, "moth" will get it; and ev-

ery little while some garment she prizes will be found "moth-eaten." I do not know which she hates more—moth or mice; but she wages incessant warfare on both.* She says if we ever build another house she is going to supervise it personally, and have it *absolutely* mouse-proof. I hope science will enable us also to make a house that is moth-proof very soon. Another thing Mrs. Root can not endure is rust. If I borrow one of her tin pails to use in the greenhouse, it must not only be turned upside down when I am done with it, but she says it should be dried on the stove and then wiped out with a clean cloth. The tin pails that she handles never rust out, even if they are made of cheap "Yankee" tin. We have some tinware doing service yet, that was purchased when we were first married, made of good old-fashioned tin. Well, almost every thing in this world rusts if left out in the weather uncared-for. Even the stones in our buildings rust and rot and wear away under the influence of sun, frost, and water. Our iron bridges that cost away up into the millions rust out if they are not kept painted. Every thing in this world wears away and goes to pieces. Now think of the wonderful truth packed in that little sentence, "Where moth and rust doth corrupt." Just take in that word "corrupt." How wonderfully expressive it is! We speak about our men in office who are corrupted by riches. Those at the head of our great insurance companies were so burdened with the millions entrusted to them by the honest, innocent, and unsuspecting people that they became so corrupt they did not seem to have any regard or respect for anybody—neither God, man, nor the Devil, as the expression goes. A few days ago I saw an editorial in one of the daily papers. It got away from me by some hook or crook, and I have not been able to find it since. The editor started out something like this:

"We read in the good book that 'a good name is rather to be chosen than great riches;' but the officers of our insurance companies evidently consider this a mistake. They seem to have decided that *great riches* are rather more important, and a good name of not very much account—at least when they discover their good name is *gone* they manifest but very little concern; and just so they can keep the great riches safely in their clutches they are not much troubled about the loss of their good name. We as a people are taking great pains to send Bibles to the heathen in foreign lands. Why not send some Bibles as well to the officers of our great insurance companies. Perhaps if some of these beautiful passages were marked with a blue pencil they might be induced to read and ponder, and see what they have lost and how *little* they have really *gained*."

*Yesterday I found our grandson Ralph, two and a half years old, with a cloth in his hand dusting and wiping the furniture as well as the floor. He had seen his grandma dusting the furniture, floors, etc., and helped her in her housecleaning. He has surely started out to be a chip of the old block.

Jesus reminded us that, upon this earth, we should find moth and rust constantly corrupting; and at the same time it is a place where thieves break through and steal. A few days ago there was a sudden development of housebreaking and stealing right here in Medina. As we have had no saloons here for about twenty years, property has been tolerably safe, even if you forgot to lock the door nights when you went to bed, or left your potatoes and apples out in the field or in the back shed. Recently there were several raids, and the thief was so low and mean as to take *canned fruit*. Yes, they broke into a comparatively poor hard-working man's cellar, got the most of his canned fruit, and then a week or two later went into the same cellar again and took some more stuff. They did not have the grace to pick out the home of a rich man where the stores would not be missed so much. "Where thieves break through and steal." What do you suppose it costs this nation to keep things locked up so they will be safe from pilfering?

Now, friends, Jesus always gave us a remedy, and he did it in this case. He says, "Lay up for yourselves treasures in heaven, where neither moth nor rust doth corrupt, and where thieves do not break through nor steal." What a beautiful place heaven must be! I never thought of it before, but I am going to tell Mrs. Root that, when we get to heaven, we shall have no further worry from moth and rust (nor mice). I will tell her, too, that when we are there she will not need to get up just as she is ready to drop to sleep because we have forgotten to lock the door. Not only will there be no moth, rust, nor *corruption*, but no stealing, because everybody will love his neighbor just as well as he loves himself. None of us will *even covet* what belongs to somebody else. What a happy place, and what a happy people!

But before closing I have something more to say about that word "corrupt"—"where moth and rust doth corrupt." I suppose moth and rust might represent the love of money more than almost any thing else; and I do not know of any thing more corrupting than big salaries with not much to do in return. One of the officers of the Equitable Life Insurance Co. was getting \$150,000 a year; but since the searchlight of public indignation has been turned on him he has repented a little and concluded he could afford to work (?) for only half that amount.*

I have before mentioned the fact that many of our county commissioners, made up

* Since the above was written I have come across the following, which I clip from the *Country Gentleman*:

It is all over with Mr. McCurdy. Life insurance companies, like republics, are ungrateful. The aged man (Richard A., we mean) who had served the Mutual so long and faithfully for a meager recompense, who offered to cut his salary in two for the privilege of continuing to serve it, has been cast into outer darkness. He says in his letter of resignation that he needs rest and the trustees in their reply hope he will take it. It might be hoped, also, that he will not be obliged to take it in the penitentiary, for that is not a salubrious place for a man past seventy.

mostly of good honest hard-working farmers, sooner or later learn to puff a cigar; it is reported they also play cards, and drink, but I hope this is not true; but it *is* true that I have been greatly pained and astonished to see so many of them, after they have been in office a little while, get to puffing a cigar. One of the best men I know of, and, in fact, one of the best farmers I ever met, a good Christian man, recently ran for office. I said, as I took hold of his hand, "Bro. X., if you should fill this office (and I honestly hope you will) shall we see you puffing a cigar like the rest of them after a time?" He laughed as he replied that he did not think there was much danger. Well, he did not get the office. I do not know what the trouble was, unless it was that somebody who had hold of the wires feared that he would be *too* straight and square in all that he did.

But of late a big change has been coming over us, not only here in Ohio but in a good many other States. So much crookedness has been brought to light that people are demanding those who are candidates for important offices shall be positively opposed to the saloon gang and the liquor-traffic.

There is another way in which riches are corrupting. Years ago I was introduced to a bright young man—I might say almost a boy—who seemed as pure and honest and true as almost any young man you could pick out. I was told that he would probably be a millionaire; and I began wondering at the time whether money would or could corrupt one who looked so guileless and pure as he did. For quite a time he worked diligently and faithfully in the various mills and factories belonging to his father; but later on he was sporting a high-priced yacht. Although he had a beautiful wife, and a child or two, he got among the fashionables, and it soon became noised abroad that he was pretty intimate with another man's wife. A little later they were off for Europe, traveling together as man and wife. The woman's husband made some show of remonstrance at first, but all at once he gave up and let his wife go. It was whispered that he was silenced with money. This man, because he was a millionaire, was allowed to trample the holiest laws of our land under foot with impunity, and public opinion seemed to say, "Oh! he is a millionaire; he can do any thing he pleases so long as he has money enough to pay for it." God forbid that this thing should continue. I want to live to see millionaires sent to prison like other people unless they obey our laws. I am sure our good President will stand by me in this, even if nobody else will.

Here is something more in the same line, clipped from the *Cleveland Leader*:

MRS. ASAY NOT TO CONTEST WILL.

CHICAGO June 7.—Mrs. Elizabeth Asay returned today from Sharon, Pa., where she attended the funeral of the late Peter L. Kimberly.

Mrs. Asay said to-day: "There is no reason why I should try to break Mr. Kimberly's will. He has provided me with enough money to live for the rest of my life; and, even if he had not, I have means of my own."

Any one who could be so good to me as he was alive could not forget me in death.

"I lived as Mr. Kimberly's wife for five years. During that time his relatives, his nephews, and others visited us constantly. 'Pete,' I used to say to him, 'what can people think of us?' He used to answer me, 'Well, don't they come here? Why borrow trouble?'"

"I never used his name except when we traveled, and then he would register me as his wife at hotels. In New York and San Francisco and other cities I met all his best friends, who knew that I was not his wife. I knew that this was not right, but what could I do? I wondered at the power of money. What can't money do? His friends seemed to think it all right."

There it is, friends. This poor woman was comparatively helpless in the clutches of that millionaire with all his money—at least she supposed she was helpless. She says, "I wondered at the power of money. What can not money do?" There you have it. This rich man defied public opinion. He defied the laws of our land. He passed this woman off as his wife at respectable hotels when he had a legal wife living; because he had money, and could do things on a large scale, everybody bowed down to him. His relatives came and visited him just as if it were all right. Now, suppose this thing gets to be more common—what will be the result? And, finally, what satisfaction or enjoyment could this man get out of life? I wonder if he ever considered what his example was to the younger ones growing up. The man who can reflect, when he comes to die, that he has "fought the good fight and kept the faith," as Paul said he had done, can feel willing to have the younger ones copy his example. He has laid up treasures in heaven. His good name can not be taken from him. Moth and rust will never harm it. But this other one—this millionaire who set an example of going about the world with a woman who was not his wife, where is his treasure? what does he look forward to, and what has he to feel happy about when he comes to die? Jesus told us the fate of such as he in the following:

The Son of man shall send forth his angels, and they shall gather out of his kingdom all things that offend, and them which do iniquity, and shall cast them into a furnace of fire; there shall be wailing, and gnashing of teeth.—MATT. 13: 41, 42.

Dear friends, as I approach the close of this home paper my conscience troubles me because I have had so much to say about laying up treasures *on earth* and the *selfishness* of humanity. Let me give you another glimpse that includes quite a lot of humanity:

In coming home from Indianapolis I shook hands with an officer of the Salvation Army, and began laughing at him because he could not remember me. Then it transpired that he was somebody else. I was in the predicament of the Irishman who met a friend, as he supposed; but when they began calling each other by name he said, "Faith, and it turned out to be *neither* of us." Well, I have learned to take it on general principles that any one belonging to the Salvation Army is my friend and I am his. And now let me digress a little.

When the papers announced a few months ago that Ashland, the county-seat of Ash-

land Co., Ohio, had suddenly *gone dry*, everybody was astonished, for it is a place of several thousand inhabitants, and a number of saloons have been rampant there as long as anybody can remember. This Salvation Army officer explained to me how it happened—that is, if it really *did* happen. There has been an organization of the Salvation Army in Ashland a good many years; but it had become run down, and its members were half-hearted. A short time ago a German boy in his teens was taken into their ranks. This boy astonished everybody by his zeal and energy in pleading for the Lord Jesus Christ in season and out of season. He built up the Salvation Army and started revivals in the churches; but right in the midst of his work, by some inscrutable act of Providence (or was it some man's folly?) he lost his life. But the work he had started still went on. In fact, his sudden death, perhaps from overwork in pleading for righteousness, seemed to give it a new impetus; and this was the start of a temperance crusade that banished the saloons from Ashland. The result was as it was at Leipsic as I told you about in our previous issue—a great revival started. In the *Cleveland Press* for Dec. 7 we find the following:

HUGE TABERNACLE BUILT IN 22 HOURS FOR A REVIVAL.

Ashland County is in the midst of a religious awakening so widespread as to compel the hasty construction of a huge barnlike tabernacle to accommodate the vast throngs which attend the meetings. The revival feeling has penetrated to practically every home in the city; and businessmen, merchants, laborers, and people of all classes have joined hands with the R. v. M. B. Williams, the evangelist in charge, in making the revival a success.

In such deadly earnest are the people of Ashland that the tabernacle, which will hold 2700 persons, and which is dedicated solely to evangelistic services, was built in 22 hours. Men of all classes joined hands to erect it.

ALL JOIN IN WORK.

Lumber-dealers furnished building material; a real-estate dealer donated the ground, and an army of enthusiastic volunteers gave a day's labor to assist in the construction of the huge building.

The revival began a week ago in the armory, the largest building in this town of 6000 inhabitants. In a few days the attendance grew so rapidly that this building was dwarfed, and the necessity for more commodious quarters forced the erection of the tabernacle. One meeting of the enthusiasts was sufficient to raise the necessary money, and the work was begun at once.

Young men and old, from factory and building; carpenters, plumbers, gas-fitters, business men, common laborers, and others less skilled, drove nails, sawed boards, fitted pipe, hauled straw, graded, and did a thousand and one things necessary for the construction of the improvised house of worship.

The structure is 95 by 130 feet, consuming 45,000 feet of lumber. It is 25 feet in the highest point, and it is lighted and heated by natural gas. The floor of the tabernacle is mother earth, covered with three loads of matted straw, and the place is dry, sanitary, ventilated, and without draft.

It is manifest from the outpouring humanity at the services, which borders on the sensational, that Dr. Williams has the united support of every Christian worker in the county. Dr. Williams is a forceful speaker, possessed of wonderful resources, and a fearless, aggressive campaigner.

There are 200 voices in the choir, which is conducted by Prof. Loay Sutherland, a singing evangelist, of Shelby, Mich.

These services are under the auspices of the Ashland Ministerial Association; and the tabernacle feature, being an entirely new departure along evangelistic lines in Ohio, promises to spread over this State and out of it. There have been 139 conversions, with prospects for more.

Bee-supplies



We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

Kretchmer Mfg. Co., Council Bluffs, Iowa

CAUCASIAN QUEENS

Guaranteed mated to pure Caucasian drones. Good honey-gatherers. Gentlest bees in World. Can be handled without veil or gloves.

Notice the distinct gray bands on my strain of Caucasians—can be easily distinguished from other races. ♀ ♀ I am breeding queens from a mother of wonderful gentleness, whose bees have never stung me even when I have put them to tests that would have infuriated the gentlest of Italians. ♀ ♀ I have no mismated queens for sale—only pure Caucasians; and I guarantee every queen sent out to be mated with a pure Caucasian drone. ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ **Price of Queens, \$5.00 Each.**

Place Orders Now with Postoffice Money-order, as Queens will be shipped first to those who place their orders now.

D. E. LYON, Ph. D. - - - MATAWAN, N. J.
TWELVE YEARS' EXPERIENCE WITH BEES.

WISCONSIN BASSWOOD FOR SECTIONS

We make them and the very best of Dovetailed Hives, Shipping-cases, and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'FG CO.
MARSHFIELD, WISCONSIN.

A Happy New Year

and a Prosperous
Season is yours.....

if you take time by the forelock, and be prepared for the season when it comes. **DON'T** put off ordering your supplies until you need them. Order now, and get the discounts.

I have a full line of Root's Goods, and sell them at factory prices and discounts. Send me a bill of what you want and let me tell you what I will deliver them at your depot for. Send for my 36-page catalog—it will be sent free—also a full description of the Hilton Chaff Hive and Supers, with a comparison made by the Michigan State Agricultural College between the single and double walled hives. All free for the asking. Cash or goods in exchange for wax.

Geo. E. Hilton, Fremont, Mich.

HOW You Get This New TONGUELESS Disc Harrow FREE on Thirty Days' Trial

It's this way—
An entirely new feature is embodied in the construction of this Harrow.

The Forward Truck, without any Tongue, positively relieves the horses of all Neck Weight and Side Draft, and allows them free, easy movement. They have just an even, steady pull.

Why should a team, that is already having a hard time to work and travel on rough, uneven ground, be hampered and annoyed by the Threshing of a Tongue, and by the weight of a Harrow Frame?

There is absolutely no reason for it.

To give you a chance to examine this Harrow for yourself, and to prove to you that it is exactly as represented, and that it will produce the results claimed for it, we will send any size you select, on a 30 Days' Approval Test, all Freight Charges Prepaid.

If you find the Harrow to be exactly as represented, and to work as we claim it will, you pay for it: Cash or easy terms as you prefer. If not, send it back at our expense.

See What Mr. Weaver says:

Dexter Mo., Oct. 26, 1905.

American Harrow Co., Detroit, Mich.

Gentlemen: We are pleased to write you that the No. 1418 Tongueless Disc has been received and thoroughly tested, and found not wanting anywhere.

We have at last a long felt want supplied—a Tongueless Disc. We have concluded that the draft of this harrow is one-fourth less; three horses will draw this harrow with as much ease as four horses will any tongue disc made. We have often wondered why a tongueless disc was so long in getting made. We are surely pleased, and trust you will never make anything but Tongueless Discs.—Yours respectfully,
L. F. WEAVER.

This Harrow is built on right principles

- No Side Draft.
- No Neck Weight
- No crowding of team in short turns
- Just even, steady pull.
- Front Truck carries weight of Frame, and controls movements of Harrow.
- Ball bearings take the end thrust
- Double levers make handling easy.

All our output goes direct to the farmers on the 30 Days' Approval Test Plan, with time to pay if you wish.

The Detroit Tongueless Disc Harrow is protected by exclusive patents and manufactured and sold only by us. Write today for booklet giving full description and prices that will please you.

Say when you want to use the harrow, so we can take care of you right.

Orders for Spring delivery are already coming from every State in the Union.



AMERICAN HARROW COMPANY
4627 Hastings St., Detroit, Mich.



No. 6 Iron Age Combined
Double and Single
Wheel Hoe, Hill
and Drill
Seeder.

Your Spring Help

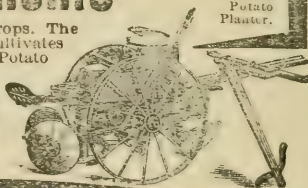
What kind of help will you have this spring. Will you do your work the old way with many men and much expense, or employ the time-saving, laborlessening and money-making

IRON AGE Implements

These implements comprise tools for the cultivation of all crops. The No. 6 tool shown, prepares the ground, sows the seed and cultivates the growing crop. The Iron Age (Improved Robbins) Potato Planter has no competitor. The only planter performing absolutely perfect work. Ridging and Walking Cultivators, Sprayers, Hoes, Drills, Potato Diggers, etc., all are shown in the New Iron Age Book. Most complete and instructive look on crop raising published. Write for it. It's Free.

BATEMAN MFG. CO., Box 120, Grenloch, N. J.

Iron Age
(Improved
Robbins)
Potato
Planter.



Ride On Rubber

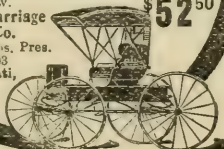
for only \$52.50. Over the jumps without the jar. As safe to the vehicle as our genuine, solid rubber, 2-year guaranteed

SPLIT HICKORY HUMMER

Top Buggy on 30 Days Free Trial, direct from our factory. Split Hickory trade-mark stands for 25% more value. Write and tell us what kind of vehicle you want. Free 1906 Catalogue tells all send for it now.

The Ohio Carriage

Mfg. Co.
H. C. Phelps, Pres.
Station 293
Cincinnati,
Ohio.



PLANT OUR QUICK-GROWING NORTHERN SEED

You will gain from one to three weeks over your neighbors who plant home-grown seed. Think what higher prices this means. No more labor—no more land—but bigger, earlier crops, and larger profits.

Northern Seed grown in colder climate and shorter season matures much earlier.

POTATOES Our Extra Early Petoskey is a marvel. Large, fine, smooth, white. Big yield; earliest of all. Try some this year and see for yourself. Send 25c, stamps or coin, and get one large seed potato and catalogue (worth dollars to any grower). Complete line hardy Northern Grown Seeds. Catalogue alone free. Write today, while you have this before you.

Darling & Beahan, 73 Michigan St., Petoskey, Mich.

Let Us Quote You a Price on a First-Class Fanning Mill

Made by a Fanning Mill Factory that makes a specialty of high-grade mills.

You should own a Fanning Mill.

It will save its own cost in short order. By separating the different grades of grain, you get a fancy price for the best.

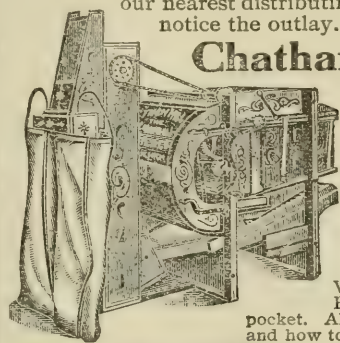
Your seed grain will not be mixed.

Grain, as it comes from the threshing machine isn't fit to sow.

A fanning mill will clean it—and grade it,—get all the best together,

Wheat, Oats, Rye, Barley, Timothy, Clover, Millet, Flax, Rice, Peas, Beans, Corn, Kaffir Corn, Potatoes, Broom Corn, Alfalfa, Grass Seed, Cotton Seed, Alsike, Blue Grass, Red Top, Buckwheat, Hungarian, Orchard Grass, Rape, Rye Grass, etc., etc.

Will you let us tell you about our complete line of Fanning Mills that have the gearing all on the inside and a patent anti-clogging device that prevents choking? We sell direct from the factory and ship to you from our nearest distributing depot. Selling terms so liberal you don't notice the outlay. Sold on 30 days free trial if you wish.



Chatham Mills

are sold only from our factory—not by catalogue or mail order houses.

At the prices we quote they are the greatest Fanning Mill values in the country; and the name CHATHAM stands for 60 years of high quality.

OVER 200,000 MILLS IN ACTUAL USE.

Send for complete description and save more than the price of the mill in a single season.

The Manson Campbell Co., Ltd.
Makers of Chatham Fanning Mills, Incubators and Brooders

342 Wesson Avenue, Detroit, Mich.

If you would know "How to Make Dollars out of Wind," send for our little book of that title. It is FREE, and tells how a Chatham puts dollars in your pocket. Also a lot of valuable information about good seed and how to obtain it. Remember! this is FREE and postpaid

if you write today.

24 Shipping Warehouses Located in Leading Cities Insuring Quick Delivery.

SPLIT HICKORY

Trade Mark

Stands for quality.
Costs no more. Don't buy the unknown kind.

From our Factory to you.

SPLIT HICKORY SPECIAL

Everything of the best and made to order. **30 Days Free Trial.** 2 years steel-clad direct guarantee. Write and tell us the style of vehicle you need. 1906 Catalogue, 180 pages, now ready. Write for it today. It's free.

The Ohio Carriage Mfg. Co.
H. C. Phelps, Pres.
Station 293
Cincinnati, Ohio.



\$50

Safety and Ease

and comfort in shaving are found only in the soothing lather of the old reliable

WILLIAMS' SHAVING SOAP

Sold everywhere Free trial sample for 2-cent stamp Write for "The Shavers Guide and How to Dress Correctly."

The J. B. Williams Co., Glastonbury, Conn.



THE BEST STRAWBERRY

is Senator Dunlap—large, fine colored, very productive. Catalog of Strawberry and other berry plants FREE.
L. J. Farmer, Box 608, Pulaski, N. Y.

FRUITFUL TREES

MILLIONS OF FRUIT AND FOREST TREES

Small Fruits and Evergreens. Russian Mulberry and Black Locust, \$1.00 per 1000. Carefully dug and packed. Freight prepaid on \$10.00 orders. Catalogue free. Fine trees guaranteed.
Gage County Nurseries, Box 647, Beatrice, Neb.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Old combs or slumgum from solar extractors. Will pay for the amount of wax secured less the cost of time in rendering. None can be used after Feb. 15. THE A. I. ROOT CO., Medina, Ohio.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—Honey, wax, slumgum, or supplies, in exchange for standard-bred White Wyandottes. H. E. CROWTHER, No. Kingsville, Ohio.

WANTED.—Raw furs of all kinds. The highest cash prices paid. Prices on application. Goods held separate if you wish. O. H. MORLEY, Hector, N. Y.

WANTED.—Old books on bee culture, especially from foreign countries. Please state titles, authors, year of publication, edition, binding, condition, number of pages, and price wanted.

A. L. BOYDEN, Medina, Ohio.

WANTED.—A registered bloodhound bitch in whelp to pure-bred dog. In answering please give color, age, and breeding as well as of dog bred to.

WM. LINTON, JR., Aurora, York Co., Ont., Can.

WANTED.—Three copies of A B C in Bee Culture, edition of 1899. Must be in good condition. Will exchange for new late editions or for cash. Address HETTIE E. HOFFMAN, Box 331, Canajoharie, N. Y.

WANTED.—At once, partner with \$1500 capital; experience not indispensable; business already established; good chance for the right man.

J. E. CHAMBERS, Vigo, Texas.

WANTED.—To exchange No. 5 Blickensderfer type-writer for extracted honey. Address H. F. MORSE, Route 2, Marshfield, Vt.

WANTED.—Any bee-books, except Quinby's and Miner's, published in U. S. A. before 1857. Advise titles offered, dates, condition, etc. Card to COL. WALKER, Leeford, Budleigh-Salterton, Eng.

WANTED.—To pay cash for comb and extracted honey. L. H. ROBEY, Worthington, West Va.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. \$1.00 per month; \$10.00 per year. Daily except Monday.

Help Wanted.

WANTED.—Competent bee-keeper. Single man; one that can do farm work also. Employment the year round. State age, and wages desired.

W. P. SMITH, Penn, Lowndes Co., Miss.

WANTED.—Experienced bee-keeper (married man preferred), one accustomed to large apiaries. We will keep satisfactory employee by the year. Advise with age, experience, wages asked, and references.

DR. GEO. D. MITCHELL & Co., Ogden, Utah.

WANTED.—A sober, honest, reliable young man by the year at good wages who likes bee-keeping

W. S. GROW, Naples, New York.

For Sale.

FOR SALE.—Caucasian queens bred from the best imported Caucasian breeding queens; nuclei and full colonies of gentle Caucasian bees; also Italian bees and queens. Write

A. E. TITOFF, 3203 S. Main St., Los Angeles, Cal.

FOR SALE.—150 colonies of bees, 30 in Danz, and balance in Root eight-frame Dovetailed hives, at \$3.50 per colony complete in excellent condition for winter; heavy stores; a great bargain for the price. If interested, write for further particulars.

W. M. BAILEY & Co., Spartanburg, S. C.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season.

W. N. CANNON, Greenville, Ala.

FOR SALE.—We are prepared to furnish millstones, window and door sills, cobblestones, etc. in any shape or quantity, from the celebrated Brush Mountain grit; suitable for grinding all kinds of paint, barytes, clay, cement, grains, etc.

STANDARD MILLSTONE CO., Vicar Switch, Va.

FOR SALE.—Root's bee-supplies at factory prices: full colonies Italian bees; queens in season (catalog free); Plymouth Rock chickens and eggs; incubators, brooders, poultry food, etc.

H. S. DUBY, St. Anne, Ill.

FOR SALE.—Different kinds of cow peas, stock peas, etc. Write for prices. Buy now before they advance.

E. R. MILLER, Hearing, Norfolk Co., Va.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to

FRANK S. STEPHENS,
Paden City, W. Va.

FOR SALE.—Weed-process foundation business; a rare chance to buy a foundation business with good growing established trade; price \$800.

H. F. HAGEN, Denver, Colo.,

Or The A. I. Root Company, Medina, Ohio.

FOR SALE.—Eight acres on foothills, 'twixt orange and sage; 105 stands bees, three stories; good bee-house, etc.

J. C. HALL CO., 29 Nordina, Redlands, Calif.

FOR SALE.—Ginseng seed, \$3.00 per 1000; \$20.00 per 10,000.

FRANK ERKEL, Le Sueur, Minn.

FOR SALE.—Sixty 2M Danzenbaker supers. Not painted; used two or three years in double-walled hives. Price \$21 for lot.

F. B. LOOMIS, Rushville, N. Y.

FOR SALE.—100 stands of bees in good condition, in 10-frame L. hives. Address

HUDSON, 155 N. Beaudry, Los Angeles, Cal.

FOR SALE.—Bee-ranch. I have one of the best bee-ranches in California, which I now offer for sale. I have produced over \$2000 worth of honey from it this year. There is no bee-disease in this section. Write for particulars.

724 Irving Ave., San Diego, Cal.

FOR SALE.—Bee-keepers' supplies. Root's goods. Root's prices.

F. R. DANIELS,
117 Florence St., Springfield, Mass.

FOR SALE.—Cheap, 32 colonies of Italian bees in eight and ten frame two and three story hives. Reason for selling, have no time to take proper care of them.

N. O. PENNY, Vero, Indian River, Florida.

WE WANT NAMES. Send us the names and postoffice addresses of fifteen good farmers and fifteen cents—stamps taken—and we will send you the Farmers' Call for two years. The Farmers' Call is 25 years old, weekly, more than 1200 pages a year. Sample copy free.

Address FARMER'S CALL, Quincy, Ill.

Farm and Stock is an illustrated monthly magazine in the interest of CORN BREEDING, Cultivation and Live Stock. Price \$1 a year, but for a short time will be sent a year on trial for 10c and names of ten farmers who grow corn.

Farm & Stock, 251 Charles, St. Joseph, Mo.

You Need It.

If you have only a few chickens;
If you are at all interested in poultry;
If you are breeding for fancy points;
If you cater to the market trade;
If you are in the business on large scale, you need

Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. a year, but we offer it **AT HALF PRICE** for a short time to introduce it to readers of Gleanings. Send only 25 cts. and get it a year; or, if you send us \$1 for a year's subscription to Gleanings in Bee Culture, we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.

DO YOU RAISE CHICKENS?

If so, you will find The Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cts. a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

The Big Two of the Poultry Press

go every week to thousands of exclusive readers who buy liberally in the desire to beautify their Rural Homes. . . .

The Feather

The most conservative and instructive of all monthly journals devoted exclusively to the advancement of poultry culture in all its branches.

The American Fancier

The great weekly journal devoted to the interest of the business in all its branches, goes continually on Saturday to those most interested in standard-bred poultry.

THE ADVERTISER looking for profitable returns can not afford to neglect the advantages to be gained from the use of the advertising pages of *These Two Journals*.

Begin Now, the Harvest is at Hand

For special rates send to publishers of this journal or to the home office of the two publications.

The Howard Publishing Co.

714 12th St. N. W., Washington, D. C.

POULTRY PAYS

if you get the right start, the right eggs or fowls and the right materials to work with. Our complete poultry guide pictures and describes all breeds, gives incubating, brooding and feeding directions. It lists Thoroughbred Fowls and Eggs, incubators, brooders, poultry ration and everything need-d for profit. All at lowest prices and all guaranteed satisfactory or your money back. Send for Free Book for 10 cts postage.

American Incubator Co., Box 115, Freeport, Ill.



40 BREEDS

Fine pure-bred, chickens, ducks, geese, and turkeys. Northern raised; hardy and very beautiful. Largest poultry-farm in the Northwest. Fowls, eggs, and incubators at lowest prices. Send 4c for fine 70-page poultry book and catalog.

R. F. NEUBERT, Box 778, MANKATO, MINN.



FREE! FREE!

Send for a copy of the INDIANA POULTRY JOURNAL, and receive a fine color picture free. Cost us \$400 costs you nothing. Our paper has the admiration of every poultry man. Have you seen it? Well do not miss it.

Address Indiana Poultry Journal Co., 50 Cord Bldg., Indianapolis, Ind.

PROFITABLE POULTRY



Berry's Golden Rule Poultry Farm, Box 53, Clarinda, Ia.

Investigate the

Poultry Business

Write for a copy of my book which describes the profitable combinations of Egg, Broiler, and Roaster Farms.

It gives the prices paid for eggs and poultry week by week for the past three years. It tells how and when a hatch taken off each week in the year could be most profitably marketed. It shows how you can make \$2.00 on a large winter roaster. It tells what profits can be made with each of the popular breeds, and the costs of production.

I have helped thousands to make money with poultry. My Model Incubators and Brooders are used on the money-making farms. It is my business to teach those who use them to do so profitably. Whether your needs are small or large, I will furnish, without charge, estimates and plans for a complete equipment that will insure success without your spending a dollar uselessly.

Send for my complete literature.

CHAS. A. GYPHERS

3927 Henry Street, Buffalo, N. Y.



Hatch and Brood

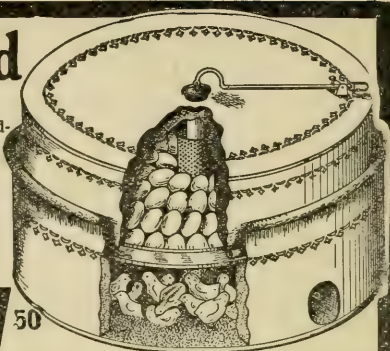
AT SAME TIME

Here's a new thing—a complete hatcher and brooder, one machine that performs both of these operations at the same time and does both well. The

METAL MOTHER Brooder-Hatcher

is a long step ahead of all others—the most remarkable invention in the poultry world. With it 2 qts. of oil hatches 50 eggs and broods the chicks—brood one batch while you make another hatch. Our nest system enables you to do this. A time-saving, labor-saving, oil-saving machine complete for \$7.50. Free catalog—tells how it works. Regular Cycle Hatchers and Brooders at \$5 each are great favorites. Write today.

CYCLE HATCHER CO., BOX 223, SALEM, NEW YORK



\$7.50

BIG PROFITS in Farm Poultry



If you raise it right. Mark the "W" and let us start you right with a new 1906-Pattern

Standard Cyphers Incubator

"the sensation of the poultry world;" guaranteed to hatch more and healthier chicks with less oil than any other of your money back. We mean it. 90 days trial. Complete and give addresses of two near by poultry raisers. Write nearest office.

CYPHERS INCUBATOR CO., Buffalo, Boston, Chicago, New York, Kansas City or San Francisco.



1906-Pattern Standard Cyphers Incubator.

Take Your Own Time. Old Trusty Incubator

40, 60 or 90 Days Trial.

We want to send you the 'Old Trusty' Book. You ought to read it before buying an incubator, because it has more every-day 'chicken sense' in it than any catalog you have ever seen. 300 good pictures. It tells why 'Old Trusty' does such good work—why it hatches so many and so good chicks—why it is so easy to operate—why it is so economical. It's sold on 40, 60 or 90 days trial, freight prepaid. Write to us.

M. M. Johnson Co.,
Clay Center, Neb.



We Pay
the
Freight.

SEE THE 1906 RELIABLE

before you buy. Perfectly practical for poultrymen or beginners. Double heating system gives bigger hatches—saves one-third the oil. Sold on a money back guarantee. Write for free catalog. Reliable Farm Pure-Bred Birds and Eggs. Get prices. Reliable Incubator and Brooder Co., Box B-49 Quincy, Illinois, U. S. A.



\$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

GEO. H. STAHL, Quincy, Ill.



Racine Incubator

The simple, sure, dependable kind. Used by thousands of successful poultrymen and women.

Our free Incubator Book tells about them—tells how to make poultry pay 24 years experience. Don't buy until you read it. Warehouses: Buffalo, Kansas City, St. Paul. Address

Racine Hatcher Co., Box 114, Racine, Wis.



We pay
the freight



Take Your Choice.

Guaranteed Self Regulating Incubators RENT at \$1 and \$2 per month. Let rent pay for it. We pay freight. Buy on 40 Days Trial or buy parts and plans and build one. Prices, ready to use; \$5.00 up. Free catalog—tells all.

BUCKEYE INCUBATOR CO., Box 64, Springfield, O.

BANTA Incubators & Brooders

Backed by 14 Years of Successful Use by

poultrymen all over the world. No guesswork. They are automatic in regulation and ventilation. Fully guaranteed to give YOU satisfaction. Send for free book. BANTA-BENDER MFG. CO., Dept. 23, Ligonier, Ind.



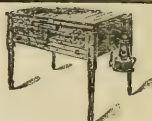
Get An Incubator

made by "the man who knows"—founded on 20 years experience. You can make money with Miller's

IDEAL INCUBATORS

and Brooders; absolutely automatic and self-regulating. Positively Lowest Prices. Handsome 128 page Poultry Book free.

J. W. MILLER CO., Box 48, Freeport, Illinois.



SEND US THE NAMES

to-date dress-patterns at 5 cents each. Agents wanted.

of five of your lady friends with 15 cents to help pay postage and we will send you **THE HOME INSTRUCTOR** for one full year. Devoted to the American Queen and her realm—the American home. The only magazine on earth that lists up-to-date dress-cutting lessons in each issue; good stories; stamps taken. Address **THE HOME INSTRUCTOR**, Quincy, Illinois.

Widen The Circle

There is no better way for the farmer to widen the circle of his influence than to join with his neighbors in building a telephone line. It extends the neighborhood circle and enables each one to receive advantages that cannot be had in any other way. The cost is meager compared with the benefits of a good telephone line, and progressive farmers, who are awake to their own interests, are building many such lines.

Stromberg-Carlson Telephones

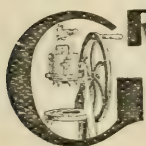
are used on nearly all farmers' lines because they have been found to be the most suitable telephones for that purpose. It don't pay to experiment when you can get Stromberg-Carlson Telephones and be sure of good service. Start off with the best and your line will always work satisfactorily. You will also avoid the expense of changing instruments in a few months. Book 36 I, "How the Telephone Helps the Farmer," tells how to organize, build, and operate a farmer's line. It's free, and every farmer should have a copy.

Address
Nearest
Office

Write
For Book
Today

STROMBERG-CARLSON TELEPHONE MFG. CO.
ROCHESTER, N. Y.

CHICAGO, ILL.



GREEN BONE MAKES EGGS

Lots of them, because it is rich in protein and all other egg elements. You get twice the eggs, more fertile, vigorous chicks, earlier broilers, heavier fowls, bigger profits.

MANN'S LATEST MODEL BONE CUTTER

10 Days Free Trial. No money in advance.

cuts all kinds of bone, with adhering meat and gristle easy, fast and fine. Automatic feed, open hopper, never clogs. Car'tg free.
F. W. MANN CO., Box 37, Milford, Mass.



THE HUMPHREY GREEN BONE and VEGETABLE CUTTER

will save half your feed bills and double egg yield. Guarantee 1 to cut more bone, in less time, with less labor, than any other. Send for Special Trial Offer and handsome catalogue.

HUMPHREY,
Mino St. Factory, Joliet, Ills.



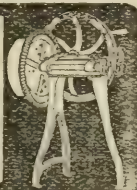
BUSHEL OF EGGS

follow the feeding of cut bone. The

DANDY Green Bone Cutter

is the simplest, fastest and easiest bone cutter made. Price \$5.00 up. Sold on 15 days trial Satisfaction or no sale. Send for price book and Special Proposition.

Grattan Mfr. Co., Box 54, Erie, Pa.



OUR PLANTS, ROSES,



Seeds, Shrubs, FRUIT AND ORNAMENTAL TREES have been the standard of excellence for over half a century. You take no chances in buying of us as no fairer prices are quoted on high quality goods. The best are always most satisfactory in results. We mail postpaid Seeds, Rose Plants, Bulbs, Vines, Etc., and guarantee safe arrival and satisfaction, larger by express or freight. You will

be interested in our extraordinary cheap offers of over half a hundred choice collections of Seeds, Plants, Roses, Etc. Your address on a postal will bring you our elegant 168-page Catalogue FREE. Send for it today and see what values we give for a little money. 62 years in 44 greenhouses, 1300 acres.

THE STORRS & HARRISON CO.,
Box 187, PAINESVILLE, OHIO.

PER ACRE

NICHOLS' GOLDEN CHIEF

To Growers of our Wonderful New Corn Record, 372 bus. per acre; also \$100 for the largest yield of our new **WHITE COMET OATS**. Record, 183 bus. per acre. Our Big 1906 Garden Guide describes and illustrates the above, also world's Largest Tomato; weight, 6 lbs. and 2 ozs. Send your name and address today for a Free Pkt. of the Seed. We sell "Pure and Sure" Seeds at wholesale prices direct to the consumer. Our Catalog and the Tomato Seed is FREE.

ST. LOUIS SEED CO.
704-706 N. 4th St., ST. LOUIS, MO.

HARDY PLANTS AND SEEDS

Jewell's Complete Horticultural Establishment (founded 1868 by Dr. P. A. Jewell) is located in the North where hardiness is essential. It occupies 1300 acres in one body and is entirely devoted to the production of Fruit and Ornamental Nursery Stock, Garden and Flower Seeds. It maintains an experimental orchard and garden of over 100 acres in which all varieties are thoroughly tested. 50-page book of horticultural SUGGESTIONS free—a postal will bring it. Five complete FREE CATALOGS of Reliable Agents Wanted.

Jewell Nurseries, Lake City, Minn.
BOX 12

THE BEST RASPBERRY

is Plum Farmer; early, large, enormously productive. Catalog of raspberry, strawberry and other berry plants free. Write for it NOW.
L. J. Farmer, Box 608, Palisadi, N. Y.

LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address
COILED SPRING FENCE CO.,
Box 448 Winchester, Ind.

Strawberry Plants

Virginia and Chesapeake, winners of \$100 GOLD PRIZE offers; also Cardinal, Commonwealth, North Shore, Oaks Early, New York, Glen Mary, Stevens Champion, and 90 others; best list, good stock, fair prices. Dewberries: Lucetia and Austins.

Seeds Full line best new and standard old varieties GARDEN, FIELD and FLOWER SEEDS. New 60 Page Catalogue Free. It tells about good plants and seeds and where to get them. Send now to

W. F. ALLEN, Dept. 20, SALISBURY, MD.

Trees, Plants & Seeds

THAT GROW

Best quality. Good bearers. Low prices. Apple 4c; Plum and Cherry 12c; Peach 4c; all budded; Concord Grapes 2c; Forest Tree Seed, lines \$1 a 1000.

GERMAN NURSERIES
Carl Sonderegger, Prop.
for it today. Address
GERMAN NURSERIES,
Box 33 Beatrice, Neb.

HARDY

EVERGREENS

We grow them by the million. To prove they are healthy and vigorous we offer 12 Spruce and Fir 2 years old FREE to property owners. Mailing expense bc, which send or not. A postal will bring them. Catalog with 43 colored plates of Hardy Plants etc. free. Write today. The Gardener Nursery Company, Box 745, Osage, Ia.



50 BULBS

25 Cents.

Will grow in the house or out of doors. Hyacinths, Tulips, Gladioli, Crocus, Fuchsias, Oxalis, Tuberoses, Begonia, Jonquils, Daffodils, Chinese Lily, Dewey Lily, Gloxinia, Lilies of the Valley—all postpaid, 25c. in stamps or coin. As a premium with these Bulbs we will send FREE a big collection of flower seeds—over 200 kinds.



HILLSIDE NURSERY, SOMERVILLE, MASS.

850,000

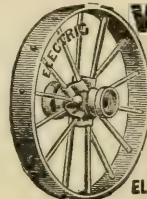
GRAPE VINES

100 Varieties. Also Small Fruits, Trees, &c. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. **LEWIS ROESCH, FREDONIA, N. Y.**



FRUIT BOOKS FREE

Send your name and address at once and you will receive by return mail sample copies of the BEST FRUIT PAPER and full particulars about the "Bro. Jonathan Fruit Books" which may be secured free. **FRUIT-GROWER COMPANY**
216 South 7th Street, ST. JOSEPH, MO.



WAGON SENSE

Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

Electric Handy Wagon.

It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

ELECTRIC WHEEL CO., Box 95, Quincy, Ill.

We sell
Root's
Goods
in
Michigan.



They
are
the
Standard.



Beeswax
Wanted.

1906

We wish our Customers
and Friends a Happy
New Year



M.H. HUNT & SON
BELL BRANCH, MICH.

Send
for
Our
1906
Catalog.

It is
Yours
for the
Asking.



We
Sell
the
Danzenbaker
Hive —
The
Comb-
Honey
Hive.

MAKE BEES PAY

By Investing in Hives and

Supers that will get Results

Root Dovetailed hives and arrange-
ments are the best that are on the
market to-day. If interested, send for
1906 catalog. . . .

The A.I. Root Co., Syracuse, N. Y.

PAGE & LYON

NEW LONDON, WISCONSIN

✿ Manufacturers of and Dealers in ✿

BEE-KEEPERS'

SUPPLIES

Six per cent Discount during January on all Orders Accompanied by Cash

**Send for Our FREE
New Illustrated Catalog and Price List**



H. M. ARND, MANAGER

YORK HONEY AND BEE SUPPLY CO. ^{Not}

141 ONTARIO STREET : CHICAGO, ILLINOIS

CARRY A FULL LINE OF

Lewis Bee-supplies and Cornell Incubators and Brooders

and poultry-supplies at factory prices. Write for the 1906 catalog of either or both. Honey for sale. Beeswax wanted; 26 cts. cash, or 28 cts. when taking bee-supplies in exchange. Six per cent discount on bee-supplies for January.

Dittmer's Foundation

THE BEST MADE. RETAIL - WHOLESALE - JOBBING.

Owes its REPUTATION entirely to its MERITS, and our PERSISTENT EFFORTS to MAKE the BEST and KEEP it the BEST. It is tough, clear, and perfectly transparent; has the natural sweet odor of pure wax, and the color of the brightest and lightest lemon and orange. We make a specialty of working wax into foundation for cash by the tens, hundreds, and thousands of pounds, and we are in the best shape to attend to all orders promptly, our capacity being 1500 lbs. daily. Full and complete line of supplies, and the best only. Do not fail to write for samples of our foundation, descriptive catalog, prices, and discounts, stating quantity of foundation wanted, wax to be worked, and list of other supplies, and prices will be accordingly. Beeswax always wanted.

E. GRAINGER & CO., Toronto, Ontario, agents for Canada; THE BEE AND HONEY CO., Beeville, Texas, agent for Texas; E. H. TAYLOR, Welwyn, Herts, England, agent for Great Britain; W. D. SOPER, Jackson, Michigan, agent for Michigan

CUS DITTMER,

--

AUGUSTA, WIS.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.



BEE-KEEPERS' SUPPLIES.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I.

Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

If in Need of Finest Grade Honey

to supply your local demand write for my

Monthly Quotations of Indianapolis Honey Market

If you care to secure your bee-supplies now for next season's use I will offer the following very liberal discounts. As an investment every thoughtful bee-keeper should be interested. Goods all "Root Quality."

For Cash Orders Before

January 1..... 7 per cent
February 1..... 6 per cent

March 1 4 per cent
April 1 2 per cent

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave.,

INDIANAPOLIS, IND.

CO-OPERATION

Means—you work for me and I
work for you for Mutual Benefit

A well known manufacturer wishes
to cash \$2000 worth of goods during

JANUARY.

He has made me the lowest prices I
have been able to secure in years, viz.:

The 8-frame Dovetailed hive, 1½-story, at \$1
each, any frame, any cover, etc.; 10-
frame, \$1.10.

No. 1 white basswood standard-size sections,
at \$3.25 per 1000; No. 2, \$2.75 per 1000.

I will take you, Mr. Bee-keeper, into partner-
ship. There are three conditions, viz. 1st—
Cash to reach me not later than Jan. 30, 1906.
2d—You subscribe for Rural Bee-keeper one
year, \$1.00. 3d—You pay me a commission
for my services, viz. 10 per cent on all orders
for \$50 or less; 8 per cent on \$50 to \$100; 7
per cent on \$100 to \$200; 6 per cent on \$200 to
\$300; 5 per cent on \$300 to \$500; 3 per cent on
\$500 to \$1000; 2½ per cent on all orders over
\$1000.

No catalog. Prompt shipment. Money re-
funded in case all are sold. No risk.

W. H. Putnam, River Falls, Wis.

FOR 14 YEARS

I. J. STRINGHAM

OF 105 PARK PLACE

NEW YORK

has been furnishing bees and apiarian supplies of
every desired kind to bee-keepers of the East. A
very liberal discount is now allowed early orders.

Apiaries, Glen Cove, L. I. - - Catalog free.

BEE - SUPPLIES

Distributing-house for Lewis' Goods,
Dadant's Comb Foundation, etc., at
Factory Prices.

Every thing the bee-keepers need. No order too large
for us, nor none too small. Cash orders before January,
7 per cent discount.

FINE EXTRACTED HONEY

The best the world can produce. Sample sent, 8 cents.
How much can you use? We always buy beeswax.
Catalog and "Special" free.

C. M. SCOTT & CO.

1004 E. Washington St.

Indianapolis : Indiana

Bee-keepers, Co-operate!

We are Bee-keepers--Organized in
the Interest of Fellow Bee-keepers
(No Matter where They Live)

Membership dues, \$1.00 per year.

Present membership—about 200 bee-keepers.

Our 1906 price list of bee-supplies, and a leaflet
containing valuable information, are now ready to mail.

If you wish to assist in co-operation among bee-
keepers write us now and send the names and address-
es of all your neighbor bee keepers.

The St. Croix Valley Honey-producers' Association

Headquarters Until June 1, 1906

Glenwood, Wisconsin

Something New in Honey-jars...

Cook's Square Jar combines a new fea-
ture that improves the package and
reduces the cost, and is the best and
cheapest 1-pound glass package made.
Send for circular and full catalog of
hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and
only Reliable goods sold. 10 cents brings
sample jar by mail.

Smokers at Wholesale

for a short time only. Hives, sections, foundation,
and all bee-supplies at bottom prices; circular free.

Arthur Rattray, Almont, Mich.

"The Best Farm Paper on Earth"

BARNUM'S

MIDLAND : FARMER

Semi-monthly—St. Louis—50c a Year

A large 16-page, carefully edited farm, fruit, stock,
and home paper; departments devoted to every rural
industry; everything "plain, practical—seasonable and
sensible." It tells how just when you want to know.
Its subscribers say they "would not be without it for
ten times the subscription price." The recognized
agricultural authority of the Mississippi Valley. We
want to introduce it into thousands of new homes this
year, and—figuring on a basis of actual cost—offer it at
just one cent per copy. Thus, being a semi-monthly,
24 cts. will pay for one year; or send 10 one-cent stamps,
and you will get the next 10 numbers. Can you afford
to let this grand offer go by?

Send in your name at once, and—if you will, kindly—
add a few names of your farmer neighbors, for free
sample copies, and you will greatly oblige

Barnum's : Midland : Farmer

W. M. BARNUM, EDITOR

Allen Building, St. Louis, Mo.

Advertising Rates: 2 cents a word, cash with order.



The Mount Pleasant Press, which printed our Christmas cover, sends us the following holiday greeting:

"We send good will to those we serve and to those who serve us; and we ask as much as we send, believing that friendly business is the best business. We wish every proper joy of 1906's most joyous time to all."

To the readers of GLEANINGS, and our friends all over the world, we extend the sentiment of the above; and for each and all may 1906 be the best year yet.

OUTFITS FOR BEGINNERS.

The above is the title of an illustrated booklet of some 16 pages, giving valuable information for the beginner. We have them in the following languages at present: English, Spanish, German, and Polish. Send for a copy if interested. Give one to your bee-keeping friend who reads any of the above languages.

OUR 1906 CATALOG.

Our new catalog is ready for mailing. It contains 44 pages, GLEANINGS size, full of detailed information regarding every thing for the bee-keeper. Whatever you want, we hope to serve you. A glance at the index of our catalog will show how complete it is. Furthermore, we furnish prices by letter on any special goods not listed in our catalog. Early-order discounts from old or new catalogs for cash orders are as follows:

For January, deduct 6 per cent.

For February, deduct 4 per cent.

For March, deduct 2 per cent.

Discount applies from our various branches and jobbing agencies. See p. 1359, Dec. 15th issue.

Convention Notices.

The annual meeting of the Nebraska State Bee-keepers' Association will be held on Wednesday, January 17th, at 2 P.M., at the Experiment Station Building of the Nebraska State Farm at Lincoln, Neb. The meeting will be of interest to all bee-keepers. E. Kretschmer, of Iowa, will read a paper on "Bees and Fruit." H. F. Smith, Assistant in Department of Entomology, University of Nebraska, will read a paper entitled "The Relation of Robber-flies and the Honey-bee." A general discussion will give all present an opportunity to discuss subjects of interest.

Lincoln, Neb., Dec. 16. LILLIAN E. TRESTER, Sec.

The Colorado State Bee-keepers' Ass'n convention will be held in the Chamber of Commerce, Denver, Jan. 30, 31, 1906. This will be during "farmer's week," when many farm organizations meet in the city, and low railroad fares are assured. As usual we expect a good convention—possibly some new features, such as a competition in putting up sections and putting in starters.

R. C. AIKIN, Sec.

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,

Box 18, Beeville, Bee Co., Tex.

STEVENS TAKE DOWN SHOTGUN FREE TO BOYS!

Write us today sending your name and address and we will hold one of these fine guns for you and tell you how you can get one FREE! Don't delay! Send no money!

We have bought a number of these guns and are giving them away. We guarantee you can earn one in a day easily. Many have earned one in an hour. No cheap pictures or jewelry to sell. Our plan does all the work. Simply say you want a gun and you will be surprised how simple our offer is and how easy it is to get the gun. Do not delay or somebody will get ahead of you. Write today. We refer you to any bank in Des Moines. We are a responsible firm and do as we agree. Never will you have another chance so don't delay. Write at once.

DESCRIPTION.—Single barrel, take-down pattern; choke-bored, insuring superior shooting qualities; automatic shell ejector; case hardened frame, top snap action, rebounding lock, walnut stock, hard rubber butt, reinforced breech, 12-gauge, 28 or 30 in. barrel. Will shoot any shell made, Winchester, U.M.C., etc. Every detail perfect. Can be taken down instantly into two pieces.

Write for book telling what dozens of men and boys say of this gun. Write today.

Successful Farming, 94 TENTH STREET, DES MOINES, IOWA

Shell Ejecting Choke Bored
Take Down Shotgun.

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.

85 cts. for 15 Names.

Send us the names and postoffice addresses of fifteen good farmers and fifteen cents—stamps taken—and we will send you for two years the Farmers' Call, a weekly, 25 years old, more than 1200 pages a year; regular subscription price 50 cents a year. Sample copy free.

FARMERS' CALL, Quincy, Ill.

A. H. REEVES

DISTRIBUTOR OF ROOT'S GOODS FOR

NORTHERN NEW YORK

Perch River, Jefferson Co., N. Y.

NOTICE!

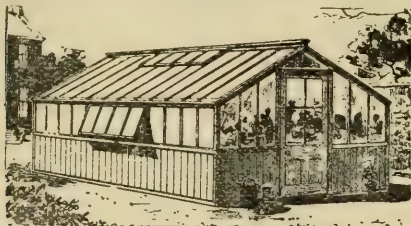
The firm of Cooley & Deuel has dissolved partnership. D. Cooley will continue to sell bee-supplies. All orders will receive prompt attention. Address all orders to D. Cooley, - - Kendall, Mich.

THE FINE 80 acres advertised in the Christmas Number of GLEANINGS, I forgot to mention, is located in Calhoun County, Iowa, near Rockwell City. The soil is practically inexhaustible for corn or grain.

D. E. L'HOUMEDIEU, Colo, Story Co., Iowa.

PLEASURE AND PROFIT

A Premier Greenhouse will keep you supplied with flowers, fruits, and vegetables all the year round. Saves its cost in a season; gives tone to your residence, and creates a pleasant and profitable hobby.



The illustration shows a Premier Greenhouse—length, 12 feet; width, 8 feet; height, 8 feet. It has double walls, double-strength glass, plant-tables, etc., fitted complete; built in sections, and can be erected in two hours. The price is \$63.00.

George B. Clementson, Esq., Lancaster, Wis., writes: "The Premier Greenhouse is the most attractive proposition for the plant-lover I have ever seen."

Catalog and price list on application. Greenhouses from \$20.00. Conservatories, Garden Frames, Summer Cottages, Auto-houses, Poultry-houses, and Portable Buildings of every description.

Charles H. Manley,
Dept. B C, Premier Manufacturing Works, St. Johns, Mich.

30 Days Free Trial.
2 Years Guarantee. Write for free 1906 catalog, over 100 styles.

SPLIT HICKORY

The Ohio Carriage Mfg. Co.
H. C. Phelps, Pres.
Station 284
Cincinnati, Ohio

SPLIT \$35 HICKORY Built to Order

MARVEL

The Best Fruit Paper

is The Fruit-Grower, published monthly at St. Joseph, Mo. The regular subscription price is a dollar a year but if you will write for free sample copy and mention this paper, you will receive a proposition whereby you may secure it one year **WITHOUT COST**. Every one who has a few fruit trees or a garden, should read

THE FRUIT-GROWER

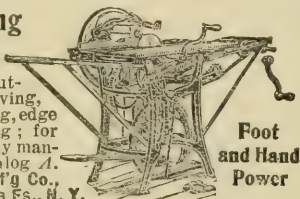
ST. JOSEPH, MISSOURI

Every issue is handsomely illustrated and from 32 to 64 pages a month are filled with interesting matter pertaining to fruit-growing and gardening. The first four issues of 1906 will be handsome special numbers devoted to the following subjects:—January, The Horticultural Societies; February, Spraying; March, Gardening; April, Small Fruits. Any one of these numbers will be worth a dollar to you. We publish the "Brother Jonathan Series" of fruit books. Send your name and learn how to secure these books free.

Fruit-Grower Co. 152 S. 7th, St. Joseph, Mo.

Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog A. The Seneca Falls M'fg Co., 44 Water St., Seneca Falls, N. Y.



SPRAY PUMPS

The Pump That Pumps

SPRAY PUMPS Double-acting, Lift, Tank and Spray

MYERS

Glass Valve

PUMPS Store Ladders, Etc.

HAY TOOLS of all kinds. Write for Circulars and Prices.

Myers Stayon Flexible Door Hangers with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & SONS
Ashland, Ohio

Save Half Your Fuel

BY USING THE

ROCHESTER RADIATOR

Fits any Stove or Furnace. Write for booklet on heating homes.

Rochester Radiator Co.
50 Furnace St., Rochester, N. Y.

Price from \$2.00 to \$12.00.

For hard or soft coal, wood or g. is.

COILED SPRING FENCE

Closely Woven. Can not Sag. Every wire and every twist is a brace to all other wires and twists full height of the fence. Horse-high, Bull-strong, Pig-tight. Every rod guaranteed.

30 DAYS FREE TRIAL and sold direct to farmer, freight prepaid, at lowest factory price. Our Catalogue tells how Wire is made—how it is galvanized—why some is good and some is bad. Its brimful of fence facts. You should have this information. Write for it today. Its Free.

KITSELMAN BROS.,
Box 21 MUNCIE, INDIANA

BROWN PAYS THE FREIGHT

HEAVIEST FENCE MADE

All No. 9 Steel Wire. Well Galvanized. Weighs 1/2 more than most fences. 16 to 85¢ per rod delivered. We sell all kinds of fence wire at wholesale prices. Write for fence book showing 110 styles. The Brown Fence and Wire Co., Cleveland, Ohio.

FENCE Strongest Made

See how closely it is woven. Sold direct to the farmer at factory prices, on **30 Days Free Trial**. Your money back if not satisfied. Write today for free Catalogue.

COILED SPRING FENCE COMPANY
Box 101 Winchester, Indiana

Save Money on Your BEE-SUPPLIES

I ship several cars of
the celebrated Root
goods to Kansas City

every year, and save hun-
dreds of dollars for our cus-
tomers in Kansas, Nebras-
ka, Missouri, etc. Let me
save you a few dollars on
your goods. Write me at
Main Office. Catalog, in-
formation, etc., sent free.

Carl F. Buck

Augusta - - - Kansas

Before you **B**uy your next
Bee-supplies **B**e sure to

send for our new revised catalog.
We are the oldest bee-supply
house in the West. We under-
stand the needs of both the vet-
eran and the novice in bee-keep-
ing. Our prices are as low as
any one's for the same quality.
Discount for early orders. We
give you quick service and low
freight rates. . . .

Italian Queens and Nuclei

a specialty. Send for our special
queen list "B" for particulars.



John Nebel & Son Supply Co.
High Hill, Montgomery Co., Missouri

At St. Louis

A complete line of Root's Bee-
keepers' Supplies. Unexcelled
shipping facilities for reaching
the Middle West. . . .

ADDRESS

Blanke & Hauk
Supply Co.
202-204 Market Street
St. Louis, Mo.

ALSO MANUFACTURER OF AND DEALER IN

**Dairymen's
and Poultrymen's
Supplies**

Low freight. . . Prompt shipments.
Factory prices. . . Write for catalog.

Send Us Your Order

THE COLORADO BEE-KEEPER

IS THE man we are interested in,
whether he has one swarm or five
hundred. If you are that man, we
are talking to you.

The goods we sell were made in
Ohio. You live in Colorado.

The point is this:

We cut out the distance, and bring
your goods home to you—and they are
Root's Goods too.

Just now we are interested in get-
ting our catalog into the hands of
every bee-keeper. It is YOURS for
the asking.

Your order to us, small or large,
means prompt service and Root Goods.

The L. A. Watkins
Merchandise Company
Denver, Colorado

SUPREME EXCELLENCE

is only another name for OUR Make of

BEE-KEEPERS' SUPPLIES

Have you ever used them? If not, give us a trial order this spring. We will do our best to please you. Our prices are as low as any; and if our goods aren't as we claim you'll not have to pay for them.

We Allow Usual Discount for Early Orders

In January, 6 per cent; February, 4 per cent; in March, 2 per cent.
Our large illustrated price list and copy American Bee-keeper free.

The W. T. Falconer Mfg. Co.

Jamestown, New York

 The *American Bee-keeper* for January contains excellent photographic illustrations of Artificial Honey-Comb made over 30 years ago in New England, together with illustrations of the implements used in making, and a portrait of the inventor.

Dadant's Foundation

Bee-keepers like it or they wouldn't buy it. It excels. Sample free. Over 100,000 lbs. sold in 1905. Beeswax wanted at all times. Revised prices on foundation for 1906.

Grade	Size, and Sheets per Pound	In lots of —				
		7 to 8	11 lb.	5	10	25 50
Medium Brood....	7 $\frac{3}{4}$ x16 $\frac{3}{4}$	7 to 8	55	53	51	49 48
Light Brood.....	7 $\frac{3}{4}$ x16 $\frac{3}{4}$	9 to 10	57	55	53	51 50
Thin Super.....	3 $\frac{3}{8}$ x15 $\frac{1}{2}$	28	62	60	58	56 55
Extra Thin.....	3 $\frac{3}{8}$ x15 $\frac{1}{2}$	32	65	63	61	59 58

Bee-supplies of All Kinds

DISCOUNT FOR EARLY CASH ORDERS
January, six per cent; February, four per cent; March, two per cent; after April 1st, no discount.

~~~~~  
Wax Worked into Foundation.  
Twenty-eighth Year.  
We Guarantee Satisfaction.  
Send for Our 1906 Catalog.

~~~~~  
Dadant & Son, Hamilton, Ill.

GET YOUR SUPPLIES FROM DES MOINES

Twenty-one years ago I launched the bee-keepers' supply business at this place. It was considered a doubtful undertaking by many; but, as the saying is, I was "next to" the business, being a practical bee-keeper, and having had experience in this line. My early expectations have been more than realized. By correct business methods, treating everybody square and honorably, putting out only the best goods, and carrying a complete stock, it has been my pleasure to see the business grow each season. I am proud of the fact that my new building is the first and only one of its kind built for the apiarian trade in the West.

My Responsibility

This magazine will go into the hands of many new parties who have not dealt with me before, and for the benefit of such I would assure you of my responsibility by referring you to the Des Moines National Bank or any other bank of the city; and in addition to this I would state that my business represents many thousands in building and stock.

Shipping Facilities

By looking at a map you can see at once the great advantages we have. We can reach almost any point with direct lines with our seventeen railroads and five express companies. You get your goods from here more cheaply, in many cases, than over circuitous and expensive routes, even though the shipping-point is more adjacent.

I Allow

the early order discounts. Beeswax wanted at all times, and highest prices paid. Write for catalog.

Jos. Nysewander, Des Moines, Iowa
565, 567 West Seventh Street

GLEANINGS IN BEE CULTURE

BEE-KEEPING AS AN OCCUPATION

"Bee-keeping is not an occupation in which one can easily become wealthy. . . It can be depended on to furnish a comfortable living, and perhaps enable a man to lay up a few thousand. . . Fortunately, however, the professional man's happiness bears little relation to the size of his fortune; and the man with the hum of the bees over his head finds happiness deeper and sweeter than ever comes to the merchant prince with his cares and his thousands."

—W. Z. HUTCHINSON . .

THE A. I. ROOT CO.
MEDINA, OHIO.

Eastern Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

MONEY in BEES for YOU

Investigate. Catalog free. New England bee-keepers will find at my store

IN BOSTON

a full line of the finest bee-supplies in the country. I also furnish queens, and bees by the full colony or nucleus. Best shipping-center for New England; promptness, carefulness, and satisfaction go with every shipment. Try me.

F. H. Farmer - Boston, Mass.
15 CHARDEN STREET

Root's Bee-supplies at Root's Prices

But f. o. b. Baltimore instead of Medina. Write for catalog I.

Rawlings Implement Co.
Baltimore : : Maryland

MISSISSIPPI

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders.



Bees and Queens

from Select Stock

Correspondence Solicited.

GEO. A. HUMMER,
BRAZELIA, - MISSISSIPPI
Shipping-point, Macon

Our Specialties

Cary Simplicity Hives and Supers, Root and Danz. Hives and Supers; Root's Sections, Weed Process Foundation, and Bingham Smokers.

Bees and Queens in their Season.

32-page Catalog Free.

W. W. Cary & Son,
Lyonsville, Mass.

NORTHEASTERN & NEW ENGLAND BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

DON'T WAIT

Send in your order now. Have your supplies on hand when you need them. Delay means loss.

Root's Goods — AT — Root's Prices

F. O. B. Dubois, wholesale and retail. We make prompt shipments, and have the best shipping facilities. CATALOG FREE.

**PROTHERO &
ARNOLD,**
DUBOIS, Clearfield Co., PENNA.

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusive-
ly, at Root's Factory Prices.

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

Six Per Cent Discount For Cash Orders Received in January

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

TORONTO.—Prices here remain about the same. Honey is never scarce in Toronto if there is any surplus in the smaller towns, as so many bee-keepers still persist in sending their honey to the large cities, when they could often get a better price in country towns, where there are no bee-keepers to compete with. We notice there are not so many offering honey for sale this month as there were in December, so we presume the bee-keepers have placed most of their surplus stock. Prices at present are as follows: Extracted, 6½ to 8; comb, \$1.50 to \$1.75. E. GRAINGER & Co.,
Jan. 8. Toronto, Ont.

CHICAGO.—The market is steady, with about the usual demand. The prices range from 14 to 15 for best grades of white comb honey. There is not an active demand for off grades, which usually sell at 1 to 3 per lb. less. For extracted a steady demand exists for the best grades at 6½ to 7; but for sour or off flavors there is practically no sale. Beeswax brings 30.
R. A. BURNETT & Co.,
Jan. 8. 199 South Water St., Chicago, Ill.

TOLEDO.—The demand for comb honey at this season of the year is rather quiet, and prices have weakened somewhat. We quote fancy white clover at 14 to 15; No. 1, 14, with no demand for amber. Extracted white clover in barrels brings 6 to 6½; cans, 6½ to 7½; amber, 5 to 5½; cans the same. Beeswax, 30 to 32.
GRIGGS BROTHERS,
Jan. 8. 521 Monroe St. Toledo, Ohio.

BUFFALO.—Since the holiday season, the demand for honey is very slow. There is very little change in the prices, because the dullness is not owing to the price now, but to the usual slow demand at this time of the year. Fancy and A No. 1 white comb, 13 to 14; No. 1 ditto, 12½ to 13; No. 2 ditto, 11 to 12; No. 1 dark ditto, 10 to 11; No. 2 dark ditto, 9 to 10; white extracted, 6½ to 7; dark ditto, 5 to 5½. Beeswax, 28 to 30.
W. C. TOWNSEND, Buffalo, N. Y.
Jan. 10.

CINCINNATI.—The nice weather holds back the demand for comb honey. Crops seem to be exceedingly short, and producers in the West keep the prices high. We quote as follows: Fancy water-white and No. 1 white clover, 14 to 16; No. 2, 12 to 14. Extracted seems to be more plentiful, and we quote same in barrels at 5½ to 5½; in cans, ½ ct. more; white clover, 7 to 8. Beeswax, 28 to 30.
C. H. W. WEBER,
Jan. 8. 2146-8 Central Ave., Cincinnati, O.

St. LOUIS.—Our honey market rules very slow, and prices are easier on account of the dullness prevailing. We quote: Fancy white comb honey, 13 to 14; No. 1, 12 to 13; amber, 11 to 12; California light amber, in 5-gallon cans, 6 to 6½; white and Spanish needle, 7; Southern in barrels, 4½ to 4½; in cans, 5 to 5½. Beeswax, 28½ to 29.
R. HARTMANN & Co.,
Jan. 8. 14 So. Second St., St. Louis, Mo.

CINCINNATI.—There is no demand for honey at the present time, on account of the holidays. However, we look forward to a revival of trade about the 15th of the month. The price of comb honey remains firm. Quote fancy white at 15 to 16½; extracted amber, in barrels, 5 to 6½, according to quality; fancy white extracted honey in 60-lb. cans, 7½ to 8; amber in cans, 6 to 7. We are paying 30 cts. per lb. delivered here for choice yellow beeswax.
THE FRED W. MUTH CO.,
Jan. 8. 51 Walnut St., Cincinnati, O.

NEW YORK.—Comb honey pretty well cleaned up, and there is still a fair demand. We quote fancy white at 14 to 15; No. 1, 13; amber, 12; buckwheat, 10 to 11. Extracted in fair demand, especially California. We quote white, 6½ to 7; light amber, 6 to 6½; amber, 5½ to 5½; buckwheat, 5½ to 6; Southern, in barrels, not much demand and rather hard to sell, 50 to 60c per gallon, according to quality. Beeswax firm and steady at 30.
HILDRETH & SEGELEN,
Jan. 10. 265-267 Greenwich St., New York.

BOSTON.—There is a good demand for strictly new honey, with light supplies. We quote fancy, 16; A No. 15; No. 1, 14½ to 15; No. 2 practically all of the market. Large stock of old honey on hand going very slow. Prices nominal.
BLAKE, SCOTT & LEE,
Jan. 11. 31-33 Commercial St., Boston, Mass.

SCHENECTADY.—We report a very quiet market since the opening of the new year, with unchanged prices. Merchants, as a rule, are taking account of stock, and do not care to buy until through.
CHAS. McCULLOCH, Schenectady, N. Y.
Jan. 9.

KANSAS CITY.—The honey market as usual shows quite a little decline during the holidays, amber selling at \$2.75; white from \$3.00 to \$3.10. Extracted, 6 to 6½. Beeswax, 25.
C. C. CLEMONS & Co.,
Jan. 8. Kansas City, Mo.

COLUMBUS.—We quote: Fancy white comb, 16; No. 1, 15; No. 2, 13; amber, 12.
EVANS & TURNER Co., Columbus, O.
Jan. 8.

BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

THE FRED. W. MUTH CO.,

51 WALNUT ST.,

CINCINNATI, OHIO.

ATLANTA.—Our market is rather quiet; very little honey moving. We quote: Fancy white comb at 12½ to 14; A No. 1, 11 to 12½; No. 1, 10 to 11. Extracted is slow at 6 to 8. JUDSON HEARD & Co., Atlanta, Ga.
Jan. 9.

DETROIT.—The demand for honey is lighter at present, with slightly lower prices as the result. Fancy and A No. 1 white comb, 13 to 13½; light amber, No. 1 quality, 12c. Darker grades, 11 to 11½. Extracted, white clover, 7½ to 8; Beeswax, 27 to 29c.
Jan. 15. M. H. HUNT & SON, Bell Branch, Mich.

FOR SALE.—Three barrels of buckwheat extracted honey: new barrels; weight, 390 lbs. net each, at 6c on car. Sample free. E. D. TOWNSEND, Remus, Mich.

FOR SALE.—Extracted honey—fancy white, 6½ cts.; fancy amber, 5 cts.; ¼ cent less in five-case lots or more. C. C. CLEMONS & Co., Kansas City, Mo.

WANTED.—Comb and extracted honey. State quality, quantity, and price. JUDSON HEARD & Co., Atlanta, Ga.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.

O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

FOR SALE.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.

HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

FOR SALE.—One ton No. 1 white comb honey, in no-drip cases, 24 sections to case, at 14c per lb. Water-white extracted 8½c; amber, 7c, in 60-lb. cans, two in a case. Light-weight white comb at 13c.

QUIRIN-THE-QUEEN BREEDER, Bellevue, O.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us. EVANS & TURNER, Columbus, Ohio.

WANTED.—I will pay spot cash for one to ten tons of water-white or amber extracted honey at railroad station. C. W. DAYTON, Florence, Cal.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT,
199 South Water St., Chicago, Ills.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. GRIGGS BROS., Toledo, Ohio.

WANTED.—Clover and basswood extracted honey; also No. 1 amber honey. Send sample, and state quantity and price, delivered at Preston.

M. V. FACEY, Preston, Fillmore Co., Minn.

Chas. Israel & Brothers

486-490 Canal St., New York.

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc

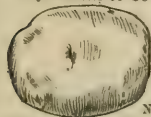
Consignments Solicited Established 1875

EARLIEST POTATOES

If you wish to be first in market, gain two to three weeks and get **TOP PRICES** by using

Northern Grown Seed. The fastest growing potato is Our Extra Early Petoskey, and we send a big sample potato for only 25c (stamp-or-silver). Catalog of Early Northern Grown Seeds FREE. Write today

DARLING & BEHAN, 74 Michigan St., Petoskey, Mich.



The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair
St. Louis, 1904.



**CLEANEST,
COOLEST,
STRONGEST,
UP-TO-DATE.**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order.

It has no snout to clog with soot.

It gives a light or dense volume of cool smoke, as operator's option, 3 to 5 hours at one filling.

Guarantee: Simplicity, quality, efficiency, durability.

The General Manager of the National Bee-keepers' Association wrote me:

Platteville, Wis., Oct. 23, 1904.

I have given your Twentieth Century Smoker a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke. I find it all you claim. In the spring I shall want several. I always want the best.

Yours truly, N. E. France.

Prices: By mail, one, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

F. DANZENBAKER, - MEDINA, OHIO.

Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

BEES AND QUEENS—Orders booked now for spring delivery.

HONEY AND WAX—We handle honey and wax. Write for particulars.

The A. I. Root Co.

Northwestern Branch,
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

Gleanings in Bee Culture.

Devoted to Bees, Honey, and Home Interests.

Circulation 25,000. Reaches every State and sixty foreign countries.

Established in 1873. 52 pages, semi-monthly.

Published by The A. I. Root Company, Medina, Ohio, U. S. A.

A. I. ROOT, Editor Home and Garden Department.

E. R. ROOT, Editor Apicultural Department.

J. T. CALVERT, Business Manager.

A. L. BOYDEN, Advertising Manager.

TERMS---\$1.00 per annum; two years, \$1.50; three years, \$2.00; five years, \$3.00, In Advance.

Postage is Prepaid by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU. 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS. 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO. 24 Castle St. *Per year, postpaid, 6/.*

Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publishers.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
Please continue sending Gleanings until otherwise ordered.

NAME

POSTOFFICE.....

COUNTY.....STATE.....

DATE.....

If you want Gleanings discontinued at expiration, check here ()

Bound Volumes Gleanings in Bee Culture

Volumes I. to XXXIII.



SO MANY inquiries reach us regarding early volumes of GLEANINGS that we submit the following list for convenience of present subscribers. The prices named are subject to withdrawal without notice, as our stock of many volumes is very low. This accounts for the price asked for some being so much higher than others.

Books of Reference The old volumes of GLEANINGS are very valuable to all bee-keepers who are studying the practical side as well as to the scientific bee-keeper. Beginners can read the old volumes with much profit as well as interest.

Comprehensive Indexes All the volumes are most fully indexed, thus saving the reader much loss of time in finding any desired subject or writer.

Covers for 1905 Where more convenient we can furnish the cloth binding to our subscribers, neatly lettered as shown above, so that the unbound copies for 1905 may be taken to the nearest book-binder to be bound. *We have these for 1905 only.* Price for the cover, 20 cents; postage 5 cents.

Indexes for 1905 Subscribers who arrange to do their own binding are furnished with indexes free on application.

Exchanges Subscribers may exchange clean complete issues, 1905, unbound, for a bound volume at our Medina, New York, Chicago, Philadelphia, Syracuse, St. Paul, or Washington offices, on payment of 50 cents, transportation paid by the subscriber.

Binders These are for binding temporarily the issues of GLEANINGS as received from month to month. We have never found anything more convenient or satisfactory. Each number can be inserted readily and securely as soon as received. We have two styles, made to hold one year, each lettered "Gleanings in Bee Culture." Style C is an art canvas cover of red. Style D is an elegant half-leather. Prices are: Style C, 50 cts. each, postage 10 cts. extra; style D, 75 cts. each, postage 15 cts. extra.

No. Vol	Year	No. of Pages	Price	Postage
*1	1873	96	\$1 00	12c.
2	1874	144		12c.
3	1875	156	5 00	12c.
4	1876	311	1 25	14c.
5	1877	338	1 25	14c.
6	1878	422	1 25	15c.
7	1879	512	1 25	19c.
8	1880	618	1 25	22c.
9	1881	626	1 25	20c.
10	1882	766	1 25	22c.
11	1883	800	1 25	24c.
12	1884	862	2 00	23c.
13	1885	882	2 00	23c.
14	1886	1006	1 50	27c.
15	1887	962	2 00	27c.
16	1888	1001	1 00	28c.
17	1889	1006	1 00	28c.
18	1890	908	1 00	25c.
19	1891	974	1 00	28c.
20	1892	946	1 00	29c.
21	1893	948	1 00	31c.
22	1894	966	1 00	31c.
23	1895	966	1 00	31c.
24	1896	912	1 00	29c.
25	1897	910	1 00	29c.
26	1898	950	1 00	31c.
27	1899	964	1 00	32c.
28	1900	992	1 00	31c.
29	1901	1002	1 00	35c.
30	1902	1046	1 00	34c.
31	1903	1070	1 00	34c.
32	1904	1182	1 00	37c.
33	1905	1372	1 00	45c.

* Volumes 1 and 2 are bound together

Orders Bound volumes of 1905, and Emerson Binders, styles C and D, are carried in stock by our several offices noted above. Earlier volumes are kept in Medina only. Orders, however, may be placed with any of these offices, to be sent from Medina to the purchaser, or to the office ordering in our first shipment to them.

The A. I. Root Company, Medina, Ohio

CONTENTS OF THIS NUMBER.

MARKET QUOTATIONS.....	58	Proper Color for Hives	85
STRAY STRAWS.....	67	Interesting Notes from Germany	86
EDITORIAL.....	69	Small Entrances in Winter	86
Benton in the Caucasus (Russia).....	69	Producing Extracted Honey	87
Bees and Poultry	69	A Final Word Concerning Caucasians	92
The Use of a Nomde Plume.....	69	Honey-houses in Cuba	93
The Simmins Direct Method of Introducing	69	Feeding Bees in Winter Quarters.....	94
Dampness—Is it Detrimental to Wintering.....	70	HEADS OF GRAIN	95
Caucasians—Conflicting Testimony.....	70	Alexander Method of Curing Black Brood	95
A Damaging Libel on Bees and Bee-keeping.....	71	Amount of Honey a Family will Consume in Season	96
Advanced Bee Culture	71	Large Nail for a Hive-tool	96
BEE-KEEPING IN THE SOUTHWEST	73	Double Groove and Wedge to Hold Foundation	96
Honey Gathered per Colony in the South	73	Pasteboard Carton Holding Two Sections of Honey	96
A Flight Before Cellaring.....	73	Showing Live Bees in a Store Window	97
Moss for Closing Entrances.....	73	Shipping Bees	97
The Quality of Our Queens	74	Information Concerning Punie Bees	97
Being Prepared for the Harvest	74	How to Get Rid of Roaches	97
BEE-KEEPING AMONG THE ROCKIES	75	Cork Sawdust as a Packing Material	97
Storage-crates for Comb Honey and Sections	75	Bitter Honey	98
Improvement on Bees	76	Alexander's Plan of Curing Black Brood Indorsed	98
GLEANINGS FROM THE PACIFIC COAST.....	77	Catching Swarms by Putting Decoy Hives in Trees	98
CONVERSATIONS WITH DOOLITTLE	78	Queen-breeders' Catalog	99
GENERAL CORRESPONDENCE	80	Shipping Frames of Brood and Bees from South	99
Long-tongued Bees	80	Parker Foundation—faster Improved	99
Wax-rendering	81	NOTES OF TRAVEL	100
Other Side of the Bee and Poultry Question.....	82	HEALTH NOTES	101
McGlade's Article on the Hen.....	83	CONVENTION NOTICES	123
How to Use Shallow Hives	84	SPECIAL NOTICES	123

INDEX TO ADVERTISEMENTS.

Banking by Mail.	Educational.	Poultry Supplies.
Savings Dep. Bank Co.....63	Home Instructor.....63	Berry Golden Rule Poultry Farm.....113
Bee Books.	Fences.	G. E. Conkey & Co.....123
W. Z. Hutchinson.....63	Brown Fence & Wire Co.....105	B. H. Greider.....165
A. J. Cook.....123	Coiled Spring Fence Co.....107-105	Humphrey.....104
The A. I. Root Co.....123	Kitselman Bros.....105	F. W. Mann Co.....104
Bee Smokers.	Honey-buyers.	Stratton Mfg. Co.....104
T. F. Bingham.....120	See pages.....58, 59	Publishers, Bee-journal.
F. Danzenbaker.....59	Chas Israel & Bro.....59	The A. I. Root Co.....60, 61
Bee Supplies.	Honey for Sale.	Geo. W. York & Co.....65
J. H. M. Cook.....119	Fred W. Muth Co.....53	Publishers, Magazine.
D. Cooley.....119	See pages.....58, 59	S. S. McClure.....64
W. T. Falconer Mfg. Co. Back Cover	Incubators.	Suburban Life.....114
Geo. E. Hilton.....120	American Brooder Co.....104	Publishers, Poultry-paper.
M. H. Hunt & Son.....118	American Incubator Co.....113	American Poultry Advocate.....113
Kretschmer Mfg. Co.....120	Banta-Bender Mfg. Co.....104	The Howard Pub. Co.....113
G. B. Lewis Co.....66	Berry's Golden Rule P'try Farm.....113	Inland Poultry Journal.....113
Marshfield Mfg. Co.....120	Buckeye Incubator Co.....104	Ohio Poultry Journal.....113
Walter S. Powder.....116	Cycle Hatcher Co.....103	The Poultry Gazette.....113
Page & Lyon.....117	Chas. A. Cyphers.....104	Poultry Item.....113
W. H. Putnam.....119	Gem Incubator Co.....104	Publishers, Agricultural-paper.
Arthur Rattray.....119	M. M. Johnson Co.....104	Farm and Stock.....65
A. H. Reeves.....119	Manson Campbell Co., Ltd.....103	Farmers' Call.....65, 119
The Root Co., Syracuse, N. Y.....118	J. W. Miller Co.....103	Fruit Grower Co.....107, 124
The Root Co., St. Paul, Minn.....59	Racine Hatcher Co.....104	Southern Fruit Grower.....107
The Root Co.....121	Reliable Incubator Co.....103	Successful Farming.....63
C. M. Scott & Co.....119	Geo. H. Stahl.....104	Seeds and Trees.
St. Croix Valley H. P. Ass'n.....119	Machinery	W. F. Allen.....112
W. D. Soper.....119	American Harrow Co.....106	W. Atlee Burpee & Co.....111
I. J. Stringham.....119	W. F. & J. Barnes Co.....107	Darling & Beahan.....59
C. H. W. Weber.....57	Bateman Mfg Co.....107	Flansburgh & Potter Co.....112
A. G. Woodman Co.....115	Electric Wheel Co.....105	L. J. Farmer.....112
York Honey & Bee Supply Co.....117	Lyons Engine Co.....108	Gage County Nurseries.....112
Bees and Queens.	Medina Concrete Co.....107	Gardner Nursery Co.....110, 112
A. Gomes Caseres.....124	F. E. Myers & Son.....105	German Nurseries.....112
D. E. Lyon, Phil. D.....124	Ohio Carriage Co.....107	Hillside Nursery.....112
H. M. Parker, Jr.....124	Stromberg-Carlson Tel. Mfg. Co.....105	R. M. Kellogg Co.....112
Robert B. McCain.....124	Wilson Brothers.....104	Jewel Nurseries.....111
W. H. Laws.....124	Magazine Combinations.	Louis Roesch.....112
W. T. Crawford.....124	Compendium Subscrip. Agency.....109	Northrup King Co.....111
L. A. Lawmaster.....123	Miscellaneous.	W. N. Scarff.....111
The Jennie Atchley Co.....124	Orvil Riger.....123	R. H. Shumway.....111
C. H. W. Weber.....57	F. W. Bud & Son.....106	Storrs & Harrison Co.....112
Comb Foundation.	Chas H. Manley.....65	Wants and Exchanges.
Dadant & Son.....Back Cover	Seaboard Air Line R. R.....65	See page.....122
Gus Dittmer.....117	J. B. Williams Co.....105	

SUBURBAN LIFE

"THE GATEWAY TO THE COUNTRY"



Through this Gateway our readers may enter the country twelve months in the year.

No matter if it's rainy or muddy, or the snow drifts high outside, you can stretch out cosily in your favorite armchair in front of the fire, and with the latest *Suburban Life* in hand transport yourself at once to the country, without need of rubbers, umbrella, or snow-shoes.

Now is just the time when plans are being laid for the various Spring activities of country life—the poultry-yard, flower-patch, vegetable-garden, bee-keeping, care of the home place, the vacation home, etc.

Suburban Life in 1905 published more practical bee articles than any other magazine, and we have a series of valuable articles in preparation for this year. These alone will be well worth the price of an annual subscription.

The price of Suburban Life is \$1.00 a year, but it will soon advance to \$1.50.

Will you enter this Gateway to the Country?

Sample copy will be sent to any reader of this magazine free. Address

PUBLISHERS SUBURBAN LIFE,

16 State St., Boston, Mass.

I Will Send You McClure's Magazine

All Winter---as a Free Test

That's right—3 months—as a test—FREE.
What is McClure's?

I want you to know it—that's why I'm making this offer—the most liberal ever made by a publication too valuable to be given away. You don't know a man's character by what another says of him—and you can not know McClure's by any thing I can tell you.

Just read McClure's 3 months—at my risk—let your wife read it—let the children read it and I know you will agree you can not afford to be without it. If you don't say so at the end of 3 months—just drop a postal telling me to discontinue, and telling me why you don't like it.

If you do like it, and want to receive it every month—just send me \$1.00 (only) for the full year's subscription, after you have tried it three months. Then, McClure's is yours—with all its instructive articles, and bright, entertaining stories.

"The Railroads on Trial," by Ray Stannard Baker, is the latest of McClure's great dealings with vital affairs of the day which concern the nation and its citizens. These articles by Mr. Baker are of importance to every land-owner, every producer, shipper, and manufacturer; they deal with the charges which have been and which are being made against the railroads by the people, these questions of rates and rebates we have heard so much about.

Writers for McClure's are men and women of international fame. A few past contributors are: Theodore Roosevelt, ex-president Cleveland, Mark Twain, Gladstone, Huxley, Rudyard Kipling, Tyndall, General Miles, Arch Deacon Farrar, Robert Louis Stevenson, Booth Tarkington, Nansen (the great Arctic Explorer), A. Conan Doyle, Walt Whitman, Bret Harte, and others equally well known. This next year you will read Jack London, Myra Kelly, Booth Tarkington, William Allen White, and many others equally famous and entertaining.

McClure's gives a truthful glimpse of the real—the greater world through the eyes of great men and women. McClure's entertains while it educates. It is a literary feast of good things.



What Does McClure's Do?

McClure's brings you all the important news of the world, in story-like form, presented in good English and full of vivid interest to every member of the family. McClure's is general in its scope.

Take the best agricultural papers for your agricultural news, the best breeders' papers for your stock news, the best dairy papers for your dairy news, and grade up your reading with McClure's for general information.

It "balances" the mental ration. Children brought up on McClure's are not likely to have a taste for worse than worthless trashy novels and story papers—their tastes will be for higher things—for better reading. They will become good citizens.

Philip H. Hale, editor and manager of The National Farmer and Stock Grower, St. Louis, Mo., writes about McClure's as follows:

"I regard it as a victory for superior journalism when you place it in our power to advertise the mediums which we buy and read ourselves."

COUPON

EDITOR MCCLURE'S MAGAZINE.

New York City.

I accept your offer to test your magazine. Enter my subscription for one full year.

After receiving three months' sample copies, I will do one of two things,—either send you \$1.00 for the full year's subscription, or write you to stop the magazine, when you are to cancel this subscription and the sample copies are to be free to me as a test.

Name _____

P. O. Address _____

State _____

Send me the Coupon and
get on the list at once.

S. S. MCCLURE

Editor

McClure's Magazine

New York City

Dadant Methods of Honey-production

Beginning January 1, 1906, Mr. C. P. Dadant will begin in the WEEKLY AMERICAN BEE JOURNAL a series of articles describing in detail the very successful methods of the Dadants in the production of large crops of honey. To the one who wishes to make money in keeping bees, this Dadant series of articles will be worth—well, who can estimate their value?

CANADIAN BEEDOM

This is a new department in the WEEKLY AMERICAN BEE JOURNAL, conducted by Mr. Morley Pettit, a very successful bee-keeper in Canada, whose honey crop the past season was 40,000 pounds. He will have something worth while to say in his department, not only to Canadian bee-keepers, but to all others.

SOUTHERN BEEDOM

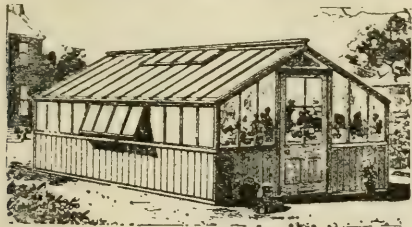
This is another new department to begin in the WEEKLY AMERICAN BEE JOURNAL January 1, 1906. It will be conducted by Mr. Louis H. Scholl, of the Texas State Agricultural College, in charge of the Experiment Station Apiaries, numbering some 250 colonies. It will be a great department for Southern bee-keepers.

The foregoing are only SAMPLES of the good things to be in each number of the old WEEKLY AMERICAN BEE JOURNAL for 1906. And the cost is only \$1.00 a year—less than two cents a copy. Every bee-keeper who wishes to succeed should have the AMERICAN BEE JOURNAL, no matter how many other bee-papers he may be taking. Sample copy free, or a three-months' trial trip for 20 cents. Address

George W. York & Co., 334 Dearborn St., Chicago, Ill.

PLEASURE AND PROFIT

A Premier Greenhouse will keep you supplied with flowers, fruits, and vegetables all the year round. Saves its cost in a season; gives tone to your residence, and creates a pleasant and profitable hobby.



The illustration shows a Premier Greenhouse—length, 12 feet; width, 8 feet; height, 8 feet. It has double walls, double-strength glass, plant-tables, etc., fitted complete; built in sections, and can be erected in two hours. The price is \$63.00.

George B. Clementson, Esq., Lancaster, Wis., writes: "The Premier Greenhouse is the most attractive proposition for the plant-lover I have ever seen."

Catalog and price list on application. Greenhouses from \$20.00. Conservatories, Garden Frames, Summer Cottages, Auto-houses, Poultry-houses, and Portable Buildings of every description.

Charles H. Manley,

Dept. B C, Premier Manufacturing Works, St. Johns, Mich.

Farm and Stock is an illustrated monthly magazine in the interest of CORN BREEDING, Cultivation and Live Stock. Price \$1 a year, but for a short time will be sent a year on trial for 10c and names of ten farmers who grow corn.

Farm & Stock, 251 Charles, St. Joseph, Mo.

GOLDEN Opportunities!

EXIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

J. W. WHITE

Gen. Indus. Agt., Portsmouth, Va.

Seaboard Air Line Railway

85 cts. for 15 Names.

Send us the names and postoffice addresses of fifteen good farmers and fifteen cents—stamps taken—and we will send you for two years the Farmers' Call, a weekly, 25 years old, more than 1200 pages a year; regular subscription price 50 cents a year. Sample copy free.

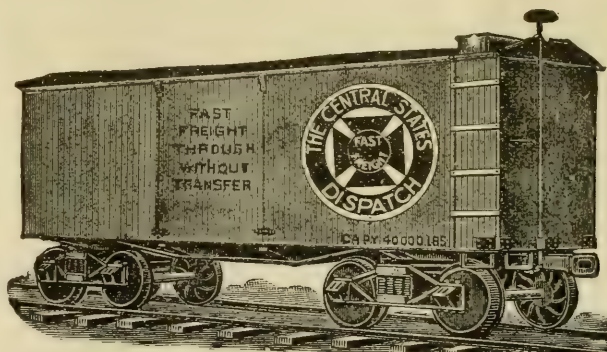
FARMERS' CALL, Quincy, Ill.

A Carload of Paper

WAS USED IN PRINTING THE

First Edition of The 1906 Lewis Catalog.

Now out. Nearly 100 pages. It is free. Send for a copy at once.



Better Than Ever. A Finer Catalog Was Never Seen.

Agents Wanted for Lewis' Goods

BY THE CARLOAD FOR

Maine
New Hampshire
Vermont
Massachusetts
Connecticut

Rhode Island
North Carolina
South Carolina
Mississippi
Alabama

Georgia
Florida
Louisiana
Southern Ohio

Liberal territory given.

FOR FURTHER PARTICULARS ADDRESS HOME OFFICE

G. B. Lewis Co.,

Watertown, Wis., U. S. A.

Manufacturers of
Bee-keepers' Supplies.

GLEANINGS *A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.* **BEE CULTURE** ILLUSTRATED SEMI-MONTHLY Published by THE A. ROOT CO. \$1.00 PER YEAR MEDINA, OHIO.

Vol. XXXIV.

JAN. 15, 1906.

No 2



C. J. JOHNSON, don't use a Miller feeder in winter. Use combs of honey or candy; and if you must use syrup, a Doolittle is better than a Miller in winter. Page 36.

E. MATTY, p. 36, you can keep chaff hives in the same cellar with other hives, but you'd better follow the editor's advice with this modification: Put *part* of the chaffs out and part in. [I accept your amended advice. —ED.]

E. W. ALEXANDER says, p. 27, "We don't like any shade among our hives." Please tell us why. [When I visited Mr. Alexander he said he had noticed for many years that the shaded bees did not do quite as well as those out in the open; and next season he expected to cut out even the few trees remaining in his yard. —ED.]

C. A. HATCH, what a rascal you are, to dangle before one's eyes the prospect of knowing something positive about overstocking, only to end up by saying, p. 21, "I am forced to admit I know but little about the matter." Well, the disappointment is somewhat relieved by the thought that you're about as ignorant as I am.

SPEAKING of kinds of frames to suit all, the editor says, page 15, "It is the old, old story, that you can not make one shoe fit every foot." Yet I've known an editor to insist I should wear an extracting-shoe on my comb-honey foot—in other words, that I should use a frame suited for extracting, when I don't care a rap what extracting men use. [Yes, I believe I did give you some such advice. For myself, at least, I would have a frame that would be suitable for either extracted or comb honey. —ED.]

THE INDEX seems to the editor a matter of some value, p. 15. I indorse all he says. I felt as pleased to get the index as if it had been an additional number. But I want to speak a good word for another thing. The index is not available till the close of the volume. If I want, Dec. 5, to look for an item that appeared earlier in the year, there is nothing for it but to leaf through the preceding hundreds of pages if it were not for the table of contents that appears in each number. In a late number of the *British Bee Journal* it was said that that paper and GLEANINGS were the only bee journals giving such tables. Thanks for the index, and thanks for the tables. [The bee-keeper or correspondent who does not find an index to his journal useful enough to bind it carefully with the rest of his journals will be losing a great deal of the value of the discussions, both past and future. I suspect this, though: That if every reader of GLEANINGS had spent the hours and hours of hard labor that Stenog and I have on that list, they would appreciate its value, perhaps, more than they do. —ED.]

J. W. ORMSBY, your section-protector, p. 23, may work all right with you; but if used here the bees would crowd propolis in the crack between sections and protector, wedging it in so tight as to raise the protector, and then the glue would be crowded in just as far as their tongues would reach, unless there is some additional weight to hold the protector down. You say, "In using this we can leave the sections on any length of time, and they can't be soiled." I'm afraid some beginner may understand from this that no harm will come to sections left on after the flow, if only they have the protector. The chief harm done to sections left on after the harvest is over is not from bee-glue on the wood, but on the comb or foundation, and this no protector can help. [Your point is well taken; indeed, I intended to mention that very thing, but overlooked it. That is one reason why wide frames are not as good as T-supers or topless wide frames—that is, section-holders. Unless the covering strip, or protector, fits down perfectly smooth and

tight, as you say, there will be propolis streaks along the edges as you describe. —ED.]

WHAT ANSWER, Mr. Editor, is to be given to South Georgian, who wants to know, p. 24, whether the Danz. $4 \times 5 \times 1\frac{1}{8}$ section holds a full pound at Medina? A 4×5 section has 11.3 per cent more surface than a $4\frac{1}{2} \times 4\frac{1}{2}$ section; and if a $4\frac{1}{2} \times 4\frac{1}{2}$ section holds 15 oz., a 4×5 section of the same thickness ought to hold nearly 16.7 oz. But, S. G., if your observations were for only one season you mustn't count them too conclusive, for another year the bees may put more honey in the same sections. [I was surprised that I had not answered South Georgian's question so plainly asked. In answer I may say that the $4 \times 5 \times 1\frac{1}{8}$ section will not average a pound in Medina. The "fancy" will weigh practically a pound. But, doctor, your figures are a little misleading. When you compare the $4 \times 5 \times 1\frac{1}{8}$ section with a $4\frac{1}{2}$ square, you are assuming that the latter is $1\frac{1}{8}$ thick, which is not the fact. As a matter of fact, the $4\frac{1}{2}$ square plain is $1\frac{1}{2}$ thick. So far as I know, there are no $4\frac{1}{2}$ plain $1\frac{1}{8}$ thick; therefore it does not follow that the 4×5 should hold $16\frac{1}{7}$ ounces unless it is $1\frac{1}{2}$ inches thick, and it is not so made except on special order. You can not, of course, compare any plain section with one having beeways. The cleats on the fences are $\frac{3}{8}$ thick, while the beeways on the slotted sections are $\frac{5}{16}$ wide; so that, in the case of plain sections, a small part of the beeway is in the section. Therefore it follows that a $1\frac{1}{8}$ beeway section has slightly more capacity than the $1\frac{1}{2}$ plain, although they both hold approximately the same. —ED.]

MARBACH'S metal spacer is an improvement over the regular Hoffman by just the amount less of contact surface, and that's a good deal. It can be used interchangeably with the regular Hoffman; but it must be remembered that a hive filled with each kind alternately would be no better than to have all regular Hoffmans—possibly not so good—for there would be a space of $\frac{3}{8}$, which the bees would be sure to fill with glue. [Possibly the space of $\frac{3}{8}$ would be filled up in your locality in time. Yes, I know it might in time in a good many places; but it would be the work of just a moment to take a knife or, perhaps better, some blunt instrument and scrape out the propolis between the projecting points when it is warm. In some localities I have seen even the tin rabbits on the hive filled level full, but we have never seen any thing of the kind around here. But say, doctor, if you will get rid of those hybrids, and put in all pure Italian stock, the same as our friend Alexander and most of the bee-keepers in York State are being forced to do on account of black brood, you will have a great deal less of that propolis, I think. I used to notice when we had black bees how they and their crosses would fill up every thing with bee-glue where Italians would leave the same things reasonably clean, or at most smear them

with a red stain. Come, now, doctor, will it not pay you to rear pure Italian queens, and requeen every colony that does not have pure yellow blood? I remember that one time you bred purposely from a hybrid because she was a great money-getter. —ED.]

THE QUESTION of filling the vacancy in the Board of Directors in the National is a rather ticklish one. There seems ground for saying States should be represented on the Board according to proportion of membership. But with only twelve members on the Board, strict justice can not be done on a representative basis, for not more than twelve States can be represented at best. It has rather seemed that we were better off when the Board was only half as large as now. With so small a number there could be no thought of sectional representation, and no feeling of jealousy in that regard—the only thought being to get the best men, no matter where located. On the other hand, local representation has its advantage in local interest. Genuine representation would demand a member of the Board from each State, with an additional member of the Board for every so many additional members in each State. But that would make a board very cumbersome. In fact, it is too cumbersome now for prompt expedition of business, seeing the business must be done by mail. Possibly a plan might be devised to have a large representative board, this board to select a central committee to do most of the business. [This is one of the questions that was brought up at the last National convention; and after an hour of talk we practically got back to where we started. This is a matter that, in my opinion, should be discussed through the bee journals so that the *entire membership* can have a hand in it if it desires, then vote intelligently on the proposition when it is put to them in concrete form. —ED.]

YOU BUCKEYES seem to be doing a good bit of crowing because you're getting the upper hand in the fight with boss Cox and the rest of the whisky gang. I don't blame you the least bit; but I want you to understand that you're not the only pebble on the beach. At the last session of the Illinois State Legislature three of its members were Prohibitionists, and there is a fair prospect that the number will be largely increased in the next session. I don't think you can match that in Ohio, nor for that matter in any other State. It doesn't mean that the third party has become so wonderfully strong. These three men were the nominees of the Prohibition party, but they were by no means elected by a third-party vote. A lot of clean men in the old parties have gradually become so restive under the party yoke that they finally said, "Put clean men on the ticket, men who will work against the saloon, or we'll bolt the ticket." The party machines counted on that as mere talk, and put on men who would stand for the saloon. Then the unexpected happened:

The ticket was scratched, and votes were cast for men pledged to work for prohibition. Revolutions don't go backward; look out for the Sucker State next time. [But the independent spirit among voters in Ohio is very strong. I hope the day is past in our State when Republicans or Democrats will any more accept any candidate, good or bad, that their respective bosses happen to jam through the nominating convention. If ever politicians in Ohio have been taught a lesson at all it is this: That they must never again allow a boss to jam a candidate on to a ticket when such candidate is not acceptable to the party at large.—ED.]

THE ROOT TWIN mating-box may be no better down south than the single box, but I'm sure it's better up north. And while you're at it, why not have triplet boxes? You could have three compartments like the two you already have, or you could have a middle compartment for only one frame, only in the latter case you must be sure to have the middle compartment at least two inches wide. I'm not speaking at random, but from actual experience, having had fifty such triplet hives in use, only they had full-sized L. frames. [We could make a triplet box, but the middle compartment would have a great advantage over the two outside ones. This, perhaps, would do no harm. The twin box, as it is, is very nearly cubical; and by putting the flight-hole on each diagonally opposite corner there would be no trouble from the queens mixing. But when we have a triplet box we introduce a complication, because we are compelled to get one pair of holes pretty close together.—ED.]



I HAD intended to say something about the Chicago convention; but just before going to press I found my space was all taken up with other matter. I will try to give some sidelights in our next issue.

BENTON IN THE CAUCASUS (RUSSIA).

OUR readers will remember that the Division of Apiculture, Department of Agriculture, Washington, reported last summer that its last imported Caucasian queen was dead; and as there were serious uprisings in the Caucasus regions, in Russia, Dr. Phillips in charge had grave doubts as to whether Mr. Benton, then in Europe, would be able to get any more queens of this race. At all events, he (Benton) it appears pushed on, and, although he encountered all sorts of difficulties, such as detention and actual im-

prisonment, to say nothing of the risk of life, he secured queens of this race and sent them on to the Department, so that the government is well supplied with imported Caucasians. It appears from the postal card which will be seen on page 92 that Mr. Benton is not entirely through with the difficulties of his journey yet. His lightning express train may ditch him yet.

BEEES AND POULTRY.

SEVERAL of our subscribers objected to the severe strictures placed on the American hen by Mr. Frank McGlade in our issue for Dec. 15, page 1307; and from the amount of correspondence that has come in, it is apparent that a large number of bee-keepers are poultry-keepers also. It is these particularly who think Mr. McGlade has been unfair to the hen. In this issue we are publishing two articles which I hope will help to even up things a little. But our poultry-keepers must not take the statements of Mr. McGlade too seriously. While he states the actual facts in his own experience, yet there is a sort of humor about the whole of it, and this is made the more emphatic by the cartoons by our artist, Mr. Murray.

I suppose that, as a matter of fact, the great majority of bee-keepers have some other pursuit in connection with their bees. Many keep poultry; many others run a small fruit-farm, and others still have a regular ranch or farm. It is not the policy of GLEANINGS to run down any industry that may happen to be run in connection with bees; and we are sure that Mr. McGlade had no desire to do the poultry business an injustice.

THE USE OF A NOM DE PLUME.

GLEANINGS admits the use of a *nom de plume* whenever a correspondent desires, from motives of modesty, to conceal his identity, or in cases where a busy man desires to avoid a correspondence more or less voluminous, which may follow in case his name is put before the public. But we will not allow a correspondent who desires to strike back at some one to come out under mere initials or a *nom de plume*. If he desires to score the other fellow he must stand out in open fair fight; and even then we reserve the right to temper his language or omit it altogether. GLEANINGS will not be a vehicle for personal quarrels and wrangles, but it will allow fair dignified discussion, the purpose of which is to bring out new sidelights or correct error. Two or three times lately a correspondent has desired to strike back at another one, and requested the use of his initials or a *nom de plume*. I wish to make the position of GLEANINGS on this point clear once and for all.

THE SIMMINS DIRECT METHOD OF INTRODUCING QUEENS.

A CORRESPONDENT in this issue refers to the Simmins direct method of introducing. As some of our readers may be unfamiliar

with the plan, perhaps it will be well to describe it here. The reigning queen is removed a few hours previous to liberating the new queen; then the queen to be introduced is kept from food for at least half an hour, when she is liberated right on the combs just after dark by lamp light. The hive is not to be opened again for 48 hours. The object of starving her a little is to put her in the right attitude whereby she will be favorably received. She will ask for food, which will be given her, and this of itself has a tendency to predispose the bees toward her favorably. Mr. Simmins claims the method is almost infallible; but we have not found it so in our own experience. The average bee-keeper would, in my opinion, secure better results by following the candy methods as recommended in all the mailing-cages that are sent out; but in this connection it might be well to state that the best time to introduce queens is toward night, especially if they are to be released among the bees.

DAMPNESS—IS IT DETRIMENTAL TO THE WINTERING OF BEES IN BEE-CELLARS?

IN the department of Conversations with Doolittle, in this issue, Mr. D. rather conveys the impression that dampness is not harmful in cellars, and that ventilation is a detriment rather than a benefit. Both of these factors, whether injurious or not, hinge on conditions afforded by the structure of the cellar, and the locality. I fear that, if the advice or teaching is followed by others, it is liable to lead to disaster. While there can be no question that Mr. Doolittle's practice is correct so far as his locality and conditions are concerned, yet a change of conditions would, I am sure, give entirely different results. Mr. Doolittle is able to do what most of us can't do, and that is to control temperature within a range of three or four degrees, and this one factor makes it possible for him to get along with little or no ventilation, and at the same time protects the bees from the dampness described. In our locality, subject to such extremes of temperature, dampness makes fearful havoc. We tried to do as Doolittle does, and failed with a loss of some three or four hundred colonies in two different cellars at outyards. The experiment was not tried once, but several different winters. When the temperature is liable to go up or down, ventilation and dampness are two very important factors. This conclusion is not based on experiments made in Medina only, but observations made in other cellars in different parts of the country. Our temperature runs all the way from 38 or 39 up to 60 and 65. When high, we ventilate; when low, we close the windows, letting the natural heat of the cellar warm it up. Our cellar always smells sweet, and the bees come out in fine condition. But in two other cellars where we had dampness and didn't ventilate, the bees nearly all died each winter, and even when we did ventilate the dampness killed them just the same. When the temperature is

liable to go down below 40° F., accompanied with dampness, serious results are almost sure to follow.

CAUCASIANS; CONFLICTING TESTIMONY CONCERNING THEM.

IN this issue we publish an article from D. E. Lyon, Ph. D., which speaks quite favorably of Caucasians. It will be noted he introduces a letter from Mr. Frank Benton, which, while not claiming any thing remarkable for these bees in the way of honey-production, goes on to describe their distinctive markings. The illustration in Dr. Lyon's article, in connection with Mr. Benton's description, will give one a pretty fair idea of how this particular strain of bees looks. It seems as if there would be no difficulty in distinguishing these from the ordinary black bees of this country.

But while we hear all kinds of conflicting testimony as to their value as honey-producers, yet there seems to be substantial agreement as to their gentleness; but on other points the testimony is decidedly at variance. Mr. J. B. Hall, of Canada, one of the fairest bee keepers—that is, as little open to prejudice as any one on this continent—describes in the *American Bee-keeper* one strain of Caucasians which he introduced 22 years ago, and which, ever since, he has been trying to get rid of. They ran too much to building queen-cells, he says, he having counted at one time as many as 112 perfect queens thrown out in front of the entrance of one hive. Another thing, their cappings were concave instead of convex.

Mr. Julius Hoffman, of Hoffman-frame fame, in the *American Bee-keeper*, says he introduced them to his apiary in 1880. He reports that they did little or no work on buckwheat, but produced the finest grade of white comb honey. This would conflict somewhat with the statement of Mr. Hall; but he agrees with him when he says they will raise from 75 to 100 queen-cells in bunches. He concludes by saying he thinks they would be a good bee for clover sections; but because they are practically useless for buckwheat honey he discarded them. But both Mr. Hall and Mr. Hoffman speak of their bees as being more or less yellow, resembling Italians. Mr. Abram Titoff, the Russian representative in this country, speaks of two strains of Caucasians—the yellow and the black in particular. The kind condemned by Mr. Hall and Mr. Hoffman in the *American Bee-keeper* were on the yellow order, while those praised by Dr. Lyon are black. Apparently there may be a difference in the strains of this race.

Some seven or eight years ago, while I was in Colorado, the Rauchfuss Brothers spoke to me about a new race that was very gentle and good workers, which they had just introduced. If I remember correctly they were Caucasians. These bees looked very much like the black Caucasians that I have seen in recent importations. At that time both the Rauchfuss Brothers spoke favorably of the bees, particularly putting

emphasis on their gentleness; and I have understood that they still regard them in the same light.

At the National convention in Chicago, Mr. Holtermann stated that J. B. Hall had told him the Caucasians were the meanest bees to weed out of a locality that he ever came across. He had been 22 years in trying to get them out of his, and still their blood showed up in spite of him. There was considerable between-session talk concerning these bees, and some thought they might prove to be another case of the English sparrow; but Dr. Phillips, of the Department of Agriculture, Washington, did not think we need have any fear along that line. Apparently the strains the government has introduced are not of the type complained of by Mr. Hall and Mr. Hoffman.

Perhaps we shall have to conclude there are Caucasians and Caucasians; but it may be wise for us to go slow about introducing them in our own localities. GLEANINGS has absolutely no interest in these bees; indeed, its publishers have not even decided that they will offer them for sale the coming season. A. I. Root is testing a black strain of the bees on one of the islands off the west coast of Florida. He may be able to produce them in their purity, and at the same time prevent their being spread to other localities, should they prove to be undesirable, as they have been in Mr. Hall's experience.

A DAMAGING LABEL ON BEES AND BEE-KEEPERS.

THE following item appeared in the *Detroit Free Press* for December 10, and has since been copied and re-copied in numerous other papers, and speaks for itself:

"There are several popular errors about the ways of bees which need rectifying," said Ike Hubbard, a honey-hunter. "The average bee, instead of being an example of industry, is about the laziest thing that flies.

"Even in the busy season in midsummer no bee will quit its hive until after the sun is well up, and has taken off the heavier part of the dew; and so soon as the sun slants toward the hill in the afternoon every bee will come flying home and go to roost, though darkness is four or five hours away.

"Then there are few bees that will hunt for honey from flowers so long as they find corn syrup or brown sugar to steal. This fact is so well known to apiarists that many bee-keepers buy corn syrup for fifty cents a gallon and pass it along to the bees, which convert it into something that resembles honey, but is not honey, and still sells for the genuine product of the hives. When a man can buy syrup for fifty cents a gallon, and then sell it back to the trader as honey for \$8 a gallon, he can get rich right away, provided he has enough bees."

I have read a good many false statements about the honey business, but I do not know that I ever saw one that is more untruthful, and more damaging to the bee business in general, because it purports to come from a *bee-keeper*, or one who *pretends* to "know it all." These "know-it-all" chaps generally do not know any thing about the thing they are talking of—at least it is so in this case. For example, witness his statement that honey brings \$8.00 a gallon. As a matter of fact, it doesn't bring much more than one-tenth of that in Detroit.

We call on bee-keepers everywhere to write to the papers publishing this stuff, denying this statement before it is copied and recopied any more. Now, do not drop the matter right here and assume that the other fellow will do it, but *do it yourself*. Sit down at once and write a sweeping denial, and say that bees won't take raw glucose; but be sure to make your language respectful, otherwise the editor will not publish it.

ADVANCED BEE CULTURE—NEW REVISION.

I HAVE in my hand a copy of this new work, containing 330 pages, and, as its title indicates, it is written for the benefit of experts. It is handsomely bound, beautifully printed, and illustrated with original photos made by the author. Taking it all in all, the book is the equal, if not the superior, from the standpoint of the printer's art, of any thing that has been published in bee culture; and in bee lore it is by no means a second to any of them. I said at the outset that it is a *new* work. From a glance over the previous editions it seems to be a good deal more than a revision, because it seems to be rewritten, almost every page of it.

The style of writing is simple, and easily understood. One does not have to read over a paragraph, written by W. Z. Hutchinson, the second time in order to comprehend the meaning. Indeed, I doubt if there is a clearer writer on bees in all bee-dom; and, what is more, he seems to have the happy faculty of arriving at the very kernel of every idea.

In one respect it is similar to our A B C of Bee Culture, in that it is a summary of the best ideas and methods brought out in the discussions of the respective journals of which the respective authors are editors. For that reason a new reader of the *Bee-keepers' Review* will find *Advanced Bee Culture* a necessity if he would get the benefit of current discussions in current issues. In like manner the A B C is a necessary complement to GLEANINGS.

The book starts off with a chapter entitled "Bee-keeping as a Business." In reply to what goes best with bee-keeping, the author characteristically replies, "Some more bees." He discourages the idea that one should run bee-keeping in connection with some other pursuit; and while doing so he does not overlook some of the difficulties of the one pursuit in seasons of the year when the bee-keeper has but little he can do profitably unless he can have a side issue. He lays great stress on the importance of having the right kind of bees and a good location; then he closes the chapter with the statement that bee-keeping is not an occupation in which one can easily become wealthy; but, rightly managed, the business will afford a comfortable living. But he adds in words that ought to be emblazoned in gold, "Many a man with the hum of the bees over his head finds happiness deeper and sweeter than ever comes to the merchant prince with his cares and his thousands."

"Making a Start in Bee-keeping" is the title of the next chapter. He would advise the beginner to read all the standard textbooks, and, having done this, to subscribe for the best bee journals. Then he would urge his pupil to work one season with a good bee-keeper as an apprentice.

"Mistakes in Bee-keeping" follows next; and it is one of the most interesting chapters in the whole work. Here are just a few of the mistakes he points out: "A man who has decided to make bee-keeping his life business makes a mistake when he gets a few colonies and attempts to learn the business all by himself. . . . A beginner is quite liable to fall into the error of increasing his colonies too rapidly. . . . A mistake that is made by many is to look on bee-keeping as a sort of royal road to wealth. . . . Many bee-keepers make the mistake of computing their income at so many pounds per colony. . . . Another mistake is that of choosing hives, implements, and methods that are complicated. . . . Some bee-keepers make the mistake of condemning any practice not according to nature. The whole system of modern bee culture," he says, "is largely a transgression of nature's laws, or managing differently from what the bees would manage if left to their own way of doing things. . . . Many bee-keepers make the mistake of thinking they can improve some of the standard hives and implements, and that before they have fairly learned the business. Others make the mistake of adopting new hives and implements or varieties of bees on too large a scale. . . . One expensive mistake easily made and yet easily avoided is made year after year by many bee-keepers; and that is, not securing hives, sections, and foundation in season. . . . It is a mistake to suppose that a poor location can be changed to a good one by planting for honey."

"The Influence of Locality" is a chapter that shows the breadth of the author's views. He was, he says, often sorely puzzled at the diametrically opposite views expressed by different correspondents of the bee journals in his earlier experience; but at that time he was at his old home in Genesee Co., Mich. It was not until he had seen the fields of New York, white with buckwheat; admired the luxuriance of sweet-clover growth in the suburbs of Chicago; followed for miles the great irrigating-ditches of Colorado where they give life to the royal purple of the alfalfa bloom; climbed the mountains in California, pulling himself up by grasping the sage brush, that he fully realized the great amount of apicultural meaning stored up in that one little word *locality*. Then he goes on to describe the peculiarities of the different places, and then winds up this interesting chapter by the terse statement, "Above all things, know your locality."

"The best Stock and how to Secure it" is a chapter that would be considered orthodox by the great majority of bee-keepers. He says there are only two varieties of bees worthy of consideration for use in the Unit-

ed States. In fact, they are about the only varieties now left here for consideration, and they are the Italians and the Germans. The Syrians he criticises as being too prolific; Cyprians irritable, and the Carniolans too much inclined to spend their energies in breeding and swarming. The tendency of the Italians to put their honey in the brood-nest he thinks is now easily overcome.

The next chapter, "On the Choice of a Hive," gives the preference to the Langstroth hive and frame. This is a change of position from the former edition of his work, where he recommended the Heddon divisible brood-chamber. He has no use for staples or projections on frames to make them self-spacing, because he thinks the eye and hand can space frames without such aids. Closed-end frames have their advantages, but he thinks they are not equal to the loose unspaced hanging frame. In explaining his change of front from the Heddon to the Langstroth hive he says, "Divisible-brood-chamber hives cost considerably more than other styles of hives; and after using them for years by the side of the ordinary Langstroth hive, seeing them used by other persons in different locations, and considering the new features that have recently sprung up in bee-keeping, I have gradually come to the decision that, if I were now starting in the bee business, I would not use the horizontally divisible hive."

In the chapter on honey-boards and queen-excluders he describes the use of the Heddon slat honey-board and the queen-excluding zinc board.

"Sections and their Adjustment on the Hive" is the title of a rather interesting chapter. He gives the preference to the four-piece plain tall sections, to be used in connection with fences. In explaining this preference he says: "The principal advantage of plain sections and fence separators is that the freer communication thus allowed the bees induces them, for some reason, to build out the combs fuller around the edges and corners, and attach them more perfectly to the sections. This gives the finished product a more attractive appearance, and greatly lessens the danger of breakage in shipment. Another point, although it may be a minor one, is that a plain section is filled fuller of honey; that is, the edges of the wood do not stand out so far above the surface of the comb as they do in the beeway sections. A filled plain section has a plumper look than a beeway section, the latter having the appearance of being only partly filled. A tall plain section may not contain any more honey than a square section of the beeway type; but it *appears* to contain more, and has, withal, a more attractive appearance. There is still another little point, and that is that a plain section offers special advantages in the matter of cleaning it of propolis, as there is no inset to work into with the scraping-knife." I do not however, consider the advantages of the plain section sufficient to warrant any expensive change of fixtures in order that it may be adopted."

(To be continued.)



1906, and half a month of another bee-keeping year already gone.

Who, in the South, has tried "brick honey"? If a nice grade of candied honey can be obtained I shall give it a trial this winter. Who else wishes to make the experiment?

While our bees are actually flying on warm days, and gathering some honey and pollen, their Northern cousins are in the cellars or winter-packing, only dreaming of such things.

The most beautiful Christmas weather prevailed in our locality during the holidays this year. The bee-keeper, as well as his bees, rejoiced. Several good rains recently have added to the prospects for next season.

The greater activity of bees in a warm climate accounts for a greater amount of stores consumed by them. Not only are the bees themselves active, and through a much greater part of the year, but brood-rearing also continues much longer. More brood is required to replenish the colony with bees, worn out by the greater activity, hence more stores are needed.



KEEPING UP WITH THE BEES.

When the rain has been a pourin' down,
An' to water it has changed the lan',
An' the hand o' time is still a goin' roun',
An' the sun is ag'in showin' its face,
An' the bees a raisin' a heap o' san',
Then's when it's the beg'innin' o' a race,
While the apiary may be high and dry,
An' rivers may be higher'n' high,

An' the roads that no wagon nor wheel
"I'll do any thing like a turnin' roun',
Then's the time 'ter take ter yer heels,"
An' sink them inter the muddy groun'.

MORE HONEY GATHERED PER COLONY IN THE SOUTH.

With the abundance of honey-yielding flora, and the long warm seasons in the South, it would seem that a colony of bees must store an increased amount of surplus over a similar colony in a Northern locality with shorter seasons. This is not necessarily so, however. The colony with Southern conditions no doubt gathers more honey during the season, but at the same time it consumes much more. Not only is more consumed by the bees themselves, but a much greater number are reared. A colony in the North, therefore, may not *gather* nearly so much honey in a season, yet the surplus of both may be the same.

A FLIGHT BEFORE CELLARING.

Bees should be allowed an extra flight after hauling them home and before putting them into the cellar if the weather will permit it at all. The hauling stirs them up considerably, and a great deal of food is taken by the bees during the agitation. A cleansing flight after that will put them in good condition for the cellar, while without it the little creatures are gorged with excrement, of which they would have been free under natural conditions. Bees that have been hauled home and set out before putting into the cellar will fly the next day or as soon as the weather will at all allow them to do so, when colonies that remained undisturbed will not fly but remain quiet. The flight after the disturbance is necessary, therefore, and it should be given them by all means before putting them into the cellars when practical to do so.

MOSS FOR CLOSING ENTRANCES AND RE-LEASING BEES.

I have used moss as an entrance-closer a great deal, and in various ways, for a number of purposes. When entrances are to be closed rapidly and only temporarily, I know of nothing handier than the moss that covers some of our trees and hangs down within easy reach in some of our apiaries. Just to grab a handful of it and stuff it into the entrance closes it in short order. By a little forcing with the fingers it can be packed so firmly that it will secure the bees for some little time. Recently I had occasion to use it in closing entrances in two out-yards to confine the bees while erecting scaffolds upon which to set them above flood water. They were confined throughout an entire day and night, and next day until eleven o'clock. For closing entrances quickly and without any further preparation or expense, this served the purpose admirably.

But I make use of this method still further. When moving colonies a short distance the above method of closing the entrances *for releasing the bees so they will not return to the old stands* works like a charm. The

bees are left confined during the greater part of the day, or until near noon time, so that they become considerably disturbed. The moving to the new location can be done either during the evening or early morning before, and leaving them confined on the new location, or they can be confined on the old place when they are not flying, and then moved during the warmer part of the day. The latter is the most satisfactory, as the moving stirs the bees up more just before they are set free; but in warm weather the former should be adhered to.

To release the bees the moss is only partly removed from one side of the entrance, and left in front of it to obstruct the passageway somewhat. The bees rush out with a roar, and mark the new location immediately.

For closing up newly made nuclei, in out-yards especially, the moss, for closing the entrance, is most excellent and convenient. Several years ago a lot of 30 such nuclei were made and closed up while robbing was bad. The rest of the season was a bad one except for just enough honey coming in to keep the colonies built up. I did not return to this yard until next year, or nine months later, and found that all the nuclei had released themselves by gnawing away a part of the moss, and had built up to good colonies.

This taught me a lesson to go still a step further, and use moss in closing the entrances for winter. Only a small opening is left at one side of the hive. Next spring the bees can enlarge the entrances as they need it. I have two apiaries closed up so now, that I do not expect to visit until late next spring, when supers will be needed. If wood were used, extra visits would be necessary to regulate or open the entrances. The danger of a colony remaining closed up by oversight is also done away with, as the bees can free themselves.

SOME IMPORTANT QUESTIONS.

If we would only stop occasionally and ask ourselves a few questions I am sure we should profit by them. Instead we rush on in the same old way, and without the slightest thought that we might go slower, and make more by improving upon our ways and methods.

THE QUALITY OF OUR QUEENS.

First of all, what kind of queen heads each of your colonies? Is she as good as she should be? This is an important question. What, in the success of a colony, does not depend upon the mother of the hive? The best of them is none too good. It would be folly for one of our Texas "cattle kings" to head his herd with a scrub bull of unknown worth; yet too many bee-keepers are practicing just such a thing with regard to their queens. Entirely too little attention is given this subject. Were this not the case, much better strains of bees would be found in many of our apiaries instead of rundown strains that are not yielding their owner the profit that *could* be obtained.

PROFIT.

Here's an example. In an experimental yard of 21 colonies, managed for bulk comb honey, one colony produced 245 pounds of surplus. Four averaged 160 pounds each; ten gave 90 pounds each; three, 60 pounds; two, 15 pounds, and three gave no surplus, making a total of 2000 pounds, or a ton of honey. The difference in surplus stored was due to the queens more than any other condition. The colonies were all treated alike, and had the same chances. I knew the queens of each colony, and could judge them accordingly. The colonies making the larger yields contained queens of better stock from the previous fall's raising, and were in their prime. The others were either old or unproductive. The most prolific queen had the most populous and prosperous colony, and produced the most honey.

A LITTLE FIGURING.

Now let us suppose that such a queen would have been at the head of each colony. Might not the yield have been increased considerably? Instead of 2000 pounds it would have meant a total of 5145 pounds, or a gain of 3145 pounds. The selling price averaged 9 cents per pound, or \$180 for the crop. At the same rate a gain of \$283.05 would have been made. Is it needless to argue that improvement in stock would pay? It is only necessary to figure what returns would have been obtained with the colonies that produced only a small amount or no surplus.

WINTERING THE COLONIES.

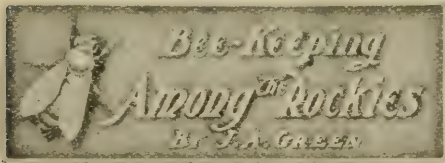
Do you know that your bees are wintering all right? Have they sufficient stores to last them, not only for the average winter but through a "rainy day" that might prolong the wintering season? Many bee-keepers suffered much loss last winter from just such carelessness. It was supposed that stores sufficient were in the hives to winter the colonies safely. The spring was late, cold, and wet, and the supply for an average winter was soon exhausted. As no new stores could be obtained by the bees they starved.

BEING PREPARED FOR THE HARVEST.

If the bees winter well, are you prepared for the honey-flow? That is, did you order your supplies *early*, get a good discount for ordering them early, and spend rainy days nailing them up, and making good wages while otherwise there would have been nothing to do? There is no doubt that the early-discount offers are of much value to the bee-keeper who observes them. It not only saves him money on the discount given, but he saves valuable time, and makes idle time valuable by nailing them up and preparing them for the season ahead of time. Your attention has been called to this matter so often, and it was kept before you so constantly in the advertisements of supply-dealers, that it is none but *your* fault if you did not take advantage of the opportunity.

DISPOSING OF THE CROP.

If you make a crop, what are you going to do with it? With many bee-keepers it is an easy matter to produce a crop of fine honey; but then their ability to handle it to advantage ceases. This should not be. The producer should know and understand how to make the most out of his crop. If he does not he should educate himself up to it. With some this ability comes naturally; but others must learn it. Education is necessary in other lines, and also applies in apiculture.



STORAGE-CRATES FOR COMB HONEY AND SECTIONS.

Doctor Miller does not seem to have understood my description of the way my storage-crates for comb honey are made, since he says that he does not understand that they are any more open than supers. If he will read over again my description on page 1121 of the way they are made, and will then make one up according to directions, he will see that they are very much more open and ventilated than any super, and that it would be practically impossible to pile them up in any such way that there would not be a free circulation of air through them. I made a slight mistake, though, in my description when I said that four pieces of lath make the bottom. It takes five pieces, supporting four rows of sections. These should not be nailed on so that the spaces between are exactly regular, but so that the inside ones are divided evenly between the rows of sections. To make a crate for $1\frac{1}{2}$ sections, using $\frac{3}{4}$ lumber for the sides, these pieces of lath should be $13\frac{1}{2}$ long. The sides on which they are nailed should be about $17\frac{1}{2}$ long (no shorter, though a little longer would do no harm) and at least $4\frac{1}{2}$ wide, making the inside depth of the crate a little more than the height of the sections.

Unless your lumber is perfectly seasoned, cut your boards $\frac{1}{8}$ wider. When honey is placed in this crate, the air always has free access to the bottom of the sections, even if the top is tightly covered, and there is more or less circulation of air through the ends.

Now, I did not say that Dr. Miller piled his supers of honey up closely together, but that almost all bee-keepers did so. I have been in the honey-houses of a great many bee-keepers, and I believe I have never yet seen one in which there was what I considered adequate provision for ventilating and

ripening the honey, and it was but very rarely that any attempt whatever was made in that direction.

Very often the honey is put into shipping-cases as fast as it is taken from the hives. This I consider very detrimental to the quality of the honey. We have heard a great deal about the folly and shortsightedness of those who put unripe extracted honey on the market, but I think it is high time that we paid more attention to the proper ripening of comb honey.

Now a little more in regard to the other uses of these storage-crates, since some do not seem to understand the advantage of having another set of receptacles than the supers or shipping-cases. As the sections are folded, they are set into the crates *upside down*. When thoroughly dry they are ready to have the foundation put in, when you will find that the sections are right side up for this purpose. After the foundation is in, the sections are set back into the crates, right side up this time. You may think that time could be saved by putting them directly into the supers, but really time is saved by doing one thing at a time. Besides, while I usually have all the work up to this point done by cheap help, I prefer, when possible, to do the work of putting the sections into the supers myself, in order to give each one a rigorous though quick inspection before it goes to the bees. I find I have not nearly as many imperfect sections when I attend to this myself.

When the supers are removed from the hive they are emptied as soon as possible, though in the rush of the honey season it may not be for some days. The object of this is to remove any unfinished sections and get them back on the hives as soon as possible. It is but seldom that I leave a super on the hive until every section is entirely finished. Generally there are some to go back to the bees. While getting these out it takes but a little more time to empty the super, putting the finished sections into the storage-crates, there to remain until I am ready to scrape the sections. This releases the supers for further use, if they are needed; and if they are, they are very quickly filled from the sections ready for use, packed away in storage-crates. This reduces greatly the amount of supers required to handle the crop, and correspondingly the amount of capital invested in them, since a storage-crate costs only a fraction of the price of a good super. When the sections are stored away in these crates they are in the best possible shape for ripening the honey, owing to the abundance of ventilation ensured.

Usually I prefer to make separate jobs of scraping, sorting, and casing, the honey being put back into the storage-crates after each operation except the final one of casing, which is put off as long as possible.

Some might object to the extra handling required by this; but the work can be done better and generally faster by doing one thing at a time. One learns to work rapid-

ly under such conditions; and in much of the handling, four sections are handled at one time, two in each hand, and in such a way that no combs are ever damaged by a careful hand.

IMPROVEMENT OF BEES.

Is the optimistic tone of the article by R. B. McCain, page 1236, entirely warranted? Is it true that "the stock of the honey-bee has been wonderfully improved by man's management in the application of the principles of scientific bee culture?" It is true, indeed, that there is a great difference in the working qualities of different strains of bees, and that in some cases we may, perhaps, fairly claim to have accomplished improvement by intelligent selection; but as a whole I must say that the results have been pitifully small and inadequate, considering our opportunities. We have frequently had our attention called to the fact that we have exceptional opportunities for improvement by breeding and selection on account of the shortness of the generation of the bee; but have we really made as much improvement in bees as has been made in other domestic animals in the same time? It is true that most of us believe that the Italian bee is better than the German brown or black bee it has superseded in nearly all localities, and that there can be found those who express a preference for each of the other races that have been brought to this country, but the importation of these races is not to be considered as improvements in bees due to man's management or the application of principles of scientific culture. The only thing that can be considered in that light is the change that has been made by breeding and selection since they have come to this country. How much real improvement has there been? I think there has been some; but, leaving out the claims of advertisers, many of which are not substantiated by results, and remembering how many there are who believe that bees from newly imported stock are superior, it does not really seem that any thing very wonderful has been done.

Too much of our breeding has been done hap-hazard, and without any intelligent system or direction other than the production of yellow bees and nice-looking queens. Will Mr. McCain or any one else point out where bees have been produced which are better adapted to particular localities, or to particular kinds of work, or where the quality of the honey, other than an improvement in appearance, has been affected by improvement in the stock? We must remember that many people have bees that, from one cause or another, are very inferior. When one of these gets new stock, no matter where, he is quite sure to get something superior to what he has had. Accordingly he writes a glowing testimonial, which the queen-breeder publishes, and plumes himself on having something really superior, whereas his stock may be quite ordinary. My own experience with some of this so-called superior stock has seen very disappointing.

INTENSIVE VS. EXTENSIVE BEE-KEEPING.

The article by E. W. Alexander, on the amount of honey per colony, is very interesting, and brings up the old question, "Which is the more profitable, many bees and little manipulation, or few bees and much manipulation?" This question is not confined to bee-keeping, but is a vital one in many industries. In most of them, at least, the best of the argument seems to be in favor of a man trying to do no more than he can do thoroughly, and, for the most part, with his own labor. For instance, this is largely a fruit country, and consequently one of many small farms. I have heard a number of men say that they could make as much money on ten acres as they could on twenty, and very few seem to care to try to handle more than twenty acres. On one side of me there is a fruit-ranch of 110 acres, which, according to report, has never much more than paid expenses. On the other side of me are a number of ten to twenty acre orchards, the owners of which are making a good living and laying up money.

Now, to how great an extent does this principle hold good in bee-keeping, and where is the line below which there is not a fair living, and above which an extra number of colonies is only a waste of capital and a vexation of spirit instead of a source of profit? It is an interesting question; but I am not going to try to solve it now. I think that, like many other problems in bee-keeping, the solution depends on a number of factors, the principal of which are the man and the location. I think, too, that a middle course is likely to be found best, and this is along the line that I expect to follow, keeping no more bees than I can take good care of, doing nearly all the work with the bees myself, and hiring help as far as possible for that not directly with the bees. But I expect to use such implements and methods that I can handle properly more bees with than are kept by the average bee-keeper.

I would call attention to the fact that Mr. Alexander keeps several hundred colonies of bees, and that he does not pretend that they are managed in the way that he advises. Regarding the plan he outlines, I would say that the localities where any large amount of surplus may be safely counted on after July are, comparatively speaking, very few, and the beginner in the average locality who attempted to follow his instructions would, I think, be likely to meet with disaster.

[I would respectfully suggest that Mr. Green have a photo taken of his ventilating-crates, said photo to be taken at our expense and sent here. It strikes me he has a good thing.

What Mr. Green has to say about the lack of improvement made in the mating of queens is only too true. One difficulty in our way has been the problem of controlling the male parentage of our bees. This is where we have been handicapped. But some of the breeders, at least, will try the experiment very soon of breeding queens on

an island with selected drones. Possibly we may then be able to accentuate the desirable traits which we now lose by this hit-and-miss mating out in the open.

Mr. E. W. Alexander is, I should say, a sort of go-between as regards the extensive fruit-man and the small one. One reason for his success is that he and his son, with a couple of helpers, do all the work, as their bees are all in one locality.—ED.]



ORDERS OF INSECTS.

In our last we learned something of the lowest of the orders of insects—*Neuroptera*—as given by the great Linnæus. We remember that the members of this order are usually easily distinguished by the numerous veins and cross-veins of all the four wings; hence the name, *Neuroptera*, nerve-winged, and also the common name of lace wings. They also have biting mouth-parts, and vary in their transformations, as some, the pseudo-neuroptera, pass through incomplete transformations, like the dragon-flies, the white ants, and the day flies, or *Ephemera*, often so common about the street-lamps in towns near the great lakes or other bodies of water. The larvæ of these and the dragon-flies live in water. In the other sub-order, the neuroptera proper, the transformations are complete. Here are four families that will interest all our readers. The hellgramites are among our largest insects. The larvæ live in water; are very large, and are useful for dissection if the student wishes to learn the internal anatomy of insects. He thus learns that the heart is tubular, and extends the whole length of the back; the nervous system runs along below opposite the heart; the breathing-organs are complicated branching tubes, one each side the body, and these receive air through spiracles, or breathing-mouths, along the sides of the body. These are easily seen in these hellgramites, and in such huge creatures as the great tomato caterpillars—the common green “worms” so troublesome to gardeners. The food-tube stomach and intestines is central. These huge larvæ, or nymphs, are also useful to the fisherman, for they are excellent for bait. The ant-lions and aphid lions also belong here. The former are terrors among insects, so great is their ferocity. Their formidable traps consist of earthen funnels, or holes, dug in the sand. As the ant or luckless insect comes along over the edge of this threatening cavern, it slides down and is grasped by the ant lion, and its life shaken

out of it, after which its blood is sucked dry. The ant-lion is a long slim insect with huge jaws. The aphid-lion is much like the ant-lion in form and general appearance. These names are given to the insects as larvæ. The mature insects are very different. The mature ant-lion is in form much like the dragon-flies, while the aphid-lion develops into the green lace-wing, chrysopa, a beautiful delicate fly which lays her tiny white eggs at the end of a long hair, thus to protect them from marauding insects. These eggs are laid by the provident mother in the midst of colonies of aphids, or plant-lice. As the long slim strong-jawed larvæ come from the eggs they have a perpetual banquet always ready. The aphids, or plant-lice, are terrible pillagers on our plants. One of the largest species works on our magnificent lindens. Others work on the willow, and others on our fruit-trees. Thus bee-keepers are interested in these aphid-lions, for they save his bee-forage from devastating aphides.

These lace-wings have been divided into several orders by naturalists; and, while this is doubtless wise and warranted, the various authorities are not in accord, and so we will leave the order as the great Linnæus gave it to us.

Again, it is interesting to know that all of this order, if we except the white ants, or termites, are our friends. They feed exclusively on other insects, and so are ever waylaying and devouring our enemies. Of course, the dragon-flies, in killing bees, carry the work almost too far. Yet even these do far more good on the whole than harm.

Before quitting this word-painting of the lace-wings I wish to give a word regarding the cadis worms. The larvæ live in streams of water, and build by gluing together stones, shells, or sticks, for themselves, homes, and protection. They crawl along on the bottom of the streams, and drag the stony hollow cylinders, in which they live, about as they go in quest of luckless fish or insect. I have used these cadis “worms” in the San Bernardino Mountains very successfully as bait for trout. The mature insects have thick paper-like wings, which, when at rest, incline roof-like above the body of the insect.

ORDER ORTHOPTERA.

This order includes the crickets, katydids, locusts, and allied insects. The upper (or front) wings are usually long and slim, and hence the name, which means straight-wings. We hardly need say that they have biting mouth-parts, for did not the ancient locusts eat “every green thing from off the face of the whole earth”? In Kansas the locusts have, when very thick, entirely stripped the trees and shrubs of bark. The transformations are always incomplete. The little hopper could never be mistaken for aught but a cricket, katydid, or locust, as the case might be, by the veriest novice, even though it had just skipped from the egg. The under (or hind) wings are broad,

and, like all the wings of neuroptera, are lace-like. They usually fold like a fan, and are not infrequently marked with lines or spots of color, which at times are quite brilliant. Often, as these insects fly, various of them stridulate, as it is called — that is, they rub their wings or wings and legs together so as to give the whir or chirp which is most familiar in the cricket, though common to all katydids, and not rare among locusts.

Besides the insects named above, we find here the long wingless walking-sticks, so awkward and bizarre, as they mimic leaf or twig, often in marvelous fashion; the fierce praying-mantis, which, unlike all others of the order, is a friend, as it feeds on other insects; yet, like the darning-needle, it feeds on bees. It, however, does us far more good than harm. This insect, though common in California and the Gulf States, is not found in the northern or colder States or regions of our country. It is called praying mantis (preying mantis would not be inappropriate), as its front legs are jaw-like, fitted for grasping its prey, and thus its attitude reminds one of the position of prayer or supplication, or, perhaps, more often of benediction. We also have here the cockroach, the flat thin insects that often infest storehouses and cellars. I saw them here in Berlin the other day in one of the buildings at the Zoological Gardens in such numbers as to frighten one not used to them. Their flat form reminds one of a professor's pocket-book, and fits them admirably to secrete themselves between boards, or in very scant crevices.

It only remains to be said that all the orthopterons, except the mantis, are our enemies. They all feed voraciously on plants, and so are terribly pestiferous. Probably of all the insect hosts we have no better examples of wanton destruction than that afforded by locusts. No country is exempt from their enormous ravages, and they often come in such overwhelming multitudes that it takes every thing green to satisfy their voracious appetites. A mixture of bran, molasses, and arsenic tempts them, and gives the death potion at the same time. They are also gathered often in a rapid way by use of a horse-scraper-like machine which receives them into a reservoir of kerosene oil from which escape is impossible. In the northwest of our country where these have been used with abundant success they are known as "hopper-doers." These insects, in destroying our honey-plants, touch the pocket-books of the bee-keepers, and the praying mantis often lays tribute direct by banqueting on the heavily loaded worker bees as they come from the field.

THE GIPSY MOTH.

About forty years ago a beautiful European moth, known as the gypsy moth, was introduced from Europe into Massachusetts, near Boston. That moth is here about Berlin and elsewhere in Europe, but is not a serious pest. In America it has become an alarming destroyer. It is a general feeder,

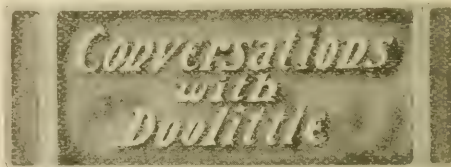
and scarcely any plant escapes its hungry appetite. The State of Massachusetts has expended nearly \$1,000,000 in trying to eradicate this moth, and the end is not yet.

THE VEDALIA IN CALIFORNIA.

Some years ago the white scale, introduced from Australia, worked havoc among the citrus trees of California. It seemed as if citrus culture was doomed. The scale worked on most plants, so that, to extirpate it, seemed impossible. A bright thought led to the introduction of a minute ladybird beetle from Australia, which keeps the white scale in check there. Soon the California orchards were practically free of the white scale, and have remained so ever since. Californians are jubilant, for the little vedalia works for nothing and boards itself. Since the introduction of the vedalia other insect friends have been secured, which, though not so strikingly valuable as the vedalia, are yet doing signal service.

A GYPSY-MOTH PARASITE.

As stated above, the gypsy moth does little damage, owing to parasitic enemies, in Europe. Another moth, more common, but also kept down by parasites, is the brown-tail moth. These pass the winter as partially developed caterpillars in silken tents or webs. The same parasite that kills the gypsy moth works on the brown tail. It is possible to collect the brown tail, but hard to find the gypsy. It is hoped that, by sending nests of the brown tail to Massachusetts, the parasites can be secured that will wipe out the gypsy moth. I believe that the only rational way to meet this gypsy-moth evil is to secure the parasites that hold it in check in its European home. I have been asked to collect nests of the brown tail, and have already sent over 1000 to Boston, to be held in the hope that the parasites may be secured. As each of these nests carries from 50 to 100 caterpillars, it can readily be seen that, if the parasites are general, we may hope for a colony of immense proportions — millions, in fact — which I believe offer far more hope than do the millions of dollars already expended, looking to extermination by mechanical means and methods.



CELLAR WINTERING.

"Good morning, Mr. Doolittle. This is Mr. Allen, who called on you a little while last spring. Do you remember me?"

"Yes. You are the person who looked over my bee-cellar and said you would build one in the fall, are you not?"

"Yes, I am the man, and I came over to have a little talk with you on this cellar-wintering matter, now that I have the cellar built, and my bees therein."

"How do the bees seem to be doing in your new cellar?"

"I went into the cellar just before I came here, and found the bees very quiet."

"That is good. As long as they keep quiet you can rest assured they are wintering well. If they are thus quiet during February and March you will have reason to rejoice, for those are the months which will tell the story about good or bad wintering."

"The cellar bottom seems damp to me—in fact, quite so."

"That is nothing unusual, especially the first winter after any cellar is built. It will be dryer in after-years; but there has been no time during the nearly thirty years I have had my cellar built but that the ground on the bottom has been damp and almost sticky at this time of the year, or from six weeks to two months after the bees have been put in. The bottom is always the driest at about the time the bees are put in, and the wettest about a month after they are taken out. The cool air of the fall and early winter, coming in contact with the warm soil, has a tendency to make the earth in the cellar dry at that time, and the warm air in the spring striking the cold dirt makes it wet at that season."

"I see. I had not thought of that part. But my cellar is so damp that the moisture condenses and stands in drops in places on the roof, and drops down some. Do you have any thing like this?"

"Yes. The flagstones covering the roof of my cellar are as dry as dry can be when the bees are first put in, in the fall; but after the first week of the bees being in there, the moisture thrown off from the evaporation of their food begins to condense on these stones, so that, at the end of a month after they are set in, water collects on the stone and on the walls to the cellar till it runs down and often drops off on the cellar bottom, and would drop on the hives did it not follow the stone down to the wall, and the wall down to the earth and trench under the wall, where it is carried off in the drain under the wall."

"And yet your bees winter well?"

"Always have done so, except the year I kept the oil-stove in this cellar to get rid of this moisture. That year I met with a big loss."

"I was fearful of this moisture matter. I have sawdust and chaff cushions on a part of my colonies, and these are damp on top but dry underneath."

"This is as I use to find matters when I wintered with cushions on, as I did for many years. This comes about from the moisture from the bees being driven up through the cushions and stopping, to a certain extent, when it reaches the cooler air of the cellar, on the same principle that we find the tops of such cushions covered with frost after a

zero spell of weather where the bees are wintered outdoors."

"Do you think that is the cause of this? I had thought that these cushions were taking on the dampness from the cellar."

"If that was the cause they would have become damp at once on the hives being put in the cellar. What is the temperature of your cellar?"

"Forty-two degrees."

"That is pretty cool for a damp cellar. Can't it be made to run a little higher in some way? The weather has been so mild so far this winter that mine has not fallen as low as usual thus far, the mercury keeping at from 47 to 48 degrees, while generally it has fallen to some 45 or 46 by the latter part of December."

"I have two ventilators for the cellar—one at the back and one at the front end. The back one has been closed for some time, and I closed the front one to-day. Would you leave both closed?"

"I certainly would till a temperature of 45 was reached. When it goes higher than that, if it ever does, you might open them, if you so desire; but I have opened no ventilators to my cellar for 18 years. In fact, there have been no ventilators for this cellar for the last ten years, and the bees have wintered full better since all ventilators have been done away with."

"Well, I will try leaving my ventilators closed for a while, at least, or till I see good reasons for opening them. But how about mold? does it ever form in your cellar? And does it do any harm as long as the inside of the hives are dry?"

"Patches of mold are often seen on the roof and walls of my cellar, especially toward spring, when there will be patches of mold as large, and nearly as deep, as your hat, yet I can not see that they do any harm. How about dead bees? Are your bees dying much?"

"There are no dead bees on the cellar bottom to speak of, and the few that have dropped down on the bottom-board below the frames are dry, with no appearance of mold."

"That is good, and shows that the bees are wintering well thus far, and I hope and expect they will continue to do so, if you can keep a temperature three or four degrees higher."

"I put in two bags of fine dry sawdust from our planing-mill, where they resaw lumber, to-day. Would you put in such occasionally?"

"That will be a good thing in keeping your earth floor dry, and keep the dead bees from being mashed on the floor, as well as save the bother of sweeping up the dead bees. When I had such sawdust I put it on (a two-bushel bag at a time), once a month, when, after the bees were out in the spring, the whole was cleared out."

"I was in the cellar fifteen or twenty minutes with a lantern, and only two or three bees came out to it. Should any have come?"

"This also shows that the bees are wintering well. At times, some years, there would a hundred come in that time, and I find that a lantern or a lamp will disturb the bees more than a candle. I do not know why, unless the heated glass of the chimneys throws more heat on the bees when looking at them. A sperm candle is the best thing I know of to take into a bee-cellar for light, and you can hold it right up near a cluster of bees in a way that enables you to see better with it than with a lantern or lamp."

"Thank you. I will try it next time. But there is one thing more I wish to know about, when I must be going. There are some mice in the cellar. Would it be safe to poison them with strychnine on cheese? Would there be any danger of the mice carrying it among the bees?"

"I do not think there would be any danger from the poison used, to the bees; but I should not like the stench that would come to the cellar after a little if there were many mice to eat the poisoned cheese. Why don't you try traps?"

"I have had two traps set for some time, and have caught but one mouse. Is cheese a good bait?"

"That depends on the kind of mice that may be in the cellar. We have three kinds here — the field mouse, which lives on grass and herbs — the kind that 'bark' our fruit-trees during the winter; the house-mouse — the one which every good housewife dreads, because it gets into the pantry and feasts on every thing it can find there; and the woods, or what is known as the 'deer' mouse in these parts, the same being of a fawn or deer like color throughout, except the under side, which is pure white. It is this latter mouse which is the most to be dreaded with the bees, as it gnaws the combs in some part of the hive remote from the bees, and makes its nest there during the dormant period with the bees, while it eats the thorax of the dead bees for a living. And the scramble over and among the combs of the hives disturbs the bees to such an extent that it can not be tolerated. But this mouse cares very little for cheese, and eats it only when nothing else is to be had. And the field mice do not eat cheese at all. For the house-mouse, cheese would be a good bait."

"What kind of bait shall I try, as I think it is the deer-mouse that I have."

"Get some good choker traps. Bait part of the holes with kernels of corn, and a part with squash or pumpkin seeds, and you have something ready for any mouse that comes along, as all mice like either corn or these seeds. Even the little shrew, which sometimes bother bees, are easily caught with the seeds."

"Thank you. I will try the traps again. But the mice do not always get caught in these traps when they spring them, do they?"

"Not after the spring gets weak with age, unless you fix the trap so it is 'dead sure' always."

"How is this done? They get out of mine."

"Take the trap when you purchase it, and drive a wire nail down through from the top so that it projects into the hole into which the mouse stick its head, from one-eighth to three-sixteenths of an inch, this projection or point coming just in front of the wire that chokes them, and you have the trap fixed so that no mouse will ever get out that once sticks its head in, no matter how weak the spring gets. When the spring is set, this nail-point is not in the way of the mouse putting its head in the trap; but when the trap springs, the spring draws the back of the neck, by means of the choker-wire, up against this nail-point, so it pierces the skin and holds him fast right there."



LONG-TONGUED BEES.

Has the Interest in them Died Out?

BY E. F. ATWATER.

I should be sorry to think that all interest in the subject of long-tongued bees is a thing of the past. Only a few years ago the editor told us of the immense yields that might be secured from such bees in a locality supporting 25 to 50 acres of red clover. During the season of 1902 I had an apiary of 100 colonies in a locality where there were actually thousands of acres of red clover within range. The bees worked on the second crop quite freely, but could make only a scant living from that source. All the surplus honey from this yard was stored in June, from alfalfa and white clover, 15 lbs. per colony.

Every year there are times when our bees work quite freely on red clover. Last year, two yards produced honey in August a shade darker than our alfalfa, and without the distinctive alfalfa flavor. Whether this was due to a slight admixture of honey-dew or red-clover honey I can not say; but I incline to the latter view. I have gradually withdrawn our yards from the best red clover locations, though there are still immense quantities of red clover within range of some of our yards.

Our bees are largely from stock sent here years ago, first from Kretchmer, later from Root. We have crossed them with other Italian stock from Case, Hyde, Moore, and others, and Carniolans. The latter blood seems most valuable.

I wrote in one of the journals that Prof.

A. J. Cook wishes to add to the Caucasians the tongue-length of the best of the yellow races. The longest-tongued bee ever measured was of the Caucasian race, measured by Prof. Gillette, of Colorado. I have a colony of pure Caucasians, and I look forward with interest to their honey-record. They are in the home yard with unlimited red clover, and some alfalfa within range. For gentleness they are far ahead of any and all Italians, or even Carniolans; nor have they lacked energy to take feed from an Alexander trough feeder under the rear end of the hive. They are the only bees that I ever saw that would contract the entrance of the hive with a huge rampart of propolis, and other matter apparently worked into it.

At our convention a few days ago one of our members exhibited a glossometer, and told us how his best yield of alfalfa honey came from the longest-tongued colony in the yard. Have those who announced their intention of breeding for tongue-length accomplished any thing?

Meridian, Idaho.

[No, indeed, the interest has not died out, so far as *we* are concerned. Our red-clover stock has been of the long-tongued sort; but since the old original queen-mother died, and we have not been able to duplicate her—that is, to raise another queen whose bees and queens would show up as well as those of the old original—we have not said much about the long-tongue business. If we were able to inbreed, selecting the queens and drones both for mating, we would be able to accentuate this quality of increased length of tongue. If it is possible to breed cattle with shorter horns than the normal stock, it will be possible by careful selection and inbreeding to breed bees with longer tongues, providing, of course, we can control the male parentage. A. I. Root is now located on an island in the Gulf of Mexico, off the coast of Florida, and it is possible that he may be able to tackle this problem of breeding from selected drones, so that we may advertise conscientiously bees with longer tongues than the average.]

It is unfortunate that some adverse criticism arose about this long-tongue matter when it came to the front; but that should not deter us from going at this matter in an honest and straightforward manner.

There is no doubt from what you write that your bees gathered some red-clover honey. The flavor of this honey is not the equal, quite, of that of other clovers. It is a little darker, and, while not unpleasant to the taste, by a long way, it is hardly equal to the other light honeys.

If the Caucasians have a tendency to sport to longer tongues, this may help a little toward a solution of the long-tongue problem. There is no question at all but we might secure big crops of honey if we could only produce a bee that could reach the nectar in the red clover. As it is, considerable honey is secured, but nothing like what we might be able to obtain with the right bee. —Ed.]

WAX-RENDERING.

How to Use the Hot-water Method without any Great Pressure for Getting Wax out of Old Combs.

BY ROLAND F. SHERBURN.

Having read different articles in GLEANINGS about melting combs for wax, wax-presses, etc., I will give you my method. As long ago as I can remember we used to melt the combs and strain every thing through some coarse cloth, pressing as best we could. Of course, a part of the wax was lost in the dross.

When I commenced in the bee business on my own account I happened to find a way to get practically all the wax without much trouble. Some twenty years ago I made a pan for melting candied honey, that would fit on top of a cook-stove, after the plan of a molasses-pan, using plank for the sides, and galvanized iron for bottom and ends. This was two feet square and one foot deep. When I wanted to melt the wax this pan naturally suggested itself as the best thing to use, and I never have wanted any thing better.

This is my plan: Place the pan on top of the stove, and put in two or three buckets of water. Always put in plenty, adding more as needed. When this comes to a boil, put in the combs and cappings to be melted. Have ready a piece of wire cloth, such as is used for door-screens, say 15 inches square, and a dipper. Shape the wire cloth so that it can be pressed down into the melted wax without the dross getting into it, and commence dipping out the wax just as soon as melted. The vessel which holds the wax should first have a quart or two of hot water put into it to keep the wax from sticking to the bottom, and to hold any settlements which may have been dipped out with the wax. Now keep it going as long as there is anything to melt, adding the comb and dipping out all the wax you possibly can.

There should always be plenty of water in the pan; and in the wind-up it should be kept slowly boiling. It will have a brown foam over part of the pan all the time. Please notice here is the point—the wax-press if you please. As most of the wax has already been dipped out, what is left in the pan is mostly water and the dross. By shifting the contents of the pan so that all parts of it will be boiled through repeatedly, you can imagine that the parts will be disintegrated and the wax forced to the top.

This thick dirty-looking juice will boil like molasses, so the wax will be forced to one side or corner, furthest away. Always remember to skim off the wax.

This pan should be made of an even size from top to bottom, so as to hold a close-fitting wire-screen frame. This frame I made of light slats for the outside, with two slats across to support the screen and keep it from bulging. When I am through with the boiling and skimming, this wire-screen frame is placed on the slumgum, and weighted

down with rocks, so that all the dross or slumgum will be forced below, and the wire frame covered with two or three inches of the water. You can see the necessity of having the frame fit nicely, so that all the dross will be forced below the water. The pan may yet simmer a little (but care must be had or it may burn on the bottom), and then left to cool, and any remaining wax can be taken off.

I am fully aware of the value of beeswax. If this work has been properly done, there will be no worry over the loss of wax; you will have the wax, practically all of it. What is thrown out of the pan will be simply dross.

Now that the wax has been secured I again partly fill the pan with clean water and remelt the wax and dip or strain it so as to make it clean, and free from impurities.

That the readers of GLEANINGS may know what can be done in this way, I will say that, in the spring of 1904, I sent to Messrs. Dadant & Son nearly 300 lbs. of fine wax, all of my own raising. This was made in two batches, or boilings—part of it in one day, and finished the next. A great advantage of this plan is that all the free wax is disposed of as soon as melted. In the foregoing batch, perhaps 200 lbs. of wax was skimmed off the first day, and then the pan, two-thirds full of waste, was left to cool.

Lone Tree, Iowa, Nov. 21.

[This method of rendering wax is used by a number of bee-keepers. For cappings, burr-combs, or perhaps even brood combs that are not so very old, it ought to give excellent results. For large quantities of old black combs, however, we doubt very much whether such treatment would remove all the wax. By *all the wax* we mean, of course, all that can be profitably removed.

We have had no experience with the plan here given, but we base our conclusions on the statements of those who have found it profitable to buy up such refuse and render it in some form of wax-press making use of screw pressure.—ED.]

THE OTHER SIDE OF THE BEE AND POULTRY QUESTION.

BY FRANKLIN G. FOX.

The Dec. 15th issue of GLEANINGS arrived a few days ago. It is the finest magazine of its kind that I have ever seen. I have been reading at it during my spare moments, and reflecting on what I read when my hands are busy at other work. One of the articles that has held my attention is the one on bees vs. poultry, by Frank McGlade. While I am deeply interested in bee culture, which I believe I am now making a success, I do not wish to see other occupations misrepresented. Of course, we were not all cut out for bee-keepers, poultry-fanciers, farmers, etc. Each of us has our calling; and, while we may be able to make a living at some

other occupation, our success will not be as great as the work for which we are naturally adapted. While GLEANINGS is not a poultry journal I want to give a few facts on the other side of the poultry question.

About two years ago an aunt of mine, who had followed professional nursing for some years, accepted a proposition of my father's, and went into the poultry business with my mother as partner. They bought three incubators, two double brooders, and had five colony houses built; fit up two rooms in an old house for the brooders, and began business. Of course, it was all outlay for about eight months, except what was derived from the sale of young cocks. The breed chosen was the renowned Barred Plymouth Rocks. The feed and eggs all had to be bought. A strict account was kept of all expenditures. Corn was high two years ago. The eggs and cockerels were sold to a commission man. By marketing the cockerels as broilers we got from 14 to 15 cents a pound for them.

About Sept. 1, one year after the hens began laying, an inventory was taken and books balanced. Stock on hand, 300 head of hens, good for another year's work; about 300 head of young stock; net profit above all expenses, \$300. This does not include the hen manure, which was worth \$100.

There was something woefully wrong with Bro. McGlade's feeding or managing, or those young pullets would certainly have shelled out bushels of eggs through the winter. Rock pullets begin to lay at eight months of age, and can be kept up with their good work till July. He says that fat hens will not lay. Well, he should see our flock. They are fed a balanced ration, and have it dished out to them five times a day. You can not get something for nothing, and poultry will not work for nothing and board themselves as some think bees will do. A poor wild chicken can not and will not do good work. Our hens are very tame and happy. They have their every need looked after. Hens will not thrive on neglect.

A man at no great distance from here keeps about 300 White Leghorn hens. He does a little trucking also, and has made a comfortable living for years.

The paths of the bee-keeper are not all paved with flowers and sweetened with honey. Misfortune often waylays the apiarist on the road.

So far I have had had more experience in bee-keeping than profit. I will copy a few figures from my book account:

1901,	inv.	\$7.92;	received	\$ 5.89;
1902,	"	4.91;	"	14.78; profit \$ 7.84
1903,	"	114.81;	"	13.07; loss, 111.74
1904, '5	"	135.86;	"	245.25; profit, 109.34

I might add that, in 1903, my yard was stricken with foul brood. I treated it, then fed up for winter, but went from 32 colonies in the fall to 6 nuclei in the spring. Last winter I went from 32 colonies back to 20. I have learned a great many things by the dear hand of experience.

The great trouble with most men, and es-

pecially with the bee-keeper who is not a professional, is that they have too many irons in the fire, and some of them will be burned. We should make a specialty of some one line of business that is to our liking, and, as Editor Hutchinson says, "know every thing about it" (if that is possible).

Erwinna, Pa., Dec. 22.

McGLADE'S ARTICLE ON THE HEN.

Bees vs. Poultry.

BY W. H. PEARSON.

I am well aware that GLEANINGS is not a poultry paper; but when one of its writers (p. 1307) uses its columns to boost bees and run down poultry I can not let such an article pass without replying. It is evident that Mr. McGlade does not understand the science of poultry-raising. He produces evidence of that in the single statement that fifty selected early pullets did not lay till March 1st, and then one-third of them wanted to sit by April 1st.

Any one who has ever kept poultry, and kept it right, knows that such a statement shows that the man behind those pullets either did not know how to care for them or that they were the kind that never would lay; and I will wager that it was the fault of "the man behind." Mr. McGlade says, "They get fatter and fatter, and a fat hen won't lay many eggs." Of course, they won't. If he knew so much as that, why did he let them get fat?

A well-known writer on poultry says, "The 200-egg man is much more rare than the 200-egg hen," meaning that there are more hens that lay 200 eggs per year than there are men who are able to handle the hen to make them produce that amount.

I will venture the statement that here in California it is the rare exception where poultry does not pay, and pay big, when handled half way intelligently; and I have no difficulty in making a few hens in a city back yard bring in two dollars for every dollar spent on them. I have handled as many as 200 Brown Leghorns in a flock, and made them pay one dollar net per year each, without counting their manure as worth any thing, and it is worth a good deal.

Why! we have poultry-keepers who ride in automobiles here in California, and the hens paid for the auto too. Flocks of 500 Leghorns are common here, and their owners make money, lots of it, as is proven by their staying in the business year after year. I know a young lady at Haywards, Cal., who keeps from 1100 to 1500 Leghorns, and makes them pay her well every year.

Comparisons are odious; but for the benefit of Mr. McGlade and other "doubting Thomases" I will institute a little comparison between poultry and bees, from my standpoint, and see how it works out.

A little over a year ago I took it into my head that I should like to have a hive of bees

in the back yard for my own pleasure, if not for profit. Upon canvassing the neighborhood I failed to find any bees, so had to go about six miles out in the country before I could find any, and they were in an old box hive, with some kind of home-made "contraption" called frames by their maker; but when I came to investigate I found that the frames were glued to the cover by the bees, and the bottom was nailed on, making a combination that beat me.

When I came to look for a modern hive I found I could not buy the kind I wanted (a Danzenbaker) unless I bought a bunch of five, and I didn't want five. So I left the bees in their box for nearly a year, then I got Messrs. Lilly & Co., of Seattle, to ship me down a single Danz. hive, set up with wired foundations, and starters in super, which cost me in San Francisco, unpainted, four dollars, besides the trouble and expense of going after it and carrying it home, seven miles by rail and boat. When I came to transfer the bees to their new home the box came all to pieces, and a more mixed up mess of bees, honey, old comb, and old box I never saw. I finally got the bees into their new home, and then let them carry all the honey from the box wreck in also. Then I thought I would prefer some real Italians instead of the hybrids I had. So I sent to Mr. Alley, in Massachusetts, for a golden queen. She finally arrived, and when I went to look for the old queen I couldn't find her. I tried several times to locate her, but failed utterly. So I made another journey to San Francisco and bought an Alley queen-trap; brought it home, took every frame from my Danz. hive, and shook them in front of the entrance, and in this way caught the queen, which turned out to be very dark and small—much darker than her bees. (It seemed like the irony of fate for the queen to be superseded by an Alley queen to be caught in an Alley trap.)

By this time the season was so far advanced that there was no more surplus honey, so I thus far have not had a spoonful of honey in over a year from my bees. But is that the bees' fault? Not much. I don't blame my bees any more than I do Mr. McGlade's hens for not laying. It was my fault for not providing them suitable quarters, just as it was Mr. McGlade's fault for not caring for his poultry so they *could* lay eggs instead of putting fat on their bodies.

As the account stands now, I am a creditor to the bees for about \$8.00, with no honey in sight. Per contra, if I had taken five dollars I could have bought 100 first-class White Leghorn eggs; the rest of the \$8.00 would have paid for incubating them. I could have sold over \$8.00 worth of surplus cockerels, and have had a nice bunch of pullets laying by Oct. 15, when eggs were worth 50 cents a dozen (they have been as high as 60 cents, and are now selling at 55), and the pullets would have been worth, at a low valuation, 75 cents each. How does that work out, Mr. McGlade?

When it comes "to giving advice to those

who are not familiar with either bees or poultry," be sure you know what you are talking about or you may make a woeful mistake.

This article is already too long, but I could say three times as much and not do the hen half justice.

In conclusion I want to rap the editor a little for his knocks at the hen. Don't do it. In the first place, she does not deserve any knocks; in the second place, if you must have something to point to as a "horrible example," take, say, cows, and let the hen alone. Hoard's *Dairyman* says there are more robber cows than good ones in the U. S., and that, if half of the ordinary farm cows were sent to the butcher, their owners would make more money, and Hoard's ought to know, as it is their business. Then, again, I fail to see why it is necessary to run down one thing in order to boost another. Why not keep both bees and poultry? On a ranch they ought to be a winning pair, neither interfering with the other.

Oakland, Cal., Dec. 28.

[See editorials.—Ed.]

HOW TO USE SHALLOW HIVES.

The Prevention of Pollen in Supers over Shallow Hives.

BY W. K. MORRISON.

Dr. Miller's objection to the shallow hive calls up some of my own experience, and shows that, even after one seems to have about exhausted a subject, one little remark sets the whole thing a-flame with the fire of lively interest. I think the doctor will see that, where one is using a very shallow hive (say 6 inches), a zinc queen-excluder is necessary, and also that an excluder lessens the amount of pollen in the sections. If a shallow hive is used in the same way as the standard Langstroth, then the chances of getting pollenized sections are much increased, without a doubt. But where does the right depth come in? Is it 7 inches or 10? I incline to the seven-inch depth. I admit, however, as one goes north a deeper frame will seem better; though if I were keeping bees up north, particularly if comb honey were my aim and the seasons none too good, I would select a hive no deeper than the Danzenbaker. As Mr. J. E. Hand states (and he lives in Illinois), the shallow hive puts the honey in sections—yes, all the honey, and that, too, without trouble or fuss. It is a labor-saving device. But, as I have repeatedly pointed out, it is wholly unnecessary to use starters in a shallow hive with the object of compelling the bees to go into the sections. There is no need to resort to such strategy. If, however, starters are used, the chances are some pollen will get into the sections, more particularly if full sheets are used in the latter.

Some months ago, when on a visit to the

province of Berbice, in British Guiana, in the nice little city of New Amsterdam I noticed a sign reading, "Comb honey for sale," and, walking into the store, I asked the proprietor to show me the honey, and, sure enough, he showed me 2000 4x5 sections that were practically perfect. Then he took me behind the store to show me 50 colonies in Danzenbaker hives at work on as many more. I can assure the doctor there was no pollen in these sections, and that, too, in a country where flowers bloom all the year round, and pollen is plentiful. The owner of the apiary was a beginner.

But this is not all. I have been told over and over again in all parts of the American tropics that comb honey was a failure, as the bees refused to work in the sections. In such cases I have recommended the parties to use some very shallow hives to get the sections well started, then transfer them to the deep hives. Even where extracted honey is run for in the orthodox manner, there is too much honey in the brood-nest and too much swarming; and, needless to say, the conditions are worse when comb honey is sought for. The bees keep piling honey in the brood-combs till actually the colony dwindles to a mere handful of bees. The wax they secrete, but have no use for, they utilize in closing up the connections between the upper and lower stories of the hives. In this case I prefer to cut out the upper combs so as to attract them away from the brood-chamber.

It seems to me, also, in using shallow hives the sections are better filled, as they are actually better fastened to the bottom-bar of the section, but that may be mere imagination on my part.

My experience with the Danzenbaker hive is limited; but I have used several hundred hives of a smaller depth, some no deeper than four inches, and spaced 1½ inches from center to center. The very shallow hives I used for "feeding back," and these were a success when all else were failures. I used to buy very cheap extracted Haytian honey, and convert it into first-class section honey. The Ideal shallow extracting-super makes a very good hive for "feeding back;" in fact, one can not very well use any thing deeper.

If any one has any difficulties with pollen in sections of the Danzenbaker hive, I should like to suggest the use of a spare empty comb on one side of the hive to catch the pollen; in fact, I think Mr. Danzenbaker recommends this plan. If one aspires to be a comb-honey specialist I think it is a good idea to have always a spare comb on one side to catch the pollen, no matter what hive one may use. The bees certainly require such a comb.

Dr. Miller seems to think a super containing 45 1-lb. sections as too much of a good thing; and if I were using the same hive as he does I would say so too. But where a shallower hive is used, the conditions are changed; and my hive plus one 45-lb. super is about 14 inches high, and one of his hives

with a super on is also 14 inches high, so we are equal, doctor. It is not the weight of a brood-chamber that worries me—it is its *bulk*. I dislike Jumbo hives, on account of their bulk chiefly; the capacity I get by using two Ideal supers. I also get much greater powers of manipulation.

There is also a phase of the matter which has never been stated before; viz., the desirability of having a taller and broader section in the interest of the consumer. It seems to me our sections are too thick for economical cutting at the table. I got this impression in New York on seeing the late Capt. Hetherington's comb honey on sale. It has always seemed to me since, that thin combs would cut up much better at the table, more particularly at the hotels and boarding-houses, where food is shared out in small portions. But there is more than this behind the broad and thin section. It is this: *Thin sections require no separators*. Thick ones always do, but that's another story—with apologies to Kipling.

PROPER COLOR FOR HIVES.

A Review of the Discussion.

BY G. C. GREINER.

The explanation Mr. Latham gives on this subject, pages 1312-'14, is quite a setback to many bee-keepers who are in the habit of painting their hives. Have we, during a lifetime, so misconstrued the laws of nature that we have painted white where black should have been used? When reading the article I was in hopes and expected to find a footnote at the bottom that would explain the matter in a different light, but was disappointed in my expectations.

I do not feel capable of crossing bats with Mr. L. on this subject, and reply to his article in detail; but as all my observations run in opposite directions I can not refrain from expressing a few thoughts.

We were taught in our boyhood that the color of summer garments should be white, because it would reflect the rays of the sun or outside heat, and keep the inside cool. In the winter, and I suppose that also applies to cool nights, garments should be the same color, because it would reflect the inside heat and keep the inside warm. If this is correct logic, and applies to hives as well as to human beings, then white is the proper paint.

If we expose two hives, painted in opposite colors, to the rays of the sun, the combs of the black one will be all melted, and running out of the hive before the combs of the other succumb to the heat. To the touch the sensation is equally surprising. The black will almost burn our hand while the white will cause no inconvenience to the hand that is placed upon it. Even a short exposure during noon hours will have the same effect. This is no guesswork, but actual observation. I have witnessed instances of this kind repeatedly in my past life.

Comparatively speaking, there are but very few hives in the shade. The many different views of leading apiaries, as they are presented to us (Mr. Alexander's, for instance) prove this, and the most of the few that are in the shade are exposed to the sun some hours during the day. Thus it hardly seems worth while to make allowances for hives in the shade; but supposing we did, would black be the right color then? If black encourages radiation, and I think we all agree to this, then it follows that the cooling-off process is also encouraged, and is that our aim? We manage every way to confine the heat to hives and supers during cool nights, which we consider quite essential to assist in comb-building, and why should we work in the opposite direction by painting our hives black?

Individual preference can play no part in this matter; there must be a right and a wrong way, and the sooner we find out which is which, the better.

Undoubtedly many others are laboring under the same difficulties, and for their benefit, as well as for my own, I would request some of our friends who are better posted to give us their views and experience on this subject.

La Salle, N. Y.

[If you will read Mr. Latham's article carefully again you will see he does not recommend black as a color for hives *unless* they can be kept permanently in the shade; that when they are to be exposed to the sun they should be painted white. The law that he lays down—that "good absorbents are good radiators," however, is liable to work both ways. If a black hive is a good radiator in the summer in the shade, why would it not follow that it would be a good radiator of heat in winter, when the sun was not shining? It would almost appear that the advantage of the color in summer would be more than offset by the loss in radiation in winter, unless, forsooth, the hive were covered with a winter case painted white, said case being removed during summer.

Mr. Latham states some very interesting facts in regard to white as a color for retaining heat. We know that snow, when it covers the ground even a few inches, will prevent the ground from freezing. Now, if that snow were perfectly black instead of white, according to the same law that ground would freeze. It seems almost a paradox to say that snow (minute particles of ice) covering something not frozen will prevent that something from freezing; but the fact is too well known to be gainsaid.

In view of the almost universal condition that hives are out in the open, and if in the shade in one spot may soon be moved to another place exposed to the sun, it would seem safer to provide for general conditions rather than for that condition which is abnormal. The manufacturer, if he sends out hives painted, would have to make them white. The bee-keeper who moves his bees to outyards would have to have his hives

like wise white, for he can not always get shade in a bee-yard spot available. We find in our own experience it is difficult to locate our bees just where we would like. But there is another condition where black would be too much of a good thing. At night, when there is no sun, there is but little danger that the supers will be too warm, say for comb-honey production. If supers then are painted black they would dissipate heat at a time when it is decidedly needed. Taking it all in all, general conditions require white for hives.—ED.]

INTERESTING NOTES FROM GERMANY.

The Direct Method of Introducing Queens.

BY DR. BRUNNICH.

Let me give you a few words concerning this extremely good way of Mr. Simmins, given by Mr. Miller. I have given, during this season, under the most varying conditions, 13 queens to strong colonies, and a large number to mating-cases, all with good success. Perhaps I may mention some of the most interesting cases. Generally I let the queen go 45 minutes without feed. Once by mistake one queen was obliged to fast two full hours, without the least injury. It was, however, a fertile one. A virgin would certainly have died in an hour. Then I gave some good puffs of tobacco smoke to the colony, and after one or two minutes the queen was allowed to enter the hive without giving any more smoke.

Queen No. 2 I gave to a colony which had killed or balled different queens, and which was already in quite a degenerated condition. No. 3 I gave to a lady, distant half an hour from me. It was in the afternoon, at 3 o'clock. I sought the old queen, then I gave smoke with only a cigar, and then the young queen was given. In August I had a strong colony whose young queen had been lost some time. The bees already had laying workers with much drone brood, open and capped. Well, the queen was given and immediately accepted. Most interesting to me was the following:

I took a queen out of a section, which I thought to be all right, and gave it to a freshly dequeened colony. After some days I found that all the brood in the section was drone brood, and the queen probably not fecundated. Nevertheless, the colony accepted the poor queen, which continued to lay only drone eggs. I may add that all queens given were marked on the thorax with a very quick-drying color, so that no mistake is possible.

VITALITY OF SPERMATIZOIDS OF DRONES.

I had occasion to have an exceedingly interesting experience. The 29th of July, at 10 A.M., I found in a section in my mating-station a dead queen—certainly dead for some hours, for the queenless bees took not the least notice of her. In the evening, at 10, I dissected the queen and found that she

was fecundated, and opened the *receptaculum seminis*, whose contents I examined in a few drops of salt water. To my great surprise, all the spermatozooids were quite alive, and moved with extreme quickness for at least half an hour. For 14 and perhaps 20 hours the queen had been dead, but nevertheless the spermatozooids still lived. The day was a very warm one.

A QUEEN WHICH KILLS A WORKER.

On the 30th of July I gave to a section (a mating-box with one frame, and with glass on both sides) a virgin. A bee came to her in a somewhat unkind way. Immediately the queen crawled on to the said worker and gave it one or more stings. The bee was dead in a moment.

A QUEEN STUNG BY A BEE.

On the same day as above, I observed on my mating-station that a virgin queen recently given was stung by a worker. I saw how the bee extracted its sting from the thorax of the queen. Directly the left middle leg of the queen was lame. However, she became fertile, and works now in a full colony, after my amputation of her motionless leg.

Ottenbach, Germany.

SMALL ENTRANCES IN WINTER.

BY SAMUEL SIMMINS.

"A bee-keeper I once visited had five or six hives in a covered apiary facing south. Those hives were placed upon strips made of one-inch timber, two inches wide, and nailed edgewise on stakes driven into the ground, so as to form a sort of rack. The hives had no bottom-boards, for our friend thought bees succeeded best when they had plenty of air. . . . Strange to say, colonies in these hives wintered successfully, and we were very much astonished, in one of the hardest winters, to find that he had not lost a single colony, while our losses had been heavy."

Now, the late Charles Dadant wrote the above words for the *American Bee Journal* of Dec. 26, 1895. It will be noticed the bees were in a covered place, apparently fully open on the south side, if not all round; and that well-known writer and bee-master was astonished at the success of his friend; but really when we come to think about the matter there is nothing very remarkable about it. The bees were dry, and therefore the cold did not take hold of them as it does where they are shut in almost close, so that their own moist and impure exhalations can not be disposed of.

Let us see what a small entrance does. If the weather is warm, or you place your bees in the cellar where frost does not reach them, they very soon set to work changing the air which would otherwise become foul; but when left outside during winter the limited entrance allows not only the accumula-

tion of bad air, but, what is equally dangerous, a moist atmosphere, and then the cold is much more severe in its effects. During a low temperature bees can not warm up any part of the hive beyond the margin of the cluster, consequently no efficient ventilation can be conducted by themselves.

Suppose you feed up a colony with a lot of thin syrup just before a period of frost sets in. You will find within a week the whole of those bees are frozen dead, while sitting upon an abundance of food. They have not had time to cap it over so the cold will not be attracted by the moisture; neither have they the empty warm cells just where they should be able to crowd in head to head, and so form a compact cluster.

In winter, the bees not being able to move freely, common sense demands that they have a dry well-ventilated hive, and this is to be secured at that season only by a comparatively large entrance to an ordinary single-chamber hive, or an extra empty chamber under the stock combs if only a medium entrance is allowed.

If these conditions can not be provided, then the only safe place is the cellar; but in many localities bees could be wintered better not than in, where a zero temperature is not greatly exceeded.

In this climate (south of England) we do not often reach zero; but in some cases the moisture in the air makes 20° of frost far worse than zero, as the lower temperature is accompanied by a drier atmosphere. I have had some colonies wintered with no covering on the frames, a roof seven inches deep, and ventilated at each end, being above the said frames. These bees had all winter a six-inch entrance by half an inch deep. Under these conditions they wintered exceedingly well, and started off in spring with more brood than many other stocks that had been covered up carefully.

"Can bees be kept too warm in winter?" is a question I have been sometimes asked. I reply, "They are usually kept too damp by unnecessary covering and cramped entrances;" and then I illustrate the foregoing example and another:

On one occasion I had two stocks at the end of a bee-house, with entrances six inches wide by one inch deep, and these were facing a persistent cold westerly wind. On examination in early spring they had five and three combs respectively, with large patches of brood. Thinking they were too cold I reduced the entrances to one-fourth, when, strange to say, both lots considerably restricted the area of their brood-nests.

Evidently a free opening to the outer air is an item of the first necessity in winter, provided it is sheltered from driving snow and direct winds; and in the early spring it checks any undue inclination to fly, while at the same time allowing of rapid flight when the temperature for a few minutes is suitable for a beneficial playspell. Shut them in too closely, and then they miss some of these cleansing flights, feeling nothing of the passing glimpse of genial warmth, re-

maining sluggish, and little inclined to develop an early batch of brood.

Broomham, Heathfield, Eng., Dec. 16.

[Locality has a strong bearing on this question. South England, by reason of the Gulf Stream, is much warmer than our northern States; and in the matter of dampness our lake regions are scarcely better off than your locality. We have tried entrances cut down 12×1 inch deep, with severe losses. For twenty years we have used entrances 8× $\frac{3}{4}$, and our outdoor winter losses have not exceeded one per cent, except one season. —Ed.]

PRODUCING EXTRACTED HONEY.

A Few of the Many Things to Take into Consideration.

BY E. W. ALEXANDER.

In order to make the production of extracted honey profitable at the present time it is necessary to have every thing connected with the business as handy and convenient as it can possibly be made, and then try to cut corners here and there and everywhere you can.

First, it is very essential to have the best honey-gathering strain of bees that you can find; then if you expect to have a large apiary, location is an important factor.

Then the manner of handling your extracting-combs and taking them from the hive to the extractor is another important part; and the number of men who can work to the best advantage, so each one will bear about an equal part of the labor, and not have to wait for each other, is also of importance.

How to dispose of the honey after it is extracted is another thing that will pay you well to look after. The manner of storing it before it is put into the package you expect to sell it in must also be considered. These are a few of the necessary things that the successful producer of extracted honey has to keep fresh in his mind.

As I have received several letters during the past season requesting me to give the writers some advice on these subjects, I will endeavor, with the aid of the accompanying photos, to show and describe our method of producing extracted honey.

HIVES SHOULD BE OF THE SAME SIZE.

First, we like to have all our hives of the same size, so that any frame will fit any hive in the apiary, although this season we had to press into service some hives that were two inches shorter than our standard hives, but we have promised ourselves that it is the last season that we will bother with two different-sized hives in the apiary.

HELP TO WORK TO THE BEST ADVANTAGE.

In regard to help, we find that three men can work to better advantage, and extract more honey per man in a day, than any other number. In order to accomplish this, one

man stays in the extracting-building and does all the extracting; another man stays with the hives we are working at, and opens all of them and takes out about half of the combs and puts all the empty combs back and closes up the hive, while the third man takes out what heavy combs he can and takes the full ones to the extracting-building, and bring the empty combs back. In this way we find no trouble in extracting from 30 to 32 hives per hour, or on an average a hive of nine combs in a little less than every two minutes. We always hang up a watch on the extracting-building so we can tell at a glance just how fast we are getting along. Each one, as he removes his comb from the hive, cleans it of all adhering bees, by first giving it several quick shakes up and down, being very careful to throw out no honey. Then with a small brush, what few bees are left on the comb are quickly brushed off. You will notice that, hanging from my son's right hip, is a small brush which we like the best for this purpose of any thing we have ever tried. You can also see the handle of a large pocket-knife by the brush, which is always open and ready for use.

THE ALEXANDER HEAD-RIGS.

I wish to call your attention to our head-rigs. They are made from a piece of common wire cloth, about 9×32 inches, with the ends lapped together at the back, and sewed. They have a piece of heavy sheeting in the back, which protects the back of the head, also our ears; then they have a piece of double cloth forming the top, and gathered at the center. They also have a little skirt about ten inches long, which can be tucked inside the shirt or vest collar. With this on, so far as your head is concerned you can bid defiance to all the bees in the apiary. Please make one of these head-rigs next season, for I am sure you will like it. They rest on your shoulders, and are very cool, seldom touch your face, and can be taken off and put on in an instant.

THE ALEXANDER COMB-CARRIERS.

They hold nine combs, the same as our hives, and are made of thin light pine except the ends, which are $\frac{3}{4}$ stuff. They have an iron handle, and are very durable. When we commence to extract we take a set of empty combs in one of these carriers, and set it down behind the hive we commence on, then take off the outside cover, put it on top of the carrier of empty combs, then put an empty carrier on top of it. This will bring it about level with the top of the hive, and saves stooping over in order to put the heavy combs in the carrier. Then when the hive is ready to receive its empty combs one man starts for the extractor with the heavy combs, while the other man puts the empty ones in the hive. In this way the hive is open only about $1\frac{1}{2}$ minutes, in taking out its full combs and putting in a set of those that have been extracted.

NO SLAM-BANGS IN EXTRACTING.

Now, don't think there is any slam-bang

about handling our bees, for there is not. We will not tolerate any thing of the kind. Any man who works for us must be careful about killing bees or jarring the hive any more than can be helped.

QUEEN-EXCLUDERS.

We use queen-excluders on all our hives when extracting, so we are not troubled with any brood in the upper hive, neither do we lose any queens if we shake some of the combs outside the hive. Our frames hang on a wooden rabbet, just even with the top of the hive; then we use an under cover, which has a bee-space on each side. This, with our telescope top, makes a cool watertight cover which we like very much.

THE COLOR OF THE CLOTHING.

When working in the apiary we very decidedly prefer white. It does not irritate the bees as all dark colors will, and is nice and cool on hot days. I don't know of any thing that will make your bees much crosser than to work among them when wearing dark clothes. If you are careful about these things you will find it much pleasanter to handle your bees.

HOW TO STOP LEAKS IN HONEY-BARRELS.

If any of you are troubled with your honey-packages leaking, either barrels or tin pails, just rub the leaky place with common hard soap and see how nice and quick the trouble is over; also when when barreling up your honey, after you insert the bung a little, tip the barrel over so as to bring the honey up solid over the bung, then you can drive it in tight and run no risk of splitting or breaking the head. Just try these little things I have called your attention to; and if they prove of value to you, tell your bee-keeping friends that, through the medium of GLEANINGS, you have had many valuable ideas brought to your attention.

Delanson, N. Y., Oct. 16.

[It will pay the veteran as well as the prospective extracted-honey producer to read this article of Mr. Alexander's carefully; for in all the large extracting-yards I have had the pleasure of visiting I never saw a more perfect system, more beautifully worked out, than is here described by our correspondent. The three men, one in the extracting-house and the other two in the yard, are able to accomplish a lot of work. Perhaps others may be able to extract more honey, or handle more hives per man, but I am sure they will not do it in the simple quiet manner that these men do, without slam or bang, and without irritating the bees. Notwithstanding there were some 750 two-story colonies rushing to the buckwheat-fields on one of the days of my visit, and the men working to their full capacity, the bees were unusually quiet.

One can not help feeling impressed with Mr. Alexander's close attention to the smallest details. This shows out in his article; and right here, I believe, is one of the secrets of Mr. Alexander's success, which,

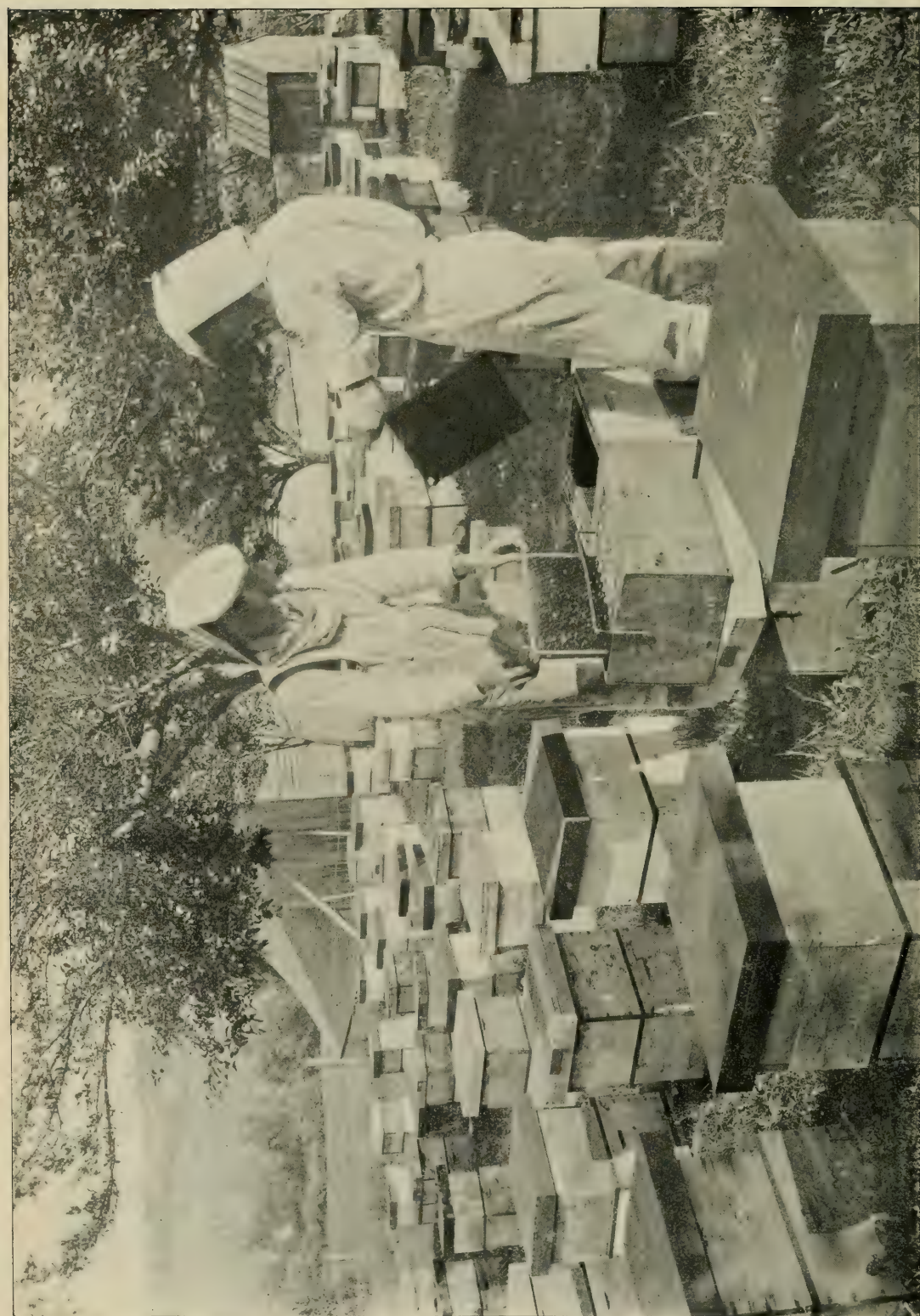
combined with his thorough system of management, enables him to accomplish large results with a minimum of labor.

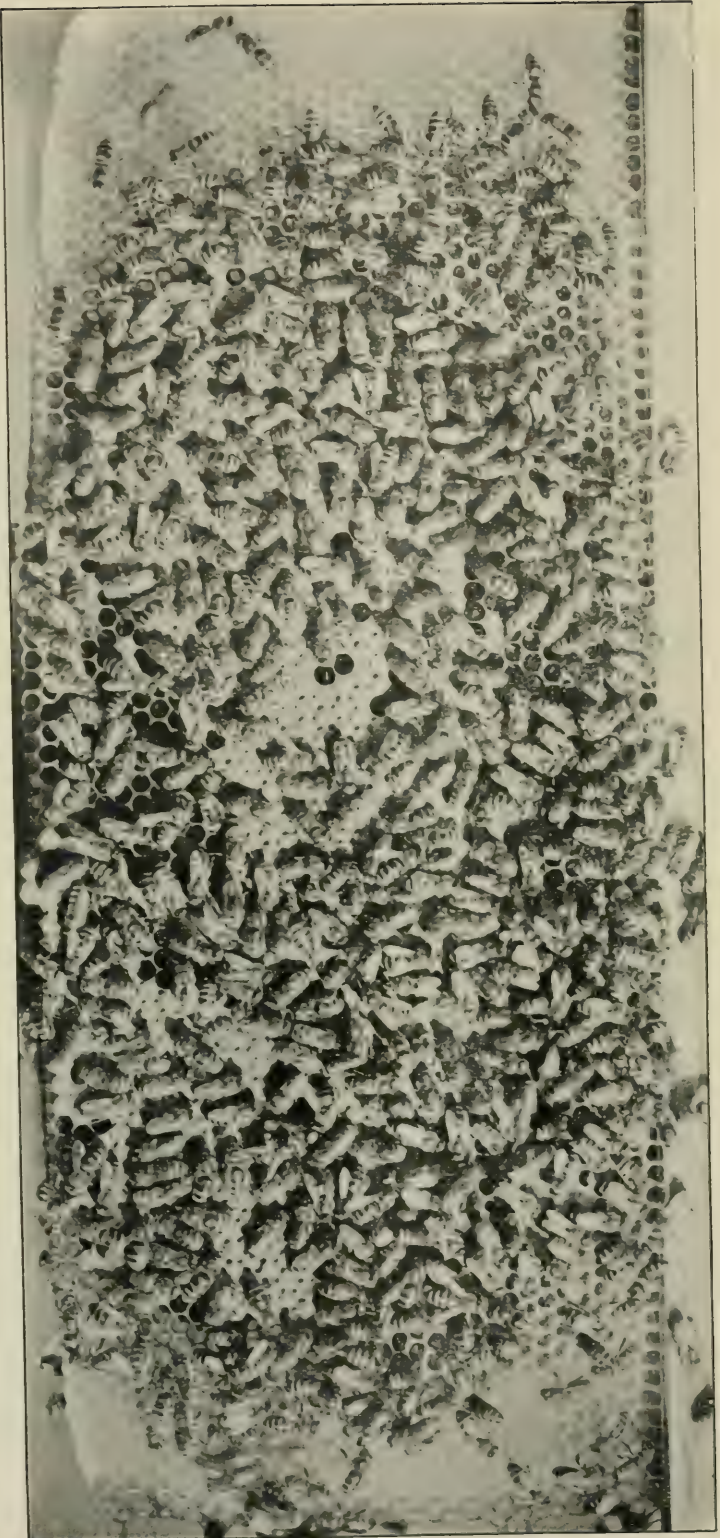
With regard to that special head-gear, when I first saw it (although I didn't tell my friend Mr. Alexander so) I thought it was the most outlandish thing I had ever seen; but when, later on, I saw it in use, and so cool and convenient that the wearer could be hatless among his bees, and still well shaded, I changed my opinion. It looks

a good deal like the head-gear described in father Langstroth's book, and something like what is described in some of the German works, though it differs from them in detail. A feature of this head-gear is that the hat may be left off, permitting cool breezes to circulate everywhere over the top of the head, and yet the top and back protect one from the direct rays of the sun. In cool weather one could, of course, wear a small cap under the rig.--ED.]



FRANK ALEXANDER (SON OF E. W.) WITH COMB-CARRIER FILLED READY TO TAKE TO THE EXTRACTING-HOUSE. THE ALEXANDER BEE-HAT AS IT IS WORN.





A FRAME OF CAUCASIAN BEES. PHOTOGRAPH BY D. E. LYON. PH. D.

As our readers are probably aware, Dr. Lyon is an expert photographer as well as bee-keeper. He uses a camera, lens, and general outfit that is the best money can buy, for he furnishes illustrated articles for some of the high-class magazines. I asked him to see if he could not get a snapshot of some live bees on a comb, for this, by the way, is a rather difficult feat to accomplish, as the comb is yellow or black; and the bees, also yellow or black, are not good subjects for instantaneous work. How well he succeeded will be shown by the illustration above of Caucasian bees. They will give the reader some idea of their general markings. As there is no yellow, but simply silver white, black, and gray, the reproduction of them here is fairly accurate, both in color and markings.—Ed.

A FINAL WORD CONCERNING CAUCASIANS.

Characteristic Markings Make them Easy to Recognize.

BY D. EVERETT LYON.

For some time the writer has been much interested in reading various criticisms concerning the new Caucasian bees. A careful reading of the testimony thus far offered convinces me that a number of writers have expressed themselves on the basis of hybrids and purely mated Caucasians. My visit to Washington last spring convinced me that in the above-named race we have a valuable acquisition to the present races of bees. My experience with them the past season has but confirmed me in the estimate of them then formed.

I can not but believe, and I have good reason for so doing, that a number of adverse critics of this race have not had the Caucasians in their purity; and yet, in spite of this, the testimony as to their gentleness has been of a universal character, showing that a dash of Caucasian blood in other races is a boon of inestimable value.

If this be true of a hybrid with just a trace of Caucasian blood, how much more gentle can we not expect the pure stock to be?

The first objection we hear raised against Caucasians is that they are so gentle that they allow themselves to be robbed, and do not repel their enemies with vigor. In answer to this I would say that such has not been the case with the strain of Caucasians

I possess, for by several trying tests I have proved them to be good defenders of their homes. In the early fall I purposely opened a colony of Caucasians, and in a little while about 50 robber bees were flying over the frames; and when they would fly too near, the Caucasians would repeatedly jump up to them and try to catch them; and when they would succeed in getting one, the way they would ball and try to sting it was a caution. And yet, while all this was going on I was constantly lifting out the frames without veil, gloves, or smoke, and not the first Caucasian attempted to sting me, even though they appeared quite vicious toward their enemies.

To test them further I caught a grasshopper and held it on the top of their frames, and immediately they covered it; and in order to save its life I shook the bees off and sent the grasshopper on its way.

I can not think of any other test that would prove their ability to defend their homes.

The other objection we hear is that they are so much like the black bees that even an expert often can not distinguish them; and in answer to this I would say it is a question of being absolutely certain of having the real thing.

Look at the bees in the illustration on preceding page and see how distinctly they are marked. There is no difficulty in distinguishing pure Caucasians like these; and when I took their photo last summer they posed just as nice and as quietly as one could wish.

The three bands which, in my strain of



FRANK BENTON'S LAST POSTAL TO GLEANINGS, SEE EDITORIAL.

Caucasians, are so distinct, are of a pronounced light gray, which, with the slight shade of orange on the abdomen, make it easy to tell these bees from the blacks.

I think I have fairly met the only objections against this race, and would reiterate what I have often said — namely, don't condemn them without really knowing them; for the real Caucasians, purely mated, are just the reverse of what their opponents charge them with being.

They are a trifle smaller than the Italians, and have the oriental type form of the Cyprians; and as honey-gatherers they have with me done just as well as the Italians, and much better than many colonies of that race.

If Mr. Frank Benton were in this country he would have something to say in defense of this race, adding his testimony to that already given by Dr. Phillips, to the good qualities of this noble race. Just before he sailed abroad he sent the following letter to the writer concerning the qualities and markings of the Caucasians, and in his absence I submit it as his estimate and defense of the little fellows:

FRANK BENTON'S OPINION OF CAUCASIANS AS GIVEN IN A LETTER TO MR. LYON.

UNITED STATES DEPARTMENT OF AGRICULTURE, }
BUREAU OF APICULTURE, }
WASHINGTON, D. C. }

Rev. D. Everett Lyon:—I have your letter of March 21, asking about Caucasian bees. I can give only the main points in the character of this race, having had it under test on a comparatively small scale for two years past. I knew the race, however, by general reputation, while I was in Europe and in the East. The reports in the European journals at that time were, just as may be noted regarding Carniolans in this country—quite contradictory; and as I had numerous other races under test in those years I did not undertake a practical test of these bees until year before last. As I obtained in the autumn of 1902 three Caucasian queens, I had full colonies of the race with which to begin the season of 1903. Through additional importations of queens direct from the Caucasus, in Russia, I have further verified the observations which were made on the first lots obtained.

The most striking quality possessed by these bees is their remarkable gentleness. It is not equaled by any other race with which it has been my good fortune to meet. As a rule, no smoke will be needed at all in their manipulation, or, at most, a single whiff passed over the tops of the frames is quite sufficient to take away all sign of resentment. Under ordinary conditions the hives may be opened in any manner one chooses, at any time of the day, and the frames even roughly removed and all manner of manipulations made, without the necessity of resorting to smoke, and with no protection to hands or face; nor will a single bee offer to sting. The only time that pure Caucasians resent intrusion is when robbing has taken place and the hive is rudely jarred on a cool morning. At least such has thus far been my experience with them.

I can not say that they have shown remarkable qualities as honey-producers, but have thus far merely held their own fairly with the average of Italians and Carniolans. The same differences exist between individual colonies as is the case with Carniolans and Italians, so that a selection in breeding as rigid as that to which the Italians have been subjected would undoubtedly give strains of Caucasians that would fully equal or exceed the best Italians or Carniolans. The race is not very uniform in its markings. In this respect, in fact, it hardly equals the Carniolans, the yellow or rusty red bands cropping out constantly. There is, however, a peculiar marking which enables one to recognize Caucasian blood quite readily after he has acquired some skill in the matter. The dark color is of a peculiar dull leaden gray, and gives the bees a very ringed appearance. You have doubtless noticed Carniolans or blacks which had fallen into water-troughs, crept out, and be-

come partially dried. These might be taken to resemble, in color, the Caucasian workers, as you will notice that the dark rings around the body show more distinctly when the fuzz is dampened. True Caucasians are slightly smaller-bodied than Italians or Carniolans—in fact, have the type form of the oriental races. The queens vary somewhat, as do the Carniolans, from a golden orange yellow to a black color, inclining, however, more to the dark type—dark bronze being rather typical. The drones are very black, and considerably smaller than Carniolan drones. The race is a very prolific one, and the workers seem active and evidently keen-scented, since they find sweets that are left exposed quite as soon as do bees of any race.

I have formed a very excellent opinion of these bees, and believe particularly that they will form excellent crossing material with the Cyprian race. We need males of a gentle race to mate with the queens of any or all of the oriental types; and I think in the Caucasians we have a type that will coalesce with the Eastern races.

FRANK BENTON,
In Charge of Apiculture.

March 25, 1905.

HONEY-HOUSES IN CUBA.

How to have them Light, Cool, and Comfortable; How to Lay out a Cuban Apiary.

BY C. F. HOCHSTEIN.

I hear and read a great deal about the extracting honey-houses in Cuba being dangerous, sweat-boxes, bake-ovens, etc., and most of them are; but there is no need of having them so, as with very little expense they can be made light, cool, and comfortable.

My honey-houses are so cool, any day of the year, that, when I come into one of them from working outdoors in the sun, I always put on a jacket to keep from catching cold. Any house can be made so, no matter what it is made of, or what kind of roof it has. Make it as follows: Three feet up from the ground nail a board 1×6 all the way around your house; then leave an open space of three feet and nail another 1×6 board all around. This leaves an open space of three feet all the way around, with a 1×6 board above and below it.

Next get some white pine or some other soft-wood strips, $\frac{3}{8}$ thick by 2 inches wide. Cut them on a miter, as shown in the small enlarged view, and nail them to the lower edge of the upper 1×6 board. Then tack on your wire cloth, allowing it to project past the mitered blocks one inch.

Use galvanized wire cloth, for the green or black will not last one year in this climate. The galvanized cloth comes 40 inches wide. This gives you one inch to catch on the lower board; 36 inches opening 2 inches on blocks, and one inch for projection. Leave a $\frac{3}{8}$ opening between each block from block to block. This gives you a bee-escape every six inches all around the house. Nail a duplicate block exactly over the under block to hold the wire cloth, but do not cover over the V-shaped bee-escape with any thing. You will find the bees get out of the honey-house very quickly; but on account of the wire-cloth projection of an inch over the blocks the bees will not find their way in, and you will find your house cool and comfortable on the hottest day of the year.

In laying out an apiary in Cuba the best

and most inexpensive way is to take two 2×3-inch scantling; lay them parallel with each other; then cut 1×3 strips just one inch longer than your bottom-board; nail one of these across from one 2×3 to the other every 3 ft., then turn the thing over so the 1×3 come to the bottom; straighten them up to make your row, then level them up both lengthwise and crosswise, leaving the rear scantling one inch higher than the front one. This gives the hives the pitch to carry off the water. Leave an alley of five or six feet. Put down another row with the pitch the other way. This gives you an alley to work in with the entrances facing from you both ways.

In placing your hives on these supports, put them directly over the 1×3 strips. You will find this leaves you a space of 18 inches between hives, which is just right for one-story hives to sit on one and work the other, or to stand between and work either way on two-story hives.

The above is meant for ten-frame hives, which are the hive best fitted for Cuba. Eight-frame hives could be placed closer, but then the 1×3 strip should be placed closer also, else the strips will come in the way of one's feet.

For shade we generally set out bananas here; but they prove a nuisance, as the drying leaves make a lot of rubbish. Besides, in a few years the suckers from the bananas will crowd away your hives. The best

shade in Cuba for bees are grapevines over an arbor. These will give partial shade in the summer, and sunlight on the hives in winter. Some advocate sheds. These are all right in the summer; but in the winter I think the bees should have the sun.

The best strain of bees for Cuba, I think, are the hybrids—first, last, and all the time. Italians clog the brood-chamber too much with honey, to the detriment of brood-raising. Of course, we have to have Italians in order to get hybrids. Our bees here run to blacks very quickly—not, I think, because, as some suppose, that the black drones are quicker on the wing than the Italians, but because, to every Italian drone you can find in Cuba, you will find one million black ones.

Contracted entrances in winter, and wide-open entrances in summer will do much to keep brood-rearing up in winter and prevent swarming to some extent in summer.

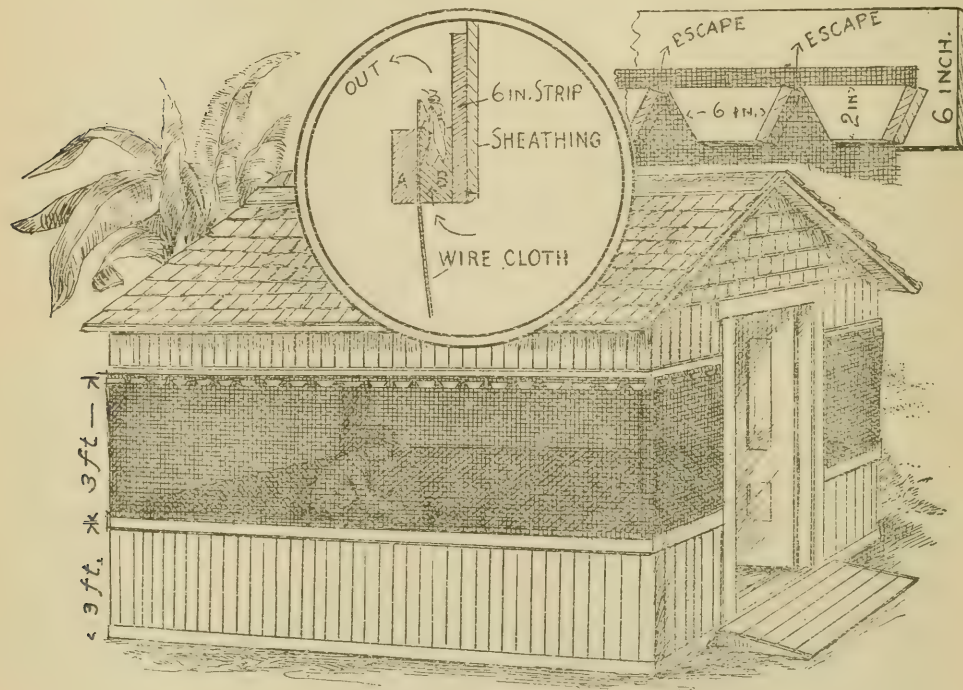
Punta Brava, Cuba, Nov. 17.

FEEDING BEES IN WINTER QUARTERS.

An Interesting Experiment with Different Kinds of Feed; How to Make Sugar Syrup.

BY W. R. GILBERT.

It happens that, after an unfavorable season for honey-gathering, there does not seem to be a sufficient store of honey in the hive to carry the bees through the winter.



CUBAN HONEY-HOUSE.

To gain information as to the best method of overcoming this difficulty the following experiment has been tried with six strong colonies of bees.

Four frames of sealed honey were taken from each of the six colonies, leaving the cluster on the four remaining frames. The four frames were left in the center of the hive with a division-board at each side, and some light packing was placed between the division-boards and the sides of the hive. The wooden covers were removed, and a large propolis quilt made of heavy canvas was placed over the top of each hive. Over the top of the propolis quilt, extra packing was placed to keep in the heat, absorb moisture, and prevent drafts or upward ventilation. The bottom-boards were left on as they came from the bee-yard, leaving the entrance wide open.

The experiment was as follows:

1. Two colonies received maple sugar of the best quality.
2. Two colonies received a candy made of honey and sugar.
3. Two colonies received partly filled sections of honey.

Each colony, when put on this test, weighed 31 lbs., and each was given 3 lbs. of its particular food to start with. The experiment lasted four months. The two colonies fed on maple sugar consumed 11½ lbs. each; they were examined every two weeks, and water added to the sugar through holes in the tops of the cakes, keeping it soft and moist.

The two colonies fed on partly filled sections of honey consumed during the same time 14½ lbs. each. There was, for several reasons, considerable waste in this test; and if partly filled sections could be sold at even a reduced price it would be advisable to sell instead of feeding back.

The two colonies that were given candied honey consumed 10¾ lbs. each. The honey was moistened at intervals, which made it easier for the bees to suck up.

My honey candy is made as follows:

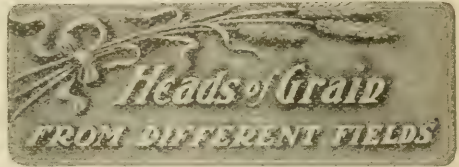
Take good thick clover honey, and heat (not boil) it until it becomes very thin; then stir in fine granulated sugar. After stirring in all the sugar the honey will absorb, take it out of the utensil in which it has been mixed, and knead it thoroughly with the hands. The kneading makes it more pliable and soft, so that it absorbs or takes up more sugar. The kneading operation, with the adding of fine sugar, should be continued till the dough is so stiff as to be quite hard to work. It should then be allowed to stand a day or two; and if at the end of that time it is so soft as to run or be sticky, a little more sugar should be kneaded in. It should be cut into cakes of convenient size, and placed on top of the frames in such a way that the bees can get at it easily.

The colonies in all three tests came out in excellent condition. Any one of the three methods may be safely followed; but I would strongly recommend examining and

weighing all bees the first week in September. At that time every colony should have a good laying queen, and should weigh over 50 lbs. In seasons when there is no fall flow of honey, all colonies weighing less than 50 lbs. in September should be fed up to that weight at least. The best method for getting colonies up to the required weight is, when extracting, to have several full well-sealed combs, then remove some of the light ones out of the hives and replace them with the heavier full frames. If no honey is available, feed sugar syrup. This latter plan is a rather tedious one, and great care must be taken not to daub the hives or appliances, as robbing at this season of the year is very easily started and hard to stop.

Sugar syrup may be made as follows:

Use the best grade of granulated sugar, two parts to one of water by weight. The water should first be brought to a boil, then the pan or vessel set back on the stove so that the boiling will not continue, but the water kept sufficiently hot to dissolve all the sugar. The sugar should be poured in slowly, and thoroughly stirred until all is dissolved. The syrup should then be fed in a lukewarm condition.



THE ALEXANDER METHOD OF CURING BLACK BROOD; HOW TO GET THE LARGEST NUMBER OF LAYING QUEENS NECESSARY.

In reading GLEANINGS I am interested in Alexander's plan of curing black brood, and its discussion. I have practiced the same for three years, and know it is a success when properly handled; but the thing that puzzles me most is to get the laying queens at that time of the season. Last spring three-fourths of my first queens were not fertilized. I should like to have you state through GLEANINGS how such an extensive bee-keeper as Mr. Alexander handles this part of his business. He says, "Requeen the other half with laying queens," etc., and that is just what I want to know about.

Fridley, Minn., Nov. 21. L. H. HOYT.

[You do not make it clear whether this method of cure was applied to foul brood or black brood. In the absence of any statement, I should have assumed that you refer to black brood except for the fact that there was little or none of that disease in your State. If this treatment will work with foul brood as well as black, then we may be on the threshold of a new era in the treatment of brood diseases.]

In an article that was published in a

previous issue, from Mr. Samuel Simmins, of England, he says he has tried a treatment like the Alexander, and found it to be effective with foul brood. If this is true, it is rather unfortunate that we did not discover the fact sooner, and thus save thousands and perhaps millions of otherwise good combs that brought only a tithe of their real value when rendered up into wax.

The rearing of queens, and having an abundance of them, is very simple as Mr. Alexander manages. This he will shortly explain.—ED.]

AMOUNT OF HONEY A FAMILY WILL CONSUME IN ONE SEASON.

I have often seen estimated of amounts of honey a colony of bees would *make*, but never an estimate of how much a family would *eat*. We are new in the bee business, but this year five of us bid fair to consume 300 lbs. of honey. Is this a fair average for that number of persons?

Our bees hummed merrily in a small patch of cow-peas this summer. Are they of any value as bee-pasture? E. P. COLTRIN.

Terre Haute, Ind.

[Yes, in some localities. But, say—as a honey-eating family you surpass any other I have heard of. Can any other family beat it?—ED.]

A LARGE NAIL FOR A HIVE-TOOL.

The best hive-tool that I know any thing about is a 60-penny spike. Hammer and file the point flat and sharp; cut and flatten the head correspondingly to make a projection on each side, and you have a good pry and a good hook.

F. C. THOMAS.

Spring Valley, O., Oct. 16.

[I have used twenty-penny spikes for handling frames, with a good deal of satisfaction. The head made a very convenient hook for lifting up frames, and the straight round body of the nail when entered between the frames made a very convenient and serviceable pry. It is the cheapest hive-tool that has yet been suggested, but it is not suitable for prying covers loose from the hives. No doubt a larger nail hammered out as you describe would be better.—ED.]

SUGGESTIONS IN FAVOR OF THE DOUBLE GROOVE AND WEDGE FOR HOLDING FOUNDATION IN FRAMES.

In reply to Mr. Wood, p. 1083. I will say I believe that, after he gives them a more thorough trial, he will be just like some of the rest of us—he will have no other. My first experience was like his, for I happened to get some frames from a company that did not do straight business, and sent out wedges that were entirely too small.

A bee-keeper told me this year that the foundation would not stay in the frames; but I found out that she put the wedge and foundation both in the same groove—simply

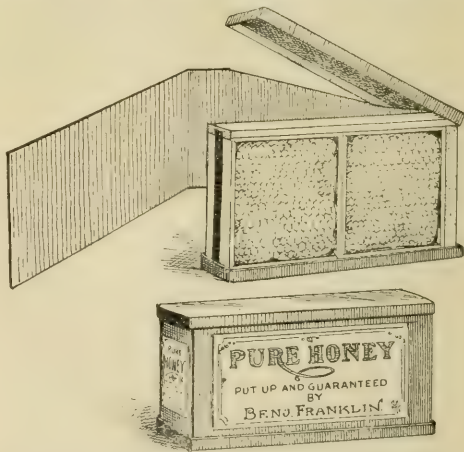
didn't know how. Let me tell you how I go about it. I first lay the foundation on the table, draw a knife blade along on the edge to smooth it down so it will go into the groove easily. I then set the frame on the table, top-bar down; drop the foundation in them; start one end of the wedge in the opposite groove; take a pair of common horse-shoe nippers, and put it out of sight easier than I can tell it, and you can't shake the foundation out.

R. G. WOOD.

Prowers, Colo.

A PASTEBOARD CARTON HOLDING TWO SECTIONS OF HONEY.

I wish to give you a description of my comb-honey package of which I am sending you a sample. I first sold my comb honey by putting it in paper bags, but found once in a while I would hit a cell in getting them out, and so set the honey running. I found I must get up something better. It occurred to me that pasteboard fixed on would protect the honey all right, so in the morning early I fixed up some like the sample, without the caps, but I think the caps would be better. I think perhaps you could get up a carton that would be just the thing, as I am bound to put my honey up in this style another year, for I can sell two boxes as easily as



one. By having the pasteboard tacked fast at one corner I can swing it back like a door, and expose both sides to view. I like to sell it in the night, as the honey, by holding up to the light, shows off finely. I sold most of my comb honey in these packages for 30 cts. per package, dark honey at that.

BENJ. FRANKLIN.

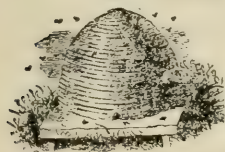
Franklinton, N. Y., Oct. 3.

[It may be that we ought to supply a carton holding two sections. We will take the matter under consideration. But it would be far cheaper to make a regular carton than to make one on the plan given above. You are, no doubt, correct in saying that you can sell two sections as easily as one.—ED.]

SHOWING LIVE BEES IN A STORE WINDOW.

After reading the article on creating a market for honey, page 1074, I took up the Rochester *Herald* of this morning, and cut out a clipping from an advertisement of a large drygoods firm in Rochester. It seems to me that it would take very little persuasion to induce some leading merchant of each

A Swarm of Bees.



Did you ever have a chance to observe honey bees closely? There is a swarm of them on rear Basement landing. Caged of course, you won't be stung. The apiarist enters the cage and mingles with the bees with impunity

—immune to stings practically.

It is an interesting exhibit. Pure honey to take home with you at reasonable cost.

large city and village to give up one large window to a swarm of bees and a display of honey for a week. The merchant would be only too glad to advertise the fact in the daily papers, because of the attention it would draw to him and his business.

Oct. 25.

JOHN T. GREENE.

[We see no reason why this should not be a very good way to advertise, for such demonstrations cost little and accomplish much. When the average person becomes interested in bees he generally wants some honey. In many cases this could be made right in a show window. The clipping referred to is shown in reduced form. I have been thinking for some time of testing the possibilities of advertising honey by making demonstrations in show-windows, and we expect to make such demonstrations soon ourselves.—ED.]

SHIPPING BEES.

I should like to ask for information on shipping some bees. 1. Would it be best to ship by freight or by express? 2. How should they be fixed? 3. What is the average cost of shipping bees by freight? 4. How is the northern part of Arkansas for bees?

J. E. RICHARDS.

Carlisle, Ind., Nov. 9.

[1. If there are more than two colonies I would ship by freight.

2. Frames should be securely fastened if unspaced. The covers should be separated from the hive-body by means of strips of broken sections $\frac{1}{2}$ in. thick. This will leave an air-gap between cover and hive of $\frac{1}{2}$ inch all around, and yet this gap will prevent the escape of bees. Of course, the cover should be nailed down. In warm weather, wire cloth should be used in place of the cover.

3. Freight will vary a good deal according to the road. You had better consult your local railroad agent.

4. I do not know much about the northern part of Arkansas; but I should suppose the territory would be good, for South Nebraska is an excellent bee country, and the northern

part of Arkansas would not be materially different.—ED.]

WANTS INFORMATION CONCERNING PUNIC BEES.

Who has had any experience with Punic bees? If any have, please tell me what it was and how obtained. I have received some circulars from England, in which they are praised very highly; and if they are any thing like what they are claimed to be I certainly want to try them. I am not satisfied with my Italians. Every year I have bought from one to ten common colonies of bees, and they always store more than the Italians, winter better, and never spring dwindle to the extent the Italians do.

The price asked for a tested Punic queen is high; but if they are as claimed it would be all right.

W. R. CLAUSSEN.

Waupaca, Wis., Oct. 31.

[I would not advise you to invest very much in Punic bees. The reports in this country have not been altogether favorable to them. Our own experience with them was decidedly unsatisfactory. The bees we had were great propolizers, not particularly gentle, and black.—ED.]

HOW TO GET RID OF ROACHES.

I have been a reader of GLEANINGS ever since I have kept bees, and do not know how to do without it; but there is one thing that neither GLEANINGS nor the A B C book has told me, and that is, how to rid my hives of roaches. This season they are worse than ever. There will be a dozen or more on top of the mat over the supers; and when I open the hive they dart down into the hive like a flash. I have used borax and electric paste, but fear to use too much poison for fear of killing the bees.

MARY WOOD.

Centralia, Ill., Oct. 25.

[While cockroaches may be annoying, yet I do not remember to have seen any reports where they actually did any harm to the bees. I do not know of any way to get rid of them except to poison them by placing the destructive agent where they can get it but not the bees. Perhaps some subscriber in the South can help us out.—ED.]

CORK SAWDUST AS A PACKING MATERIAL

Why isn't it a good plan to use cork sawdust instead of chaff or other material in double-walled hives? Surely it is better, for it is lighter and dryer. All grocers will give it away. They get from five to ten bushels yearly, and throw it out. I use it and find it good.

S. W. WORREL.

Patton, Pa., Nov. 18.

[Cork dust is the very best material; in fact, it has generally been placed at the head. But it is usually not available, except at exorbitant prices, for most persons.—ED.]

BITTER HONEY.

I send you a sample of bitter honey which my bees have been gathering ever since the 10th of July, and up till now. They have gathered this honey from a plant that we call bitterweed. The bloom resembles the dog-fennel bloom, except it is yellow. This bitterweed is one of the greatest honey-plants in this country. It begins to bloom about July 1, and blooms till frost kills it. While this bitterweed is blooming, an ordinary colony of bees will gather, in about 40 days, enough honey to fill 12 L. frames. If this weed would make sweet honey, the bee business would pay big. The only time we have any good honey is from March until the first of July, and the first of July we take off all the good honey, if there is any, and prepare for the bitter honey. This season, up to July, my bees hardly made enough honey to do them; but as soon as the bitterweed came in it was not long before they were well supplied with honey.

I should like to know if there is some way to take this bitter taste out of the honey. If there is I should like to try it. I have tried boiling, but the bitter stayed there. The only thing I see that it is fit for is winter feed. This bitterweed surely has got me discouraged with the bee business. I have invested \$140 in it this year, and have sold \$4.05 worth of honey. Isn't that "fine" for a beginner?

I have sent you a sample of bitterweed also, but I would advise you to be careful not to drop any seed; for if the bitterweed gets a start in your locality your bees will make bitter honey, and your cows will give bitter milk. Cows eat the weed like grass, and the milk will be unfit to use.

CHAS. MOELLER.

Florence, Ala. Nov. 22.

[Friend M., the plant you inclose was sent to the experiment station at Wooster, but Prof. Selby, the botanist, says it was not in determinable shape. But he was able to make out that it belongs to the *Composite* family.]

This matter has come up several times in years past. There is no method of taking the bitter taste out of the honey. Getting it thoroughly ripened, either in the hive or by artificial means, greatly improves it. Where the bitter taste comes from hoarhound the honey has been sold as a cough remedy at the drugstores. Do not be discouraged about your bitter honey. It makes the very nicest kind of honey cakes; and if you offer it to any baker who makes honey cakes or jumbles he will tell you it is just what he wants. When made up into cakes the flavor is not unpleasant. On the contrary it has a distinct aromatic taste, and I think you will find it all right for your bees to winter on.—A. I. R.]

E. W. ALEXANDER'S PLAN OF CURING BLACK BROOD INDORSED.

I have just read the article of E. W. Alexander on the cure for black brood, p. 1125.

In 1903 the bee-inspector of this county inspected my bees and found a number of diseased colonies. I gave him two queens and a card of diseased brood, about three inches square, which was sent to Prof. Moore, of Cornell University. In examining the combs left I found them in a foul condition, although the hive was full of bees. Not deciding immediately what to do, I left them a few days, intending to burn them, but decided to let them rest for a while. In the mean time I had two small swarms of bees from other hives. I put one in each diseased hive and they made me some surplus honey. I could not continue my line of work in the winter of 1903, and so several of these colonies died. I should have said that, when I put swarms in the hives, the bees cleaned the combs very nicely.

I would say, in conclusion, that I think the disease is leaving us in this section the same as with Mr. Alexander. He is only about ten miles from me. From 45 colonies I was reduced to 7, but now I have 100.

A. L. FISHER.

Central Bridge, N. Y., Nov. 6.

THE DOUBLE-GROOVE-AND-WEDGE PLAN OF FASTENING FOUNDATION; THE LESSER WAX-MOTH.

I note what Delos Wood has to say, p. 1083, about the double-groove-and-wedge plan of fastening foundation in the frames. That's funny! I have yet to find the frame that suits me better than the thick-top-bar Hoffman frame with the double groove; for whenever you have to put in new foundation it is very handy to pry out the wedge and clean out the groove, and then it is ready again. In fact, it is the only frame I use.

Regarding the smaller wax-moth, I will say that I never saw one here until this year. They evidently came with some Italian colonies that I had shipped from Texas. This moth has been the most persistent this year of any that I have ever seen.

J. L. BARKLEY.

Bargain, Miss., Oct. 20, 1905.

CATCHING SWARMS BY PUTTING DECOY HIVES IN TREES.

We now have 80 colonies of bees. We secured 42 of these colonies by placing boxes in the trees. We have practiced this for three years. We simply fit up boxes as we would for hiving bees, with a support for the comb and honey. Many bees are uncared for and glad to find homes, and we sometimes secure prime swarms. It might be well to add a little foundation. This may prove of interest to our bee-keeping friends. We consider it of value to us. In this way we can run our bees for honey and still increase our swarms. Seven colonies have been secured this year.

Williams, Neb.

MRS. JOS. LAMB.

[This plan of catching swarms in decoy hives will work in some localities, and where it succeeds bees can be procured very cheap-

ly. To make the plan a success there must be plenty of wild bees or else some old-time bee-keepers who are so careless as to let their swarms go. — ED.]

QUEEN-BREEDERS' CATALOG.

Inquiries frequently come to this office for the names of queen-breeders of various races and strains of bees; and, in order that reliable information may be given, I am preparing, in co-operation with the American Breeders' Association, a catalog of queen-breeders.

There is a catalog of considerable size in this office; but, in order that no queen-breeder of any importance be omitted, I would respectfully request all breeders, having one hundred or more queens for sale annually to the general public, who see this notice, to send me the following information as accurately as possible: Races bred; annual output of each race, and number of mating-yards. For my personal information I should be glad to learn the method of queen-rearing used, the number of breeding-queens of each race used, and the number of colonies in each yard from which drones are allowed to fly.

Hereafter all persons requesting information concerning dealers in any strain will be given the names of the four dealers nearest to the address of the inquirer. This will, I believe, be a fair way of giving the information without favoring any breeders, and will repay the breeders for their trouble in answering these questions.

E. F. PHILLIPS,

Acting in Charge of Apiculture.

Washington, D. C., Jan. 8.

THE SMALL BABY NUCLEI UNSATISFACTORY.

I read your article on baby nuclei, pages 1243 and 1244, and found it to correspond a good deal with my experience, although a good deal of the trouble described I blame on robbery and exposure of those little things to all kinds of weather. I think that this season I shall overcome robbery as well as exposure. The entrance has been too large for so few bees to defend it. I cut the entrance down to two $\frac{1}{4}$ -inch round holes $\frac{1}{4}$ -inch apart. I placed above the holes a little piece of wood, or flap, so that I can close up one or both of these holes, as it might be deemed necessary. The exposure I overcame by setting the nuclei in a small jacket hive, open in the front.

C. H. W. WEBER.

Cincinnati, O., Dec. 11.

SHIPPING FRAMES OF BROOD AND BEES FROM THE SOUTH.

Several years ago a friend of mine in the South sent me some frames of brood obtained by placing one comb in a hive on the same day so as to have it all hatch as nearly as possible at the same time, sending them to me so as to reach me a day or so before the brood was due to hatch, which was about the

time my bees were taken from the cellar. There were just bees enough sent with the brood to keep it warm; and when it reached me I put one frame of the brood in each of my colonies of bees, which at that time had just been taken from my cellar. Talk about bees booming, those stocks not only had the bees that hatched from the brood given them, but they seemed to raise twice the brood in the next four weeks that the others did in the same yard. They had young bees to nurse the brood at a time when they otherwise would have been destitute of them and at a time when in the whole season they need them the most. Instead of the inevitable "spring dwindling" it was a case of spring booming.

Well, why did I not try it again? I just didn't, that is all. I had other irons in the fire, and neglected to do so; but I have thought about it every spring, and am satisfied that it could be done to advantage. Now for a little free advertising. Who is the one in the South to furnish us frames of brood?

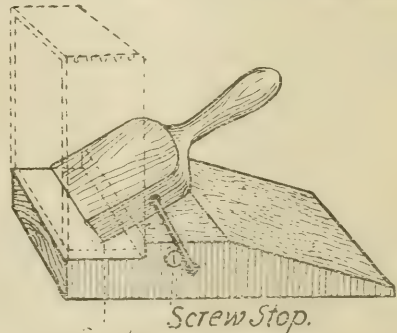
D. S. HALL.

South Cabot, Vt.

[We are glad to give space to this, even if it does savor of free advertising for some one in the South. A good frame of hatching brood with a few bees given to a colony not very strong in the spring would give it a wonderful impetus. The up-to-date queen-breeder of the South should be ready to meet this demand by announcing the fact before spring. — ED.]

A PARKER FOUNDATION-FASTENER IMPROVED.

With a Parker foundation-fastener fixed as shown in cut, it is much easier to get starters in the center of sections. Any one who has ever used the Parker foundation-



fastener knows how much trouble and time it takes to get starters in the center.

Gatesville, Tex.

W. F. MORGAN.

[A fastener arranged in this way with the screw stop would undoubtedly be more satisfactory. For different widths of sections the screw stop could be put in different positions to make the lever come down at just the right point. If a narrower section were used a cleat would have to be nailed on the lower block. — ED.]



OFF TO FLORIDA.

On the afternoon of Dec. 12 we left our northern home. It was after dark when we reached the vicinity of Pittsburg, and I was more impressed than ever before by the tremendous manufacturing business done along the valleys of the river leading into this smoky city. The belching flames from the blast-furnaces made us think at first the town was on fire; but we soon found there was almost a continual succession of these "fires;" in fact, the towns seemed to run together, and streams of molten iron were first seen on one side of the railway and then on the other.

At Washington, D. C., we were met next morning by Mr. Leslie Martin, who is connected with the Apiarian Department, who very kindly showed us around as far as our time would permit between trains. As the greenhouses were near our station I began to be very happy in viewing what the government had collected from far and near; but Mrs. R. soon began to scold. The houses were too hot; and as I had not told her to bring her rubbers she found the houses altogether too wet. We soon found some not so "tropical," and where the men had not yet done their morning watering. Of course, I had seen before the most of the plants; but I found some that amply repaid me for my visit. *Ipomea Briggsii* is one that especially pleased me. It is a vine that was trained overhead on the rafters; and not only is the foliage attractive, but it has the rare quality of furnishing buds, flowers, and fruit that are always handsome. Most plants, to look neat and tidy, must have the dead and dying bloom renewed almost daily. One who cares for geraniums, roses, etc., has, of course, noticed this. Not so with this *ipomea*. It is always neat and tidy-looking, without daily trimming up.

The government apiary has been for some time testing Caucasian bees, and Mr. Martin is inclined to give them more credit as honey-gatherers than we have done so far. He also says that, when crossed with Italians and other bees, the effect seems to be pretty constant in making all races more gentle to handle. I brought along with me, in a two-frame nucleus, our last imported Caucasian queen. I had some trouble in getting permission to take my hive of bees into the sleeping-car, until I reached the Seaboard Air Line R. R. On this road there was not a particle of objection; but the conductor asked many questions about the new races of gentle bees, and seemed to feel their road was honored in having so important a per-

sonage as "her majesty" numbered among his passengers.

From Washington, D. C., to Sarasota, Fla., this road seemed to be up to the times in making every thing pleasant for those who patronized it.

VENTILATION AND RAILWAY TRAVEL.

As we approached Jacksonville the weather was so exceedingly "summery" outside we persuaded the colored porter to shut off the steam and let the pipes get cold. He said he would be "awful glad" to have it cooler, but some passenger was almost always sure to object. We finally all got to bed, and went to sleep in a cool, well-ventilated car. Mrs. Root had *also* got to sleep, but about midnight I heard the steam-pipes snapping, and knew we should still have it "too hot for any thing." The porter did "make it hot" for the passengers, but Mrs. Root, when she "caught on," made it "still hotter" for the porters. Of course, they explained that somebody was cold, and they had to obey orders; but Mrs. Root consulted the other women in the car, then she voiced a protest from all the ladies, and the steam was shut off once more. Does some one ask right here how the poor porter can suit everybody? Well, I would have a thermometer on board, and this should indicate the temperature within certain limits. When the majority, however, want it beyond these limits, let them have it. On this road the porter often inquired of the passengers if the temperature was to their liking. Just one more illustration:

When near Sarasota we changed cars. This last car had no ventilator open at all; and as there was a warm driving rain the windows were all closed. A careful of people rode all of half an hour "corked up tight" in a land of perpetual summer and summer flowers. Nobody seemed to know how to reach the ventilators, and I suggested we were so near our destination we could stand it with the rest. Finally the conductor came into our car, and Mrs. Root was made happy by seeing *all* the ventilators open. I can't recall just how she expressed it, but it was to the effect that the balmy air that poured through those ventilators was like a "breath from heaven." A youngster had been "howling" ever since we got on the car, but stopped almost instantly. His parents had been dosing him repeatedly with some sort of medicine, but it did no good, and Mrs. Root declares it was the bad air and *nothing else* that made him sick, and they, in their want of knowledge, gave him drugs (perhaps injurious) instead of letting him have "God's pure air."

OUR "ROBINSIN CRUSOE" ISLAND.

"How much to take us to Osprey in the morning?" I asked of a livery-man as we got off at Sarasota.

"Four dollars."

"But you carry a daily mail. Can't you take a heavier rig, and make it a little less?"

"I could make it a dollar less; but the mail

must start at half-past six, and you wouldn't want to go that early?"

He didn't know us as *you* do, dear reader, did he?

We had a beautiful ride past and through orange-groves and other tropical vegetation; and when we reached Osprey (twelve miles) we found one of Mr. Shumard's sons waiting to take us over to "our island." When friend S. told us (see p. 1353, Dec. 15) that it was only ten minutes' sail over to the post-office, I thought it was probably only under the most favorable circumstances he could do it; but "Jesse" made it in just *seven* minutes. I have always longed for a more intimate acquaintance with sail-boats, especially little crafts to carry, say, half a dozen people, and here was my chance.

Orville and Jesse Shumard are two young men, eighteen and twenty years of age. Their occupation is principally fishing, and each one has a sail-boat of his own, and it is really a pleasure to see how those boys handle their respective boats, especially when there is a pretty high wind. They have made the trip to the postoffice in only *five* minutes; but it takes an expert to do this and not upset or take in water.

On the way over, Mrs. Root and I were astonished to see fine large fish jumping out of the water all around us, and, later on, I saw a school of fishes just coming into the bay from the Gulf (of Mexico) that made such a "demonstration" one or two large fishes (say 2 lbs. and over) were up in the air *all the time*. Sometimes there were half a dozen or more several feet in the air. Now, if I were not *sure* you all know I tell the truth, even if I am telling "fish stories," I might hesitate to tell what comes next. The Shumards are not only an interesting but a remarkable family. Besides the boys mentioned, there are two bright girls, nine and eleven years old, named Clara and Flossie. With the older one, Florence (seventeen), they three go to school in a boat a mile and a half from home. Well, the two little girls, one morning before school, caught fish enough to sell for \$2 40; and Clara (only 9, mind you) caught with a cast-net, at one haul, *one hundred and six* fish, all big enough to eat.* Of course, she was lucky enough to be right on the spot near a school of fish. This was on the Gulf, and the fish were so thick when a wave threw them up on the beach they could hardly all get back into deep water. These jumping fish *sometimes* jump into the boat. They haven't jumped into our boat (not yet); but one day Thomas McAulay (the son-in-law) was walking along the beach on the Gulf when a fish of about 2 lbs. was thrown up by a wave; and before it could get back he kicked it up on dry land, and brought it in just in time for dinner.

By the way, our dinner on that first day included a soup made from little shellfish about the size of beans. I have written these up before, as some of you may remember. Well, I still consider them the richest, most

nourishing, and most appetizing food, especially in the line of soups, of any thing the kind Father has provided for his children. Every wave that comes up from old ocean brings up in the sand thousands if not millions of these tiny oysters (or perhaps, more properly, clams); and if you scoop them up with the sand in a sieve the sea water will wash the sand out and leave little closed shells of various sizes and forms, and of the most brilliant and enticing colors, rivaling all the tints of the rainbow. All you have to do is to rinse off the salt water, and cook them just as you would cook so many beans, only they cook about as quickly as oysters, and taste much like them. The shells are strained from the soup with a colander. The people here call them donaks. There are enough here along the Gulf of Mexico to feed untold thousands if not millions of people.

Before I get through with fishes as food for mankind I want to give you an illustration of the steps that often occur between the *producer* and *consumer*. On the Pullman dining-car I had a very fine blue-fish for dinner—price 50 cts. I did not order any thing else, not even tea or coffee; but the fish alone made a very good dinner. It weighed, when caught, perhaps 2 lbs. Well, the Shumard boys get for just such fish at wholesale, just as they come out of the salt water, *two cents* per pound, by the 100 lbs. or ton. They are purchased by a boat that comes along daily, carrying ice, and they turn them over to the fish-dealers, who in turn supply the retailers, and so on to the consumer. I suppose the profits are all right, or about right; for if you want a nice fish served up to you in *good style*, without even stopping your train for dinner, and then have all the fixings quickly swept out of your way and put away, you must *pay* somebody for doing it. If you prefer making a short cut, and dropping all these "middle men" with their profits, just come out on our island and play "Robinson Crusoe" just as Mrs. Root and I are planning to do. Before you can do *this*, however, you will have to invest something like a hundred dollars in a cottage, and things to take up even "light housekeeping."



VERTIGO, OR FALLING SICKNESS.

I have mentioned before that my malari I attacks usually occur in July and August—the same season of the year that I had the severe attack something over a dozen years ago. Well, at the time of Huber's wedding, last September, Mrs. Root and I came back to Ohio for three weeks. Toward the end

*It took *both* girls to pull in the net, for there were toward 100 lbs of fish.

of that time I began to complain, and said I should have to go back to the cabin in the woods or else I should have trouble. One morning I woke up feeling a little strange, but about as well and strong as usual. When I attempted to stand up on the floor, however, a strange darkness and dizzy feeling came over me. I walked a little way from the bed, sank down on the floor, and called for Mrs. Root, saying, "Sue! come here quick. Call the children, and have the doctor sent for as soon as possible. I guess my lifework is about over."

"No, your lifework is not over. Why do you talk so? This is nothing unusual. It will pass off in a few minutes. Do not be worried. We will get you out all right without any doctor."

"But I tell you I *won't* get out all right. You had better get a doctor here as soon as possible. This is heart disease or apoplexy, or something of that sort. Oh dear me! our Michigan trip is all up now. I shall never see the cabin in the woods again."

But Mrs. Root strongly insisted that I was borrowing trouble needlessly. She declared I would be as well as ever in an hour or two, and that we would make our Michigan trip all right, etc.

Oh how many times Mrs. Root's good common sense has quieted my nerves and pulled me up in a similar way! I found out pretty soon that I was all right if I kept my head bent over pretty well toward the ground; but just as soon as I raised it up the dizziness returned. I tried a drink of hot water, but when I straightened up it was just the same. Then I tried a cup of strong tea. That did not do a bit of good. The next dose was some beef tea made of Liebig's extract of beef, and at the very first spoonful relief came. Then I drank half a cupful of the beef tea, straightened up, put on my clothing, and was all right. As I had never had any experience of that kind, I was a good deal frightened; and as soon as I could I went for Dr. Kellogg's big doctor book. Mrs. Root said she thought I would find it described under the head of vertigo. Sure enough, that hit it exactly. The book said that a little nourishing food would give immediate relief. It also stated that three out of four cases, or something like that, were caused by malarial troubles. I ate a pretty good square meal, and went about my work as usual. I felt only some slight symptoms during the day, and a little the next morning, but none since. In a couple of days we were off for Michigan, and I enjoyed better health for three or four weeks than perhaps I ever had before; but I was out of doors nearly all the time.

Now, friends, I agree with you it is a bad plan to be talking over our aches and pains, and telling people about them (especially when they do not wish to listen); and I have given the above only because I think it may help somebody else. I have seen people drop down suddenly from heart disease, apoplexy, etc., and I could not get it out of my head that I was going the same way, whereas there was nothing the matter, except a

little indigestion, probably caused by malaria and an empty stomach, as would be quite natural in the morning. Perhaps a glass of milk might have answered the same as the beef tea; but my opinion is that it would not. When I was so seasick on my way to Bermuda I was pretty comfortable, as you may remember, while lying on my back with my head down low; but just as soon as I attempted to rise up, or even to put a pillow under my head, the nausea returned. Well, the first thing my stomach would receive after that terrible ordeal was a cup of beef-tea, and the steward informed me that it was the very best remedy with a great majority of their passengers. It is not at all expensive when you consider what a very small quantity makes a good cup of beef tea—not much more expensive, in fact, than tea or coffee; and hereafter we shall keep a little, just for sickness, in our household or take it along when traveling. I think we may say, as with lemons, it is one of God's remedies. Of course, one can make beef broth of a little meat; but it takes more time, and it is often quite important that the remedy be something we can get hold of in an instant.

MORE ABOUT NITRO-CULTURE.

When this matter first came up you remember I said in GLEANINGS that I was sure it was a humbug, or at least partly so, especially so when they claimed it required a different kind of bacterium for each kind of clover and each kind of beans, and all that; but as it was so strongly indorsed by the Agricultural Department at Washington I was forced to give in, at least to some extent. It now transpires that one of the government officials owned stock, or at least his wife did, in the company that was offering bacteria at \$2.00 per package, sufficient to inoculate an acre; and instead of giving the public the reports of all trials made all over the United States—good, bad, and indifferent—this public official sent out only the most favorable ones. In the circulars that were sent out from the National Nitro-culture Co. they had testimonials from prominent people. Among them was Edward F. Dibble, a well-known New York seed-grower. In fact, they claimed him as being the heaviest purchaser of their commodity; but Mr. Dibble says, in the *National Stockman and Farmer*, as follows:

In each case nitro-culture has not given us or any of our growers one single bean more than we would have obtained if there had been no nitro-culture used; and on several fields and tests where we planted seed treated with nitro-culture and untreated seed, the untreated seed has given better results. That, in a nutshell, is the history of our experience up to date, and the farmers of America can take it for what it is worth, and it should be worth a good deal considering the nitro-culture company say that we were their largest customers, and therefore gave it a more comprehensive test.

Things have certainly come to a very bad pass when there is work of this kind in the Department of Agriculture. The worst part of it is, the official who *owns up* to the fact as stated above is *still retained* in the Department.

Hatch and Brood

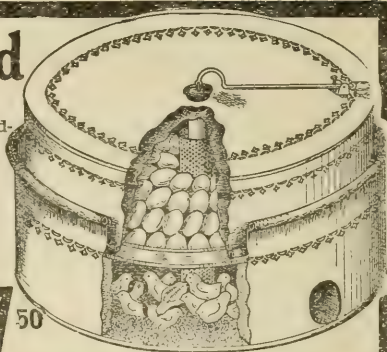
AT SAME TIME

Here's a new thing—a complete hatcher and brooder, one machine that performs both of these operations at the same time and does both well. The

METAL MOTHER Brooder-Hatcher

is a long step ahead of all others—the most remarkable invention in the poultry world. With it 2 qts. of oil hatches 50 eggs and broods the chicks—brood one batch while you make another hatch. Our nest system enables you to do this. A time-saving, labor-saving, oil-saving machine complete for \$7.50. Free catalog—tells how it works. Regular Cycle Hatchers and Brooders at \$5 each are great favorites. Write today.

CYCLE HATCHER CO., BOX 223, SALEM, NEW YORK



\$7.50

Let Me Tell You the Special Price

On This Genuine 1906 Chatham Incubator



84 Days
Free
Trial

It's this way:

We make more Incubators than any other concern anywhere.

Our two factories—equipped with the best labor-saving, wood-working machinery to be had, finish six to seven hundred incubators a day.

We buy lumber in immense quantities. All this means high grade incubators at low cost.

And we are now after the trade with a machine of upstairs quality at a downstairs price.

We want to tell you about it—and surprise you. We want you to get our catalog, pick out your Incubator and let us astonish you with the price.

We will also tell you our liberal selling plan. And of the 84 days FREE trial.

You can hatch four times to prove the machine is all we say. If it isn't, send it back at our cost. A five year ironclad guarantee goes with every Incubator we sell.

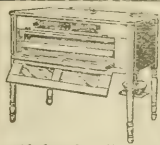
We couldn't do this with a cheap Incubator. Only Chatham Incubators will stand it.

And they will outlast the guarantee. For they have steel and brass regulators—the best and costliest—good for a hundred years.

No cheap, leaky wafer regulators for us. We ship direct to you from nearest warehouse—we have 20 in leading cities.

Ask for FREE catalog today. It will please you. **THE MANSON CAMPBELL CO., Ltd.**

216 Wesson Avenue, Detroit, Mich.



satisfaction."—Free catalog explains all. Eggs for hatching shipped anywhere. **RELIABLE INCUBATOR & BROODER CO., Box 849 Quincy, Ill., U. S. A.**

THE 1906 RELIABLE

In all the wide field of incubator makers, you'll find no better hatcher than this year's Reliable Incubator. Scientifically made, simple in operation, perfectly even temperature, no draughts, no hot spots; USES ONE-THIRD LESS OIL, has double heating system and AUTOMATIC regulation, and is sold on an absolute MONEY-BACK GUARANTEE. No other incubator offered on such liberal terms. W. H. McClanahan, Columbus, Miss., says, "The machine bought from you gave perfect

**SOLD
ON AN
ABSOLUTE
MONEY BACK
GUARANTEE**

IMPROVED INCUBATORS FOR 1906.

Money-saving improvements embodied only in the new and patented, 1906-pattern Genuine Standard Cyphers Incubators are, a regulator that gives absolutely perfect control of the temperature and an improved system of ventilation that conserves the natural moisture of the egg, gives a larger supply of fresh air and oxygen and insures more vigorous chicks, at the same time reducing the amount of oil required; while a dozen little conveniences aid in reducing the operator's work and bother. Everyone who raises poultry and everyone who would like to raise poultry but who has thought it "too much bother," should investigate this improved incubator. It will be a revelation to you. The big Cyphers Company's Catalogue and Poultry Guide (228 pages 8x11), cataloging incubators, brooders and 70 other good poultry supplies which they make, will be sent you Free if you mention this paper and give names and addresses of two neighbors interested in poultry for profit. Address nearest office.

Cyphers Incubator Company—Buffalo, Boston Chicago, New York, Kansas City or San Francisco

You can't tell a good incubator or a good brooder by looking at them. The only true test is in the **Hatching and Raising of Chicks**. The machines that **Prove Best** by that test are the

IDEAL

Incubators and Brooders.

Made by the man who knows and backed by the J. W. Miller Cos.' guarantee to give you satisfactory results or your money back after 30, 60 or 90 days Free Trial. If you are discouraged try the Ideal—if you don't want to be discouraged try the Ideal. Send for the book "Poultry for Profit"—Free. 128 pages, illustrates and describes everything needed to raise poultry.

Address **J. W. MILLER CO.,**
Box 48 Freeport, Illinois.



Take Your Own Time. Old Trusty Incubator

40, 60 or 90 Days Trial.

We want to send you the 'Old Trusty' Book. You ought to read it before buying an incubator, because it has more every-day "chicken sense" in it than any catalog you have ever seen. 300 good pictures. It tells why "Old Trusty" does such good work—why it hatches so many and so good chicks—why it is so easy to operate—why it is so economical. It's sold on 40, 60 or 90 days trial, freight prepaid. Write to us.

M. M. Johnson Co.,
Clay Center, Neb.



We Pay
the
Freight.

A Free Book About Incubators

We issue the best book ever written on incubators—written by a man who has spent 24 years in perfecting them—by the man who made the Racine. It tells facts that you must know to get the right incubator. Don't buy without reading it, for the book is free. We Pay the Freight.

Racine Hatcher Co., Box 114, Racine, Wis.
Warehouses: Buffalo, Kansas City, St. Paul.

GEM INCUBATORS AND BROODERS

Time tested and proven success; thousands in use all direct to you at wholesale prices. You get the maker's guarantee and save the middle man's profit. The Removable Chick Tray and Nursery—a feature no other has—explained in catalog. It's free. Write for it today.

Gem Incubator Co., Box 53, Trotwood, O.

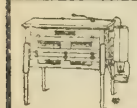


\$4.88
up

BANTA Incubators & Brooders

Backed by 14 Years of Successful Use by

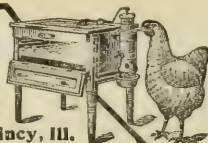
poultrymen all over the world. No guesswork. They are automatic in regulation and ventilation. Fully guaranteed to give YOU satisfaction. Send for free book. BANTA-BENDER MFG. CO., Dept. 23, Ligonier, Ind.



\$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

GEO. H. STAHL, Quincy, Ill.



Make Your Own Fertilizer

at Small Cost with

Wilson's Phosphate Mills

From 1 to 40 H. P. Also Bone Cutters, hand and power, for the poultrymen: Farm Feed Mills, Graham Flour Hand Mills, Grit and Shell Mills. Send for catalogue. WILSON BROS., Sole Mfrs., Dept. Easton, Pa.



Investigate the Poultry Business

Write for a copy of my book which describes the profitable combinations of Egg, Broiler, and Roaster 1 ns.

It gives the prices paid for eggs and poultry week by week for the past three years. It tells how and when a hatch taken off each week in the year could be most profitably marketed. It shows how you can make \$2.00 on a large winter roaster. It tells what profits can be made with each of the popular breeds, and the costs of production.

I have helped thousands to make money with poultry. My Model Incubators and Brooders are used on the money-making farms. It is my business to teach those who use them to do so profitably. Whether your needs are small or large, I will furnish, without charge, estimates and plans for a complete equipment that will insure success without your spending a dollar uselessly.

Send for my complete literature.

CHAS. A. CYPHERS

3927 Henry Street,

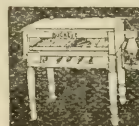
Buffalo, N. Y.

SUCCESS INCUBATOR

A wonderful hatching machine. We want you to try it and will make it easy for you to do so. We will send one freight paid, and give you

60 DAYS' FREE TRIAL

—time enough to take off two good hatches. If it doesn't suit you, if it doesn't hatch right, send it back. Could we make such an offer if we did not know what the "SUCCESS INCUBATOR" will do for you! Write for free illustrated catalog. American Brooder Co., Box 94, Racine, Wis.



\$1. PER MONTH

to \$2. per month rents any incubator.

Rent pays for it. We Pay the Freight.

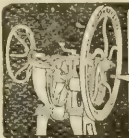
40 Days Trial at same prices. Buy

build one. Prices, ready to use, 50 egg

\$6.00, 100 egg \$9; 200 egg \$12.75. Brood-

ers, \$3.50 up. Guaranteed. Catalog free.

BUCKEYE INCUBATOR CO., Box 64, Springfield, O.



MORE EGGS—LESS FEED

OPEN HOPPER.

Humphrey Bone and Vegetable

Cutter

will double your egg yield and cut your feed

bill in half. Guaranteed to cut easier and faster

than any other. Trial offer and catalogue free.

Humphrey, Mine St. Factory, Joliet, Ill.



THE DANDY BONE CUTTER

will double your egg yield. Thou-

sands of poultry raisers

say so. It costs less, turns easier,

cuts faster and lasts longer than

any other. Price \$5.00 up. Sold on 15 Days'

Free Trial. Send for book and special proposition.

STRATTON MFG. CO.,

Box 54,

Erie, Pa.





GREEN BONE MAKES EGGS

Lots of them, because it is rich in protein and all other egg elements. You get twice the eggs, more fertile, vigorous chicks, earlier broilers, heavier fowls, bigger profits.

MANN'S LATEST MODEL BONE CUTTER

10 Days Free Trial. No money in advance.

Cuts all kinds of bone, with adhering meat and gristle easy, fast and fine. Automatic feed, open hopper, never clogs. Cat's free.

F. W. MANN CO., Box 37, Milford, Mass.



Greider's Fine Catalog

of Prize-Winning Poultry for 1906. This book is printed in several Beautiful Colors and is larger than ever. Contains a Fine Chromo of lifelike fowls. It illustrates and describes 60 varieties of poultry, ducks, geese, pigeons, etc. It shows best equipped poultry yards and houses—how to build houses; cure for diseases; Best Lice Destroyer how to make hens lay; poultry supplies and all kinds of information indispensable to poultry-keepers. Prices of eggs and stock within reach of all. Send 10 cents for this noted book.

B. H. GREIDER, RHEEMS, PA.

Don't Fool

with your face. You cannot afford to take chances.

Always insist on

WILLIAM'S' SHAVING SOAP

Sold everywhere. Free trial sample for 2-cent stamp. Write for 'The Shavers Guide and How to Dress Correctly.'

The J. B. Williams Co., Glastonbury, Conn.

Let Us Send You Our Book.

about good wheels and good wagons that will save you a lot of work and make you a lot of money—the

ELECTRIC STEEL WHEELS
—and the—
ELECTRIC HANDY WAGON.

By every test, they are the best. More than one and a quarter millions sold. Spokes united to the hub. Can't work loose. A set of our wheels will make your old wagon new. Catalogue free.

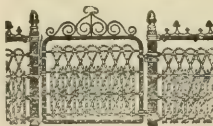
ELECTRIC WHEEL CO., Box 95 Quincy, Ills.

ELECTRIC

TELEPHONE FACTS

We publish a finely illustrated book that is full of telephone facts. It tells all about telephones for farms, the kind to use, how to organize a farm telephone company, how to build the lines and where to buy the best telephones. Free if you ask for Book 36-F.

Stromberg-Carlson Tel. Mfg. Co., Chicago, Rochester, N.Y.



LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address
COILED SPRING FENCE CO., Box 448 Winchester, Ind.

BROWN PAYS THE FREIGHT

HEAVIEST FENCE MADE

All No. 9 Steel Wire. Well Galvanized. Weighs 1/2 more than most fences. 14 to 25¢ per rod delivered. We sell all kinds of fence wire at wholesale prices. Write for fence book showing 110 styles. The Brown Fence and Wire Co., Cleveland, Ohio.

COILED SPRING FENCE

Closely Woven. Can not sag. Every wire and every twist is a brace to all other wires and twists full height of the fence. Horse-high, Bull-strong, Pig-tight. Every rod guaranteed.

30 DAYS FREE TRIAL

and sold direct to farmer, freight prepaid, at lowest factory price. Our Catalogue tells how Wire is made—how it is galvanized—why some is good and some is bad. Its brimful of fence facts. You should have this information. Write for it today. Its Free.

KITSELMAN BROS., Box 21 MUNCIE, INDIANA

SPRAY PUMPS

The Pump That Pumps

MYERS

Glass Valve

PUMPS

Double-acting, Lift, Tank and Spray

PUMPS

Store Ladders, Etc.

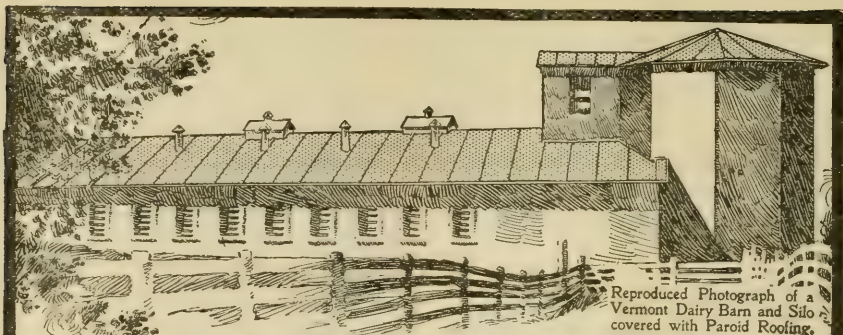
HAY TOOLS

of all kinds. Write for Circulars and Prices.

Myers Stayon Flexible Door Hangers

with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—“Stayon.” Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & BRO. Ashland, Ohio



Reproduced Photograph of a Vermont Dairy Barn and Silo covered with Paroid Roofing.

A PAROID ROOF

The roof that lasts and anybody can lay. - Thousands of the most progressive farmers, dairymen, poultrymen, as well as railroad companies and the U. S. Government are using Paroid for roofing and siding in preference to all others, because they have proved that Paroid is

**The Most Economical
The Most Durable
The Most Satisfactory**

Of All Ready Roofings.

This Is Why: It is made of extra strong felt, with an extra good saturation which makes it proof against sparks, cinders, water, heat, cold, acids and gases. Light slate color; contains no tar; does not run nor crack and does not taint rain water.

Don't be put off with a cheap imitation. Get the economical Paroid—the roof that lasts.

Send for Free Sample and name of nearest dealer. Investigate for yourself. For a 2 cent stamp we'll send new book of complete plans for poultry and farm buildings.

F. W. BIRD & SON, Makers.

(Originators of the free Roofing Kit—fixtures for applying in every roll)

East Walpole, Mass.,

Established 1817.

Chicago, Illinois.

HOW You Get This New TONGUELESS Disc Harrow FREE

It's this way—

An entirely new feature is embodied in the construction of this Harrow.

The Forward Truck, without any Tongue, positively relieves the horses of all Neck Weight and Side Draft, and allows them free, easy movement. They have just an even, steady pull.

Why should a team, that is already haying a hard time to work and travel on rough, uneven ground, be hampered and annoyed by the Threshing of a Tongue, and by the weight of a Harrow Frame?

There is absolutely no reason for it.

To give you a chance to examine this Harrow for yourself, and to prove to you that it is exactly as represented, and that it will produce the results claimed for it, we will send any size you select, on a 30 Days' Approval Test, all Freight Charges Prepaid.

If you find the Harrow to be exactly as represented, and to work as we claim it will, you pay for it: Cash or easy terms as you prefer. If not, send it back at our expense.

See What Mr. Weaver says:

Dexter Mo., Oct. 26, 1905.

American Harrow Co., Detroit, Mich.

Gentlemen: We are pleased to write you that the No. 1418 Tongueless Disc has been received and thoroughly tested, and found not wanting anywhere.

We have at last a long felt want supplied—a Tongueless Disc. We have concluded that the draft of this harrow is one-fourth less; three horses will draw this harrow with as much ease as four horses will any tongue disc made. We have often wondered why a tongueless disc was so long in getting made. We are surely pleased, and trust you will never make anything but Tongueless Discs.—Yours respectfully,
L. F. WEAVER.

This Harrow is built on right principles

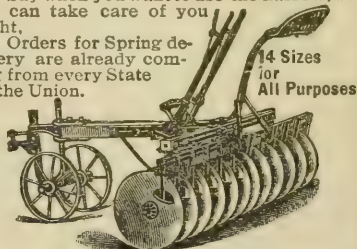
- No Side Draft.
- No Neck Weight
- No crowding of team in short turns
- Just even, steady pull.
- Front Truck carries weight of Frame, and controls movements of Harrow.
- Ball bearings take the end thrust
- Double levers make handling easy.

All our output goes direct to the farmers on the 30 Days' Approval Test Plan, with time to pay if you wish.

The Detroit Tongueless Disc Harrow is protected by exclusive patents and manufactured and sold only by us. Write today for booklet giving full description and prices that will please you.

Say when you want to use the harrow, so we can take care of you right.

Orders for Spring delivery are already coming from every State in the Union.



AMERICAN HARROW COMPANY
4627 Hastings St., Detroit, Mich.

The Best Farm Help.

All farm help is scarce; Good farm help is scarcer. The user of Iron Age Farm and Garden Implements *owns* the best help in the world and has less help to hire.

IRON AGE Implements

No. 6
Iron Age
Combined
Double
and Single
Wheel
Hoe,
Hill
and Drill
Seeder



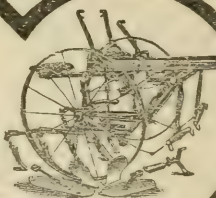
Earn a profit on every day's work in any field or garden. The No. 6 Combined Tool shown will at a *single operation* open the ground, plant and cover

seed in hills or drills with any desirable spacing between seed. A slight adjustment fits the same tool to roll, rake, hoe, plow or cultivate. The

No. 60 Riding Cultivator is another famous labor saver. Our NEW IRON AGE BOOK illustrates Seeders, Wheel Hoes, Cultivators, Horse Hoes, Fertilizer Distributors and a full line of Potato Machinery consisting of Planters, Sprayers, Cultivators and Diggers. Sent **FREE**.

BATEMAN MFG. COMPANY, Box 120 Grenloch, N. J.

No. 60 Iron Age Pivot Wheel Cultivator



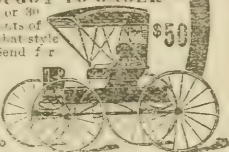
\$50.00 Split Hickory

SPECIAL TOP BUGGY TO ORDER

2-year guarantee. Sold or 30 days free trial. Just points of superiority. Tell us what style vehicle you want. Send for 100% catalogue free.

The Ohio Carriage
Mfg. Co.

Phelps, Pres.
Station 293
Cincinnati, Ohio



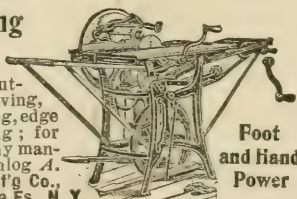
FENCE Strongest Made

See how closely it is woven. Sold direct to the farmer at factory prices, on **30 Days Free Trial**. Your money back if not satisfied. Write today for free Catalogue.

COILED SPRING FENCE COMPANY
Box 101 Winchester, Indiana

Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog A. The Seneca Falls M'g Co., 44 Water St., Seneca Fs., N. Y.



Foot
and Hand
Power



FRUIT BOOKS FREE

Send your name and address at once and you will receive by return mail sample copies of the **BEST FRUIT PAPER** and full particulars about the "Bro. Jonathan Fruit Books," which may be secured free.

FRUIT-GROWER COMPANY
216 SOUTH 7TH STREET, ST. JOSEPH, MO.

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free.

The Southern Fruit Grower, Box 1, Chattanooga, Tenn.



BARNES' HAND AND FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

MACHINES ON TRIAL

Send for illustrated catalogue and prices. Address **W. F. & J. NO. BARNES CO.**
545 Ruby Street,
ROCKFORD, ILLINOIS.

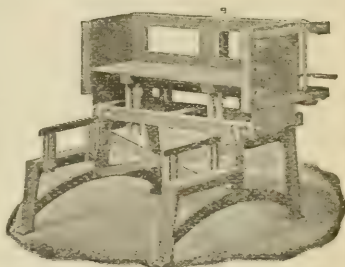


makes from 25 to 35 blocks. Write for descriptive circular and list.

Medina Concrete Company
Medina, Ohio

These Blocks

were made on one of our \$50 concrete building-block machines. Prices range from \$50 upwards. Every machine complete with all parts ready to go to work, and guaranteed to give satisfaction. Two men make from 100 to 150 of these blocks per day. One barrel of Portland cement

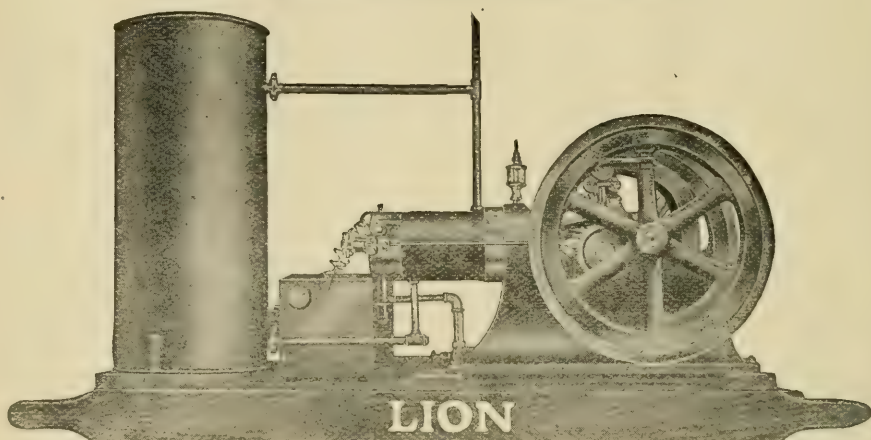


YES! WE ARE SELLING GAS AND GASOLINE ENGINES.

DIRECT FROM FACTORY TO USER.

The secret of our success in this field, hitherto unoccupied, is the extraordinary pains we take in teaching the purchasers of "Lion" engines how to operate them intelligently.

THIS ENGINE IS NO EXPERIMENT.



The "Lion" Gas and Gasoline Engines are simplicity simplified; they are used for all purposes where power is required, and will be found the most economical in operation.

WRITE US A LETTER LIKE THIS TODAY.

LYONS ENGINE COMPANY, Lyons, Mich.

Gentlemen: I am about to purchase a gas or gasoline engine for.....
purposes, and wish you to send me full particulars about your approval offer as advertised in "Gleanings in Bee Culture." Yours very truly,
Name..... Town.....
State..... Street No. or P. O. Box.....
R. F. D.....

When writing, please state definitely for what purpose you wish to use this engine, and whether gas or gasoline for fuel. This information is very important to us.

Send for descriptive catalog and further information in regard to our special "instalment plan" of purchase. If you are thinking of buying a gas or gasoline engine, it will be worth your while to see how cheaply we can sell you a high-grade engine.

LYON ENGINE COMPANY, Lyons, Michigan

PLEASE REMEMBER WE SEND THE ENGINE, NOT THE ENGINE AGENT.

MAGAZINE COMBINATIONS

Subscriptions may be sent to one or different addresses. We make a specialty of quoting prices on your own combinations. We will meet or beat the price of any agency or publisher. **FREE:** Send us any three clubs at advertised prices and we will give you any magazine of Class A free. Catalog Free. Agents wanted.

CLASS I

Agricultural Epitomis (three years).....	50
American Farmer.....	50
Beauty and Health.....	50
Boys and Girls.....	50
Book-keepers' Bulletin.....	50
Cooking Club.....	50
Church Woman's Magazine.....	1 00
Farm News.....	50
Farmers' Institute Bulletin.....	10
Farm and Fireside.....	50
Farm and Home.....	50
Farm Magazine.....	50
Fruit Grower (until Jan. 1).....	50
Green's Fruit Grower.....	50
Housekeeper.....	60
Home Magazine.....	35
Ladies' World.....	50
McCall's and pattern.....	50
Poultry Success.....	50
Western Review.....	50
World's Events.....	1 00
Woman's Work.....	1 00
The Woman's Journal.....	50

CLASS A

American Boy.....	1 00
American Thresherman (after Jan. 1).....	1 00
American Inventor.....	1 00
American Education.....	1 00
American Nut Journal.....	1 00
American Industries.....	1 00
American Dressmaker.....	1 00
At Home (Kentuckian).....	1 00
Cosmopolitan.....	1 00
* Commoner.....	1 00
Church Economist.....	1 00
Dixieland.....	1 00
Farm Journal (five years).....	75
Farm, Field, and Fireside.....	1 00
Four Track News.....	1 00
Fruit Grower (after Jan. 1).....	1 00
Gleanings in Bee Culture.....	1 00
* Good Housekeeping.....	1 00
Harper's Bazar.....	1 00
Kindergarten Review.....	1 00
Magazine of Mysteries.....	1 00
Madame.....	1 00
Merchants' Guide (new).....	2 00
National Daily Review (the woman's daily).....	1 00
Naturopath and Herald of Health.....	1 00
New York Tribune-Farmer.....	1 00
New Thought.....	1 00
Ohio Teacher.....	75
Pearson's.....	1 00
Pictorial Review with pattern.....	1 00
Pilgrim.....	1 00
Physical Culture.....	1 00
Railway Critic.....	1 00
Silver Cross.....	1 00

Success.....	1 00
Talent.....	1 00
Town and Country Journal.....	1 00
* Woman's Home Companion.....	1 00
World To-day.....	1 00
Youth.....	1 00

* Add ten cents to club for this magazine.

CLASS B

Appleton's Booklovers.....	3 00
Current Literature.....	3 00
Outing.....	3 00
Burr McIntosh.....	3 00
Independent.....	2 00
Journal of Education.....	2 50
Lippincott's.....	2 50
Reader Magazine.....	3 00
Review of Reviews.....	3 00

GLEANINGS IN BEE CULTURE—

With any one of Class 1.....	1 25
two " 1.....	1 50
three " 1.....	1 75
one " A.....	1 75
two " A.....	2 00
one of Class 1 and one of Class A.....	1 75
two of Class 1 and one of Class A.....	2 00
one of Class 1 and two of Class A.....	2 25
one of Class A and one of Class B.....	3 00
two of Class B.....	4 00

Gleanings in Bee Culture.....	\$1 60	} Our Price, \$2
Motor Way.....	2 00	
Gleanings in Bee Culture.....	\$1 00	} Our Price, \$2
The Musician.....	1 50	

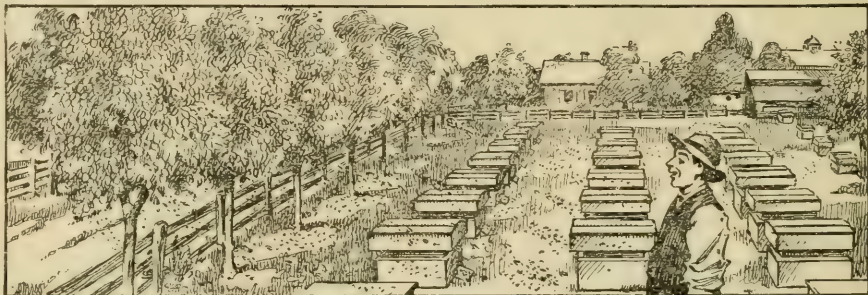
Gleanings in Bee Culture—

With American Inventor.....	1 50
Madame.....	1 50
Tom Watson's.....	1 75
American Magazine.....	1 75
National Daily Review.....	1 50
McCall's and pattern.....	1 25
Lippincott's.....	2 50
Burr McIntosh and one of Class A.....	3 00
Booklovers and two of Class 1.....	3 00
Talent.....	1 50
Keith's on Home Building.....	2 00
Searchlight.....	2 00
Review of Reviews and Cosmopolitan.....	2 50
American Magazine (Leslie's) 14 months, commencing with November, Suburban Life, and Pearson... (Harper's Bazar or World To-day in place of Pearson.).....	2 50
Review of Reviews and Woman's Home Companion.....	2 50
Review of Reviews, Cosmopolitan, and Scribner's.....	5 50

Our References: F. and M. Bank, Bath, New York. Address

COMPENDIUM SUBSCRIPTION AGENCY
138 HOWELL STREET, BATH, NEW YORK

PLANT BASSWOOD TREES FOR HONEY.



Mr. Bee-man: You should plant basswood trees along your line fences, and give your bees the chance to fill your hives easily with the choicest honey. It is conceded by the highest authorities that no other tree or plant bears as much honey as basswood blossoms. By planting these trees along your fences you will utilize the ground heretofore going to waste, make fine shade for your pastures, and receive the cost of the trees many times in the choice honey collected by your bees from them.

Our special offer to readers of this paper is to send at proper time in spring of 1906, with express charges prepaid to any R. R. station in the United States,

100

**Choice
Basswood
Trees**

**6 to 12 in. high,
1 to 2 feet high,
2 to 4 feet high,**

**\$ 3.00
5.00
10.00**

Where cash comes with order we add 10 extra trees free. If preferred the money can be paid to express agent in the spring after the trees arrive at express office in **GOOD CONDITION**. No matter how far you live from us we guarantee

SAFE DELIVERY

These basswood trees will go fast at our special prepaid price, and our advice is that you order at once, as offer may have to be withdrawn later on.

ORDER them direct from this advertisement. If you have no ground to plant on get your neighbors to let you plant them along their fences.

We have been in the nursery business for over a third of a century, and are reliable. Our catalog, with 42 colored plates, and plain descriptions of our **HARDY "BLIZZARD BELT"** fruits, ornamentals, evergreens, etc., is free for the asking. Write to-day.

The Gardner Nursery Company,
Box 748, Osage, Iowa.

BURPEE'S Farm Annual for 1906

"The Leading American Seed Catalogue."

Mailed FREE to all who want the BEST SEEDS that Grow!

This *Thirtieth Anniversary Edition* is a bright book of 168 pages and tells the *plain truth*. With Cover and Colored Plates it shows, *painted from nature*, Seven Superb Specialties in Vegetables of unequalled merit and Six Novelties in Flowers, including LUTHER BURBANK'S *New Floral Wonder*. **WRITE TO-DAY!**—the very day you read this advertisement. Mention this paper and address **W. ATLEE BURPEE & CO., Seed Growers, PHILADELPHIA, PA.**

A MILLION DOLLAR CONTEST TO INCREASE GRAIN GROWERS' PROFITS!

FOR PARTICULARS, SEE OUR CATALOGUE, PAGES 2 AND 3.

Special Premiums also for Vegetable and Flower Seed customers this year. **FREE**
Genuine gifts to our patrons to introduce varieties of rare merit obtainable only of us. Ladies, especially, read page 4 of our big free catalogue.

No matter whether you are a small or large user of seeds, or whether you buy *Field Seeds, Vegetable or Flower Seeds*, get Northrup, King & Co.'s *Free Catalogue* and read all about these wonderful offers. Write for this 1906 Seed Encyclopædia *before you make any plans for buying your 1906 supply of seeds for the farm, garden or lawn.*

Northrup, King & Co's Interesting Seed Catalogue is FREE!

"The Million Dollar Contest to Increase Grain Growers' Profits" is the most colossal undertaking of the kind ever conceived. It puts a fortune in the way of thousands of seed users. It's too great to attempt to describe here. Read about it in our free book.

It will be money in your pocket to see *this Catalogue first!*

It is not only an illustrated Encyclopædia of Seeds, but a veritable gold mine of Liberal Inducements and Big Premium Offers.

Never in the history of the Seed business was a Catalogue published containing, in one volume, so much of interest and value to all classes of seed buyers.

For twenty-two years Northrup, King & Co. have been developing new and improved varieties, and the 1906 Catalogue offers a wide range of exclusive specialties.

Our "Sterling Brand" on a package of seed means an absolute *guarantee* that they must prove of satisfactory purity and germination TO YOU, or they may be returned at our expense, and money will be refunded without "IF OR ANDS."

Every Vegetable and Flower Seed we sell warranted for quality and germination.

"PEEP-'O-DAY", the Sensational Early New Sweet Corn, from ten days to two weeks earlier than any other sort, and the sweetest of all Sweet Corn is meeting with a phenomenal sale. "PEEP-'O-DAY" is wonderfully productive, giving *almost double the yield per acre* of any other variety, and so tender, juicy, sweet and delicious that no other Sweet Corn compares with it. Try it this Season!

Among our numerous other garden specialties is the new Mammoth Poddled Pea—"Teddy Roosevelt." Our catalogue will be found of fascinating interest to anyone wishing to excel every garden in the neighborhood.

Farm and Field Seeds, Grasses, etc. We sell the finest in the World—Sterling Grass and Clover Seeds, Seed Wheat, Seed Oats, Seed Corn, Hog Pasture Mixture, Rape Seed, Alfalfa Seed, etc. Our Sterling Lawn Seed analyzed as to purity and tested as to germination, insures beautiful lawns of lasting green.

Get this catalogue. The most *valuable* of all. A postal or a letter should be sent today addressed *just like this:*

Northrup, King & Co., 261 Northrup-King Bldg., Minneapolis, Minn.



THE KITCHEN GARDEN

JEWELL'S COMPLETE HORTICULTURAL ESTABLISHMENT. Our 5 FREE CATALOGS cover everything that is HARDY in the line of FRUIT TREES AND PLANTS AND GARDEN SEED. The new Jewell Fruit Catalog is the most complete published.—honest descriptions based on 38 years experience in Minnesota. 1906 Free Catalog of Tested Vegetable Seeds now ready. Remember we have a 1200 acre nursery here devoted to fruit and ornamental stock suited to the NORTH. Every tree guaranteed for 2 years.

RELIABLE AGENTS WANTED
THE JEWELL NURSERIES
Box 12 Lake City, Minn.

GOOD SEEDS CHEAP

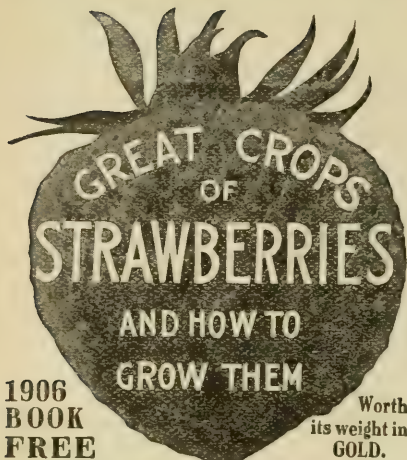
BEST EVER GROWN

A wonderful big catalog **FREE**
Full of engravings of every variety, with prices lower than other dealers. The book is worth a dollar to any one who plants seeds.

Big Lot of Extra Packages Free to Every Customer.

Send yours and neighbors address.
R. H. Shumway, Rockford, Illinois.



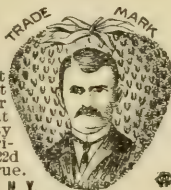


The Book that beats them all because it tells how big crops of big fancy strawberries can be grown every year and how to pick and pack them for big prices. It keeps Experienced Growers posted on new discoveries in plant breeding and latest cultural methods. It takes beginners through a complete course of instruction; tells just when and how to do everything to get **Big Results**, and how to start a Profitable Berry Farm with little capital. Beautifully illustrated with photo-engravings. Don't order your plants until you read this book. It is free.

E. M. KELLOGG CO., BOX 400 THREE RIVERS, MICH

STRAWBERRY PLANTS

The Senator Dunlap is the best grower, best producer, best shipper, best seller. I offer over 1,000,000 of these plants at surprisingly low prices; fifty other varieties. Large variety fruit plants, roses, etc. 2nd year. Send for free catalogue. L. J. FARMER, BOX 608 PULASKI, N. Y.



OUR PLANTS, ROSES,



Seeds, Shrubs, FRUIT AND ORNAMENTAL TREES have been the standard of excellence for over half a century. You take no chances in buying of us as no fairer prices are quoted on high quality goods. The best are always most satisfactory in results. We mail postpaid Seeds, Roses, Plants, Bulbs, Vines, Etc., and guarantee safe arrival and satisfaction, larger by express or freight. You will be interested in our extraordinary cheap offers of over half a hundred choice collections of Seeds, Plants, Roses, Etc. Your address on a postal will bring you our elegant 128-page Catalogue FREE. Send us today and see what values we give for a little money. 62 years. 44 greenhouses, 1300 acres.

THE STORRS & HARRISON CO.,
Box 187, PAINESVILLE, OHIO.

A beautiful colored plate of our
New Eaton

Red Raspberry

and our strawberry catalog of valuable information about varieties with instructions for beginners. Free to all.

THE FLANSBURCH & POTTER CO.,
Leslie, Michigan.





50 BULBS

25 Cents.

Will grow in the house or out of doors. Hyacinths, Tulips, Gladiolus, Crocus, Fuchsias, Oxalis, Tuberoses, Begonia, Jonquils, Daffodils, Chinese Lily, Dewey Lily, Gloxinia, Lilies of the Valley—all postpaid, 25c. in stamps or coin. As a premium with these Bulbs we will send FREE a big collection of flower seeds—over 200 kinds.



HILLSIDE NURSERY, SOMERVILLE, MASS.

Trees, Plants & Seeds

THAT GROW
Best quality. Good bearers. Low prices. Apple 4c; Plum and Cherry 12c; Peach 4c; all budded; Concord Grapes 2c; Forest Tree Seed 10c; 1000 up.

Tested seeds very cheap. Freight paid on trees. Catalogue, English or German, free. Write for it today. Address **GERMAN NURSERIES, Beatrice, Neb.**

Carl Sonderegger, Prop.
Box 33



SCARFF'S NEW BOOK

New from cover to cover, this handsome catalog overflows with valuable information for fruit-growers. Every grower should send for it before buying. It tells all about our immense stock of **VALUABLE SMALL FRUITS**—fruit and ornamental trees, farm and garden seeds; and general nursery stock. It is free. Get it—write today. There's no profit in waiting.

W. N. Scarff, New Carlisle, Ohio.



HARDY EVERGREENS

grow them by the million. To prove they are healthy and vigorous we offer 12 Spruces and Pines 2 years old FREE to property owners. Mailing expense 5c, which send or not. A postal will bring them. Catalog with 45 colored plates of Hardy Fruits etc., free. Write today. The Gardner Nursery Company, Box 748, Osage, Ia.

Strawberry Plants

Virginia and Chesapeake, winners of \$100 GOLD PRIZE offers; also Cardinal, Commonwealth, North Shore, Oaks Early, New York, Glen Mary, Stevens Champion, and 90 others; best list, good stock, fair prices. Dewberries: Lucetta and Austins.

Seeds Full line best new and standard old varieties GARDEN, FIELD and FLOWER SEEDS. **Now 60 Page Catalogue Free.** It tells about good plants and seeds and where to get them. Send now to **W. F. ALLEN, Dept. 20, SALISBURY, MD.**

850,000 GRAPE VINES

100 Varieties. Also Small Fruits, Trees, &c. Best root-stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. **LEWIS ROESCH, FREDONIA, N.Y.**

FRUITFUL TREES MILLIONS OF FRUIT AND FOREST TREES

Small Fruits and Evergreens. Russian Mulberry and Black Locust, \$1.00 per 1000. Carefully dug and packed. Freight prepaid on \$10.00 orders. Catalogue free. Fine trees guaranteed. **Gage County Nurseries, Box 647, Beatrice, Neb.**

"The Whole Thing in a Nut Shell."



200 Eggs a Year Per Hen

HOW TO GET THEM

The fifth edition of the book, "200 Eggs a Year Per Hen," is now ready. Revised, enlarged, and in part rewritten, 96 pages. Contains among other things the method of feeding by which Mr. S. D. Fox, of Wolfboro, N. H., won the prize of \$100 in gold, offered by the manufacturers of a well-known condition-powder for the best egg-record during the winter months. Simple as a, b, c—and yet we guarantee it to start hens to laying earlier and to induce them to lay more eggs than any other method under the sun. The book also contains recipe for egg-food and tonic used by Mr. Fox, which brought him in one winter day 88 eggs from 72 hens; and for five days in succession from the same flock, 64 eggs a day. Mr. E. F. Chamberlain, of Wolfboro, N. H., says: "By following the methods outlined in your book, I obtained 1,496 eggs from 91 R. I. Reds in the month of January, 1902." From 14 pullets, picked at random out of a farmer's flock, the author got 2,390 eggs in one year—an average of over 214 eggs apiece. It has been my ambition in writing "200 Eggs a Year Per Hen" to make it the standard book on egg production and profits in poultry. Tells all there is to know, and tells it in a plain, common-sense way.

Price 50c; or with a year's subscription to the American Poultry Advocate, 60c; or given as a premium for four yearly subscriptions at 25c each.

Our Paper is handsomely illustrated, 44 to 80 pages, 25c per year. Four months' trial, 10c. Sample Free. CATALOG of poultry books free.

AMERICAN POULTRY ADVOCATE,

71 Hogan Block,

Syracuse, N. Y.

PROFITABLE POULTRY



Berry's Golden Rule Poultry Farm, Box 53, Clarinda, Ia.

A free 64-page book, finely illustrated, that tells how to make money raising poultry. Others are doing it; why not you? This book gives full information on breeding, feeding, rearing and hatching. Illustrates and tells why Berry's "Biddy" incubators and brooders hatch and raise the largest per cent of chicks—the kind to buy. Contains cuts of our fine pure-bred poultry with prices of birds and eggs for hatching.



FREE! FREE!

Send for a copy of the INLAND POULTRY JOURNAL, and receive a fine color picture free. Cost us \$400 costs you nothing. Our paper has the admiration of every poultry man. Have you seen it? Well do not miss it. Address
Inland Poultry Journal Co.,
50 Cord Bldg., Indianapolis, Ind.

You Need It.

If you have only a few chickens;
If you are at all interested in poultry;
If you are breeding for fancy points;
If you cater to the market trade;
If you are in the business on large scale, you need

Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. a year, but we offer it **AT HALF PRICE** for a short time to introduce it to readers of Gleanings. Send only 25 cts. and get it a year; or, if you send \$1 for a year's subscription to Gleanings in Bee Culture, we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.

DO YOU RAISE CHICKENS?

If so, you will find The Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cts. a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

100 SPECIAL PRIZES

Besides our regular premiums of Post Cards, Books, Eggs for Hatching, Cash Commissions, etc., for getting subscribers. Write at once for sample copy, blanks, etc. Also souvenir bee post cards. . . .

Poultry Item : : Fricks, Pa.

POULTRY PAYS

If you get the right start, the right eggs or fowls and the right materials to work with. Our complete poultry guide pictures and describes all breeds, gives incubating, brooding and feeding directions. It lists
Thoroughbred Fowls and Eggs, incubators, brooders, poultry ration and everything needed for profit. **All at lowest prices** and all guaranteed satisfactory or your money back. **Send for Free Book** for 10 cents postage.
American Incubator Co., Box 115, Freeport, Ill.



The Big Two of the Poultry Press

go every week to thousands of exclusive readers who buy liberally in the desire to beautify their Rural Homes. . . .

The Feather

The most conservative and instructive of all monthly journals devoted exclusively to the advancement of poultry culture in all its branches.

The American Fancier

The great weekly journal devoted to the interest of the business in all its branches, goes continually on Saturday to those most interested in standard-bred poultry.

THE ADVERTISER looking for profitable returns can not afford to neglect the advantages to be gained from the use of the advertising pages of *These Two Journals*.

Begin Now, the Harvest is at Hand

For special rates send to publishers of this journal or to the home office of the two publications.

The Howard Publishing Co.

714 12th St. N. W., Washington, D. C.

Advanced Bee Culture

is now out. It contains over 200 pages, is beautifully bound and printed, and profusely illustrated. Nearly all of the engravings are from photographs made by myself. As most of you know, photography has been my hobby for a dozen years. I have studied it as you study bee-keeping; and this book contains between 50 and 60 of what might be termed the gems of my collection.

I try to say it with becoming modesty, but, in my estimation, this book is the masterpiece of my life. It is the result, the ripened fruit, so to speak, of 30 years of actual work in the apiary, of extensive travel among bee keepers, of attending many conventions, of reading all of the bee books and journals, and of editing the Review for 18 years. If this book could have been put into my hands 25 years ago, and I had followed its teachings, I might now have been the owner of several apiaries, been free from debt, and had a few thousands of dollars in the bank; but, of course, much that it contains was not known 25 years ago.

By the way, I am starting in *now* to carry out its

P. S.—Just at present, each new subscriber for 1906 receives the back numbers of the Review for 1905, free of charge. Two or three of the issues are getting pretty low; but whatever numbers of 1905 may be left, when a subscription is received, will be sent out.

teachings, to put them into actual practice, by starting in to establish a series of out-apiaries in the raspberry region of Northern Michigan; and the vim and courage and delight with which I am taking up this work is a surprise even to myself. I shall puff the smoker, wield the honey-knife, and whirl the extractor *with my own hand*. I shall feel one degree closer to my readers, in that I shall be a honey-producer with the rest of them.

No, the Review won't be neglected. There isn't space to mention all of the schemes that I have thought out to keep it up to the top notch while I am enjoying this work; besides, I shall be able to bring to my editorial work a freshness and reality that can come only from actual work in the apiary.—*Extract from an editorial in the Jan. Review.*

The price of Advanced Bee Culture, postpaid, is \$1.20; or I will send the Review for 1906 and the book for only \$2.00.

W. Z. Hutchinson, Flint, Mich.

Opening a Savings Account by Mail

with this bank insures not only absolute safety, but is an incentive to practice economy and put away small sums whenever convenient. We solicit accounts of

One Dollar and upwards on which we pay 4 Per Cent Interest

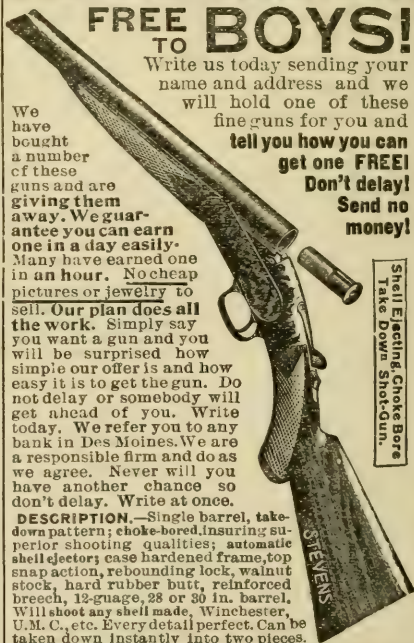
compounded on January and July 1st of each year. Send for particulars telling how you may send money safely and conveniently by mail.

**The SAVINGS
DEPOSIT BANK COMPANY
Medina, Ohio.**

ASSETS OVER HALF MILLION DOLLARS:

A. T. SPITZER, Pres.
A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier

STEVENS TAKE DOWN SHOTGUN FREE TO BOYS!



We have bought a number of these guns and are giving them away. We guarantee you can earn one in a day easily. Many have earned one in an hour. No cheap pictures or jewelry to sell. Our plan does all the work. Simply say you want a gun and you will be surprised how simple our offer is and how easy it is to get the gun. Do not delay or somebody will get ahead of you. Write today. We refer you to any bank in Des Moines. We are a responsible firm and do as we agree. Never will you have another chance so don't delay. Write at once.

DESCRIPTION.—Single barrel, take-down pattern; choke-bored, insuring superior shooting qualities; automatic shell ejector; case hardened frame, top snap action, rebounding lock, walnut stock, hard rubber butt, reinforced breech, 12-gauge, 28 or 30 in. barrel. Will shoot any shell made, Winchester, U.M.C., etc. Every detail perfect. Can be taken down instantly into two pieces.

Write for book telling what dozens of Weight 6½ lbs men and boys say of this gun. Write today.

Successful Farming, 91 TENTH STREET, DES MOINES, IOWA

Shell Ejecting Choke Bore
Take Down Shotgun.

COOK BOOK FREE!

one copy of the **American Family Cook Book.** Good stories. Stamps taken. **Agents Wanted.**

To each lady who will send 25 cents for one year's trial subscription to **THE HOME INSTRUCTOR, Quincy, Illinois**, we will send free, postpaid, The Home Instructor is a Woman's Magazine from Dress Patterns at 5 cents each.



Michigan Distributors

—FOR—

G. B. Lewis Co.'s Beeware, Dadant's Foundation.

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service. Regular discounts allowed.

SPECIAL. A quantity of Dovetail and Wisconsin hives, slightly damaged by water, in packages of five at \$1.25 per hive for 1½ story 8 frame; 10 frame, \$1.40 per hive. Satisfaction guaranteed.

ADVANCED BEE-VEIL. Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

A. G. Woodman Co.,
Grand Rapids, Mich.

Extracts from Recent Letters from Our Subscribers.

The holiday number is rich.
Pierce, Neb. GEO. E. TAYLOR.

Xmas GLEANINGS is a peach, it is just chock full of good things, every bee-keeper in the world should have a copy.
W. E. TRIBBETT,
Spottswood, Va.

There is only one fault to be found with GLEANINGS: it comes only twice a month instead of twice a week.

W. H. MESSENGER.
Port Richmond, N. Y.

GLEANINGS is much appreciated at our home, and we desire to congratulate you on the interesting make-up of this indispensable journal.

FRANK G. ODELL.
Lincoln, Neb.

Please mail at once about 6 or 8 copies of GLEANINGS of Dec. 1st. I wish some of our prominent educators to see that article, page 1252. We are all very much pleased with it.
W. E. TRIBBETT.
Spottswood, Va.

I write to congratulate you on the beautiful copy of GLEANINGS which has just arrived. It is the best and most beautiful copy that has come into our office so far this year. Many thanks for your magazine, which we always enjoy looking over.

ANNIE W. CLARK,
Pres. Ohio W. C. T. U.
Columbus, O.

Your Christmas number of GLEANINGS has just come to hand, and I must say it is a beauty. My wife is especially delighted with the sprig of clover on the front cover. It certainly is a work of art. I have merely had time to glance through it, but am especially pleased with the half-tone reproductions. I judge from the opening lines in Our Homes that your father has not yet gone to Florida. It brought a smile to my face when I noticed how, like Tom Lawson, he is crowded over into the advertising pages for a finish.

WALTER B. HOUSE.
Oberlin, Ohio.

Your Xmas cover is very pretty.
GEO. N. WANSER.
Cranford, N. J.

Please send me two additional copies Christmas GLEANINGS. They will make nice presents for distant friends.
F. H. DRAKE.
East Brookfield, Mass.

Your Christmas number of GLEANINGS is a beauty, both inside and out.

H. A. SURFACE.
Pres. Pa. State Bee-Keepers' Ass'n.
Harrisburg, Pa.

I am one of your old subscribers (since '88 I think) and beg to say that I highly appreciate your beautiful and valuable Xmas number.
Winchester, Va. JNO. S. COE.

Being a subscriber myself of your valuable paper GLEANINGS, and after having read the last copy I decided to show it to some of my friends. They at once showed themselves to be very enthusiastic about it, and directed me to subscribe for them—three in all. N. PETERSON.
Minneapolis, Minn.

Permit us to congratulate you on the selection of the Christmas cover. If you will furnish us a half-tone of it thirteen ems wide, we shall be pleased to use it in the January number of White's Class Advertising. We are going to say something about it.

WHITE'S CLASS ADVERTISING.
Chicago.

Allow me to congratulate you upon the excellence of the Christmas number of GLEANINGS. It was the most interesting, valuable, and far away the handsomest issue of any bee-journal ever given to the public. I wish you a happy and prosperous new year. May God's best blessings be your portion. You have always treated us all so well that in the hours of the new year you come to our minds, and we have for The A. I. Root Co. nothing but love and the hope that all may be well with its men and women during the year.

THOS. F. RIGG.
Iowa Falls, Iowa.

The beautiful Christmas number just received. It is fine.
Union, N. Y. F. J. NICOLA.

I congratulate you upon your success with the Christmas number of GLEANINGS.
G. W. BENTLEY.
University of Tenn., Knoxville.

I have a queen that came from your place. She started in May with one frame of bees, and she put me up three supers of sections besides her stores for winter. She went into winter quarters with a solid hive of bees. Now don't forget and count me out on that Christmas number.

S. V. LABREE.
Nantasket, Mass.

The Christmas number I consider worth the subscription price—not on account of any one article, but the fine halftones and general make-up, and the natural and life like front cover.

Don't encourage the importation of the stingless bee. We have English sparrows enough here now.
ELIAS FOX.

Hillsboro, Wis.

I am very much interested in GLEANINGS and would not like to do without it. We have a few swarms of bees, and since I have been reading GLEANINGS I can see where we can do very much better with them than has ever been done before. I can see that they have been shamefully abused both winter and summer, which will not happen again.

Concord, Mass. C. A. THOMAS.

"Gleanings in Bee Culture" comes to us in a Christmas number in an exceedingly artistic and handsome colored cover and with rich contents that justifies its very handsome enclosure. It is a very practical publication on the subject of the bee and bee culture, and is regarded as a standard authority on its subjects. The present number, like every issue, is most creditable.

JOURNAL OF AGRICULTURE.
St Louis, Mo.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.



BEE-KEEPERS' SUPPLIES.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I.

Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

If in Need of Finest Grade Honey

to supply your local demand write for my

Monthly Quotations of Indianapolis Honey Market

If you care to secure your bee-supplies now for next season's use I will offer the following very liberal discounts. As an investment every thoughtful bee-keeper should be interested. Goods all "Root Quality."

For Cash Orders Before

January 1..... 7 per cent
February 1..... 6 per cent

March 1 4 per cent
April 1 2 per cent

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave.,

INDIANAPOLIS, IND.

PAGE & LYON

NEW LONDON, WISCONSIN

❁ Manufacturers of and Dealers in ❁

BEE-KEEPERS' SUPPLIES

Six per cent Discount during January on all Orders Accompanied by Cash

**Send for Our FREE
New Illustrated Catalog and Price List**

Dittmer's Foundation

THE BEST MADE. RETAIL - WHOLESALE - JOBBING.

Owes its REPUTATION entirely to its MERITS, and our PERSISTENT EFFORTS to MAKE the BEST and KEEP it the BEST. It is *tough, clear, and perfectly transparent*; has the *natural sweet odor of pure wax*, and the *color of the brightest and lightest lemon and orange*. We make a *specialty of working wax into foundation for cash by the tens, hundreds, and thousands of pounds*, and we are in the best shape to attend to all orders promptly, our capacity being 1500 lbs. daily. *Full and complete line of supplies, and the best only*. Do not fail to write for *samples of our foundation, descriptive catalog, prices, and discounts*, stating quantity of foundation wanted, wax to be worked, and list of other supplies, and prices will be accordingly. Beeswax always wanted.

E. GRAINGER & CO., Toronto, Ontario, agents for Canada; THE BEE AND HONEY CO., Beeville, Texas, agent for Texas; E. H. TAYLOR, Welwyn, Herts, England, agent for Great Britain; W. D. SOPER, Jackson, Michigan, agent for Michigan.

CUS DITTMER,

--

AUGUSTA, WIS.



H. M. ARND, MANAGER

YORK HONEY AND BEE CO.

Not
Inc.

141 ONTARIO STREET : CHICAGO, ILLINOIS

CARRY A FULL LINE OF

Lewis Bee-supplies and Cornell Incubators and Brooders

and poultry-supplies at factory prices. Write for the 1906 catalog of either or both. Honey for sale. Beeswax wanted; 27 cts. cash, or 29 cts. when taking bee-supplies in exchange. Six per cent discount on bee-supplies for January.

We sell
Root's
Goods
in
Michigan.



They
are
the
Standard.



Beeswax
Wanted.

1906

We wish our Customers
and Friends a Happy
New Year



M. H. HUNT & SON
BELL BRANCH, MICH.

Send
for
Our
1906
Catalog.
It is
Yours
for the
Asking.



We
Sell
the
Danzenbaker
Hive —
The
Comb-
Honey
Hive.

MAKE BEES PAY

By Investing in Hives and
Supers that will get Results

Root Dovetailed hives and arrange-
ments are the best that are on the
market to-day. If interested, send for
1906 catalog.

The A. I. Root Co., Syracuse, N. Y.

CO-OPERATION

Means—you work for me and I
work for you for Mutual Benefit

A well known manufacturer wishes
to cash \$2000 worth of goods during

JANUARY.

He has made me the lowest prices I
have been able to secure in years, viz.:

The 8-frame Dovetailed hive, 1½-story, at \$1
each, any frame, any cover, etc.; 10-
frame, \$1.10.

No. 1 white basswood standard-size sections,
at \$3.25 per 1000; No. 2, \$2.75 per 1000.

I will take you, Mr. Bee-keeper, into partner-
ship. There are three conditions, viz.: 1st—
Cash to reach me not later than Jan. 30, 1906.
2d—You subscribe for Rural Bee-keeper one
year, \$1.00. 3d—You pay me a commission
for my services, viz., 10 per cent on all orders
for \$50 or less; 8 per cent on \$50 to \$100; 7
per cent on \$100 to \$200; 6 per cent on \$200 to
\$300; 5 per cent on \$300 to \$500; 3 per cent on
\$500 to \$1000; 2½ per cent on all orders over
\$1000.

No catalog. Prompt shipment. Money re-
funded in case all are sold. No risk.

W. H. Putnam, River Falls, Wis.

FOR 14 YEARS
I. J. STRINGHAM
OF 105 PARK PLACE
NEW YORK

has been furnishing bees and apianian supplies of
every desired kind to bee-keepers of the East. A
very liberal discount is now allowed early orders.
Apiaries, Glen Cove, L. I. - - Catalog free.

BEE - SUPPLIES

Distributing-house for Lewis' Goods.
Dadant's Comb Foundation, etc., at
Factory Prices.

Everything thing the bee-keepers need. No order too large
for us, nor none too small. Cash orders before February,
6 per cent discount.

FINE EXTRACTED HONEY ✕ ✕ ✕

The best the world can produce. Sample sent, 8 cents.
How much can you use? We always buy beeswax.
Catalog and "Special" free.

C. M. SCOTT & CO.
1004 E. Washington St.
Indianapolis : Indiana

A. H. REEVES
DISTRIBUTOR OF ROOL'S GOODS FOR
NORTHERN NEW YORK
Perch River, Jefferson Co., N. Y.

BIG DISCOUNT till April 1 ON ALL SUPPLIES

Dovetailed hives, eight-frame, 1½-story, \$1.30; 10-
frame, \$1.45. No. 1 sections, \$3.75; No. 2, \$3.25.
Foundation, smokers, etc., reduced. Berry boxes,
crates, boxes, etc., kept in stock. Honey wanted.
Twenty-four page list free.

W. D. Soper, Rt. 3, Jackson, Mich.

Bee-keepers, Co-operate!

We are Bee-keepers--Organized in
the Interest of Fellow Bee-keepers
(No Matter where They Live)

Membership dues, \$1.00 per year.

Present membership—about 200 bee-keepers.

Our 1906 price list of bee-supplies, and a leaflet
containing valuable information, are now ready to mail.

If you wish to assist in co-operation among bee-
keepers write us now and send the names and address-
es of all your neighbor bee-keepers.

The St. Croix Valley Honey-producers' Association

Headquarters Until June 1, 1906

Glenwood, Wisconsin

Something New in Honey-jars...

Cook's Square Jar combines a new fea-
ture that improves the package and
reduces the cost, and is the best and
cheapest 1-pound glass package made.
Send for circular and full catalog of
hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and
only Reliable goods sold. 10 cents brings
sample jar by mail.

Smokers at Wholesale

for a short time only. Hives, sections, foundation,
and all bee-supplies at bottom prices; circular free.
Arthur Rattray, Almont, Mich.

NOTICE!

The firm of Cooley & Deuel has dissolved partnership.
D. Cooley will continue to sell bee-supplies. All orders
will receive prompt attention. Address all orders to
D. Cooley, - - Kendall, Mich.

WE WANT NAMES. Send us the names and
postoffice ad-
dresses of fifteen good farmers and fifteen cents—
stamps taken—and we will send you the Farmers' Call
for two years. The Farmers' Call is 25 years old, week-
ly, more than 1200 pages a year. Sample copy free.
Address **FARMER'S CALL, Quincy, Ill.**

Bee-supplies



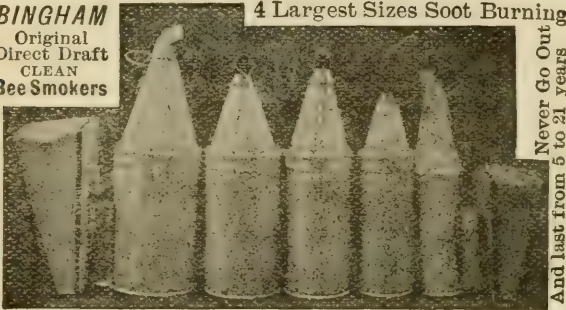
We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

Kretchmer Mfg. Co., Council Bluffs, Iowa

BINGHAM
Original
Direct Draft
CLEAN
Bee Smokers

Pat. 1878, '82, '92 & 1908



4 Largest Sizes Soot Burning

Never Go Out
And last from 5 to 21 years

BINGHAM was the FIRST.

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.

Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. **L. L. LANGSTROTH.**

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder
Prices—\$1.50; \$1.10; \$1.00; 90c; 65c by mail on receipt of price.

T. F. BINGHAM, FARWELL, MICH.

ONLY BINGHAM SMOKERS
Have These Latest Improvements.

WISCONSIN BASSWOOD FOR SECTIONS

We make them and the very best of **Dovetailed Hives**, **Shipping-cases**, and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'FG CO.
MARSHFIELD, WISCONSIN.

A Prosperous

Season is yours....

if you take time by the forelock, and be prepared for the season when it comes. **DON'T** put off ordering your supplies until you need them. Order now, and get the discounts.

I have a full line of Root's Goods, and sell them at factory prices and discounts. Send me a bill of what you want and let me tell you what I will deliver them at your depot for. Send for my 36-page catalog—it will be sent free—also a full description of the Hilton Chaff Hive and Supers, with a comparison made by the Michigan State Agricultural College between the single and double walled hives. All free for the asking. Cash or goods in exchange for wax.

Geo. E. Hilton, Fremont, Mich.

ABOUT DISCOUNTS

EVERY bee-keeper in the United States should fully understand the advantages of the early - order discount offered by all the dealers in Root's Goods.

There are three ways they affect you personally.

First.—You save money on every dollar's worth of goods you purchase before the rush season. Just for convenience in figuring we will assume that you will need \$100.00 worth of supplies.

The discount for January is 6 per cent. If you put off ordering until April 1st you obtain no discount. Thus, for being three months forehand you save \$6.00; and \$100.00 drawing 4 per cent interest for this time would earn only \$1.00. But you earn six times as much.—24 per cent. Worth while now, isn't it?

Second.—You have losses in more ways than mere money. During the next few months you will have times when you have ample opportunity to nail your hives and fit your supers—time enough to do a first-class job of it. After April 1st every thing is hurry, hurry. Wasn't that the case last year? Now imagine your hives all stacked up ready for new swarms, and supers ready to go on at a moment's notice. All ready! That's what makes a successful bee-keeper. Twenty-four hours' waiting would mean a great difference in the crop. Worth a little thought just now—no?

Third.—You save annoyances all around. If you wait until April 1st, every chance is

that you will fail to receive your goods promptly. The agent will be out of goods or the factory behind with orders, or the railroads will be unearthly slow in delivering the goods; bees swarming; honey rolling in; no supplies. Ever been in such a pinch? Just think, too, how much trouble you will save other people. Why not try the safer plan this season?

You have nothing to lose. Almost any one can figure very close his needs only 3 months in advance. A few extra supplies will keep without deterioration till next season. Better sure than sorry.

But how can the manufacturer and agent afford to give such liberal discounts? It's very plain. Under ordinary circumstances 75 per cent of their business comes within four months of the year. That is 25 per cent in 8 months. Those eight months are a worry. Then they need money, work for their employees, room for the stock which they must carry. That's why they need your orders then, and are glad to pay for them—just what the discount is.

The discounts are as follows:

January, 6 per cent; February, 4 per cent; March, 2 per cent; after April 1, no discount. These discounts apply to all goods listed in general catalog intended for next season's use.

Let's co-operate!

6 per cent

The A. I. Root Co. Home Office Medina, Ohio, U.S.A.

10 Vine St., Philadelphia, Pa.

Branch Offices in United States

44 Vesey St., New York City

1100 Maryland Ave., S. W., Washington, D. C.

1024 Mississippi St., St. Paul, Minn.

144 E. Erie St., Chicago

1635 Genesee St., Syracuse, N. Y.

Mechanic Falls, Maine

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Given foundation-press.
F. W. LESSER, Sta. A, Syracuse, N. Y.

WANTED.—A pony planer for hive-making.
CHAUNCEY YATES, Randall, Montg. Co., N. Y.

WANTED.—To pay cash for comb and extracted honey.
L. H. ROBEY, Worthington, West Va.

WANTED.—To exchange stock of groceries for bees or small homestead.
A. E. SHAW, Boscobel, Wis.

WANTED.—To exchange ginseng seed for any thing I can use. Make offers.
FRANK ERKEL, Le Sueur, Minn.

WANTED.—To correspond with parties having bees to sell in carload lots for May delivery. Quote prices and give particulars.
H. & W. J. MANLEY, Sandusky, Mich.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—Honey, wax, slumgum, or supplies, in exchange for standard-bred White Wyandottes.
H. E. CROWTHER, No. Kingsville, Ohio.

WANTED.—Raw furs of all kinds. The highest cash prices paid. Prices on application. Goods held separate if you wish.
O. H. MORLEY, Hector, N. Y.

WANTED.—Old books on bee culture, especially from foreign countries. Please state titles, authors, year of publication, edition, binding, condition, number of pages, and price wanted.
A. L. BOYDEN, Medina, Ohio.

WANTED.—Any bee-books, except Quinby's and Miner's, published in U. S. A. before 1857. Advise titles offered, dates, condition, etc. Card to
COL. WALKER, Leeford, Budleigh-Salterton, Eng.

WANTED.—Old combs or slumgum from solar extractors. Will pay for the amount of wax secured less the cost of time in rendering. None can be used after Feb. 15.
THE A. I. ROOT CO., Medina, Ohio.

WANTED.—Partner in bees, poultry, and small fruits. Exceptional opportunity with small investment for right man; or will sell.
J. E. THOMPSON, Carpentersville, Ill.

WANTED.—To exchange, fish gig, net, torch, Jack Frost ice-cream freezer, bicycle, gun, violin, and Indian relics, for eight-frame L. hives and P supers, or Hoffman frames with drawn comb.
W. O. HERSHEY, Landisville, Pa.

Help Wanted.

WANTED.—Competent bee-keeper. Single man; one that can do farm work also. Employment the year round. State age, and wages desired.
W. P. SMITH, Penn, Lowndes Co., Miss.

WANTED.—Experienced bee-keeper (married man preferred), one accustomed to large apiaries. We will keep satisfactory employee by the year. Address with age, experience, wages asked, and references.
DR. GEO. D. MITCHELL & Co., Ogden, Utah.

WANTED.—Young man to look after bees and garden by the month or year. A good permanent position to right party. Please give salary required, and references.
E. B. ROOT, Bradentown, Florida.

WANTED.—One man March 1st, two June 1st, to work with bees, season 1906. Applicants please state age, experience, and wages wanted.
W. HICKOX, Berthoud, Colorado.

WANTED.—To engage with some one (Texas preferred) who has bees or capital to invest in bees in a partnership. I have experience in Texas and Cuba, both in honey-production, increase, and queen-rearing. References furnished.
C. E. M., care of GLEANINGS, Medina, Ohio.

WANTED.—A competent, active, up-to-date bee-keeper—single man, one familiar with artificial increase, queen-rearing, etc. Must be able to accomplish results, both in shop and apiary, or one anxious to learn. State age, experience, wages, etc.
HENRY STEWART, Prophetstown, Ill.

WANTED.—Last year my students helped to secure a harvest of 60,000 lbs. of honey from 296 colonies, spring count. I can take one or two young men, able-bodied, using neither tobacco nor liquor and of good habits (none other need apply). They must be willing to work right along. I will give board and washing; and if student does well and I do well, will give something more.
R. F. HOLTERMANN, Brantford, Ont., Can.

For Sale.

FOR SALE.—Fifty stands of bees; have not time to attend to them.
A. WATKINSON, Corning, Cal.

FOR SALE.—150 colonies of bees, 30 in Danz. and balance in Root eight-frame Dovetailed hives, at \$3.50 per colony complete in excellent condition for winter; heavy stores; a great bargain for the price. If interested, write for further particulars.
W. M. BAILEY & Co., Spartanburg, S. C.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season.
W. N. CANNON, Greenville, Ala.

FOR SALE.—Root's bee-supplies at factory prices; full colonies Italian bees; queens in season (catalog free); Plymouth Rock chickens and eggs; incubators, brooders, poultry food, etc.
H. S. DUBY, St. Anne, Ill.

FOR SALE.—Different kinds of cow peas, stock peas, etc. Write for prices. Buy now before they advance.
E. R. MILLER, Hearing, Norfolk Co., Va.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to
FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Eight acres on foothills, 'twixt orange and sage; 105 stands bees, three stories; good bee-house, etc.
J. C. HALL CO., 29 Nordina, Redlands, Calif.

FOR SALE.—4500 Root's No. 1 polished sections, 4¼x 4¼x1½, slotted, for \$18.00.
R. S. CHAPIN,
598 Junction Ave., Detroit, Mich.

FOR SALE.—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog.
F. R. DANIELS,
117 Florence St., Springfield, Mass.

FOR SALE.—My home, apiaries, and best equipment in the State. Will lease bees with complete working outfit, even to living-rooms for apiarist. Four hundred to eight hundred colonies. I furnish supplies.
R. C. AIKEN, Loveland, Colorado.

FOR SALE.—Three untested Italian queens for \$1.00 after July 1, if ordered new; warranted pure mated, 10 cts. extra. Satisfaction, or money back. Only 300 at this rate. All you want as long as they last. Orders filled in rotation. Particulars free.
S. F. TREGO, Swedona, Ill.

FOR SALE.—Five acres, well improved, half in fruit, and bearing; 70 colonies of bees; good alfalfa location; a healthy location for asthma or lung trouble. If you mean business write WM. WORDEN, Manzanola, Colo.

FOR SALE.—Or will exchange for eight-frame hives and bee-supplies, fine mounted game heads, birds, mammals, fur rugs, etc. ERNEST L. BROWN, The Minnesota Taxidermist, Warren, Minn.

FOR SALE. 100 colonies bees, all in good shape to be delivered in March or April; also beeswax, etc.; honey in 60-lb. cans (linn and white clover).

J. B. MURRAY, Ada, Ohio.

FOR SALE.—Western bee-keepers, if you use foundation or have any beeswax you wish made into foundation, write to the Delta Apiaries, Delta, Colo., for free samples and prices; 25 years' experience; big discount from ruling prices, and on this winter's orders.

FOR SALE.—To highest bidder, about 70 hives of bees in Danzenbaker and Langstroth hives. Must sell at once as other duties require all my attention.

R. E. PITTMANN, Grifton, N. C.

FOR SALE.—Weed-process foundation business; a rare chance to buy a foundation business with good growing established trade; price \$800.

H. F. HAGEN, Denver, Colo.,

Or The A. I. Root Company, Medina, Ohio.

FOR SALE.—Leaming corn, White Wyandottes, Barred Rocks, Queens. Circular.

J. F. MICHAEL, Winchester, Ind.

Special Notices.

INCREASE.

Third edition. This is the first of a series of papers on apiculture by Swarthmore, and has proved to be his most popular book. It tells of a safe method of forming new colonies without breaking up working stock. Colonies formed on this plan will work like new swarms and store surplus. This third edit on is printed on tinted paper in two colors, with a striking cover, making a handsome book. The price is only 25 cts. postpaid.

ADVANCED BEE CULTURE.

New edition. Exhaustive review of this book is given in editorial, pages 71. We expect our supply within a few days, so that the book can be obtained promptly from Medina, or any branch house or agent within a short time. Price \$1.20 postpaid.

Convention Notices.

The Colorado State Bee-keepers' Ass'n convention will be held in the Chamber of Commerce, Denver, Jan. 30, 31, 1906. This will be during "farmer's week," when many farm organizations meet in the city, and low railroad fares are assured. As usual we expect a good convention—possibly some new features, such as a competition in putting up sections and putting in starters.

R. C. AIKIN, Sec.

THE MICHIGAN STATE BEE-KEEPERS' CONVENTION.

Michigan State bee-keepers will hold their annual convention Feb. 1 and 2, in the parlors of the Blackman Hotel at Jackson. The Michigan Dairymen will hold their annual convention at the same time in Jackson, and the holding of the two conventions at the same time secures sufficient attendance to allow the railroads to give reduced rates one and one-third fare, providing that your fare going to Jackson amounts to seventy-five cents. When you buy your ticket ask for certificate on account of Michigan State Dairymen's Convention, and when the Secretary of that Association signs your certificate, you can secure your return ticket for one-third fare.

WHO WILL BE PRESENT.

The following bee-keepers have promised to be present: E. R. Root, Medina, Ohio; Geo. W. York, Chicago, Ill.; W. Z. Hutchinson, Flint, Mich.; R. F. Holtermann, Brantford, Ont.; A. G. Woodman, Grand Rapids, Mich.; E. D. Townsend, Remus, Mich.; W. J. Manley, Sandusky, Mich.; C. A. Huff, Clayton, Mich.; Edward

Wilson, Whittemore, Mich.; Clyde English, Manchester, Mich.; A. H. Guernsey, Ionia, Mich.; Floyd Markham, Ypsilanti, Mich.; W. D. Soper, Jackson, Mich.; Jay North, North Adams, Mich.; Albert E. Wurster, Ann Arbor, Mich.; L. A. Aspinwall, Jackson, Mich.; O. H. Townsend, Otsego, Mich.; G. A. Bleach, Jerome, Mich.; Clyde Cady Grass Lake, Mich.; John M. Rey, Saginaw, Mich.; A. D. D. Wood, Lansing, Mich.; Geo. H. Kirkpatrick, Rapid City, and others.

TOPICS THAT WILL BE DISCUSSED.

A kink in feeding back unfinished sections; management of out-apiaries; the control of increase; use of the queen-excluder in producing extracted honey; is foreign honey affecting the prices of our honey? what section is best to use? what is the best way of ripening honey? what kind of bees are the best? do we need more inspectors in Michigan? shipping-cases for comb honey; selling honey at retail; grading and shipping comb honey; how to take different kinds of extracted honey separate, and yet have well-ripened honey; best methods of making increase; best temperature for a bee-cellar; upward ventilation vs. none; wintering bees in the cellar; can bees have diarrhea when pollen is kept out of their reach? producing both comb and extracted honey in the same super; advertising the more general use of honey; does it pay to buy queens at a fancy price to improve our stock? why control of increase is desirable, and how shall it be done.

PRIZES THAT ARE OFFERED.

For the best ten pounds of comb honey, \$5.00 in supplies at catalog prices by The A. I. Root Co.

For the best ten pounds of extracted honey, \$5.00 in supplies at catalog prices by G. B. Lewis Co.

For the best ten pounds of beeswax, \$2.50 in supplies at catalog prices by A. G. Woodman.

For the most practical new invention, \$2.50 in supplies at catalog prices by M. H. Hunt & Son.

For the best pound section of honey, one copy of new edition of Advanced Bee Culture by W. D. Soper.

To each one winning one or more of the above prizes, one year's subscription to the Review by W. Z. Hutchinson.

To each one winning one or more prizes offered above, one year's subscription to the American Bee Journal by Geo. W. York.

The first session of the convention will be held at 1:30 P. M., Thursday, Feb. 1. A good crowd and a fine time expected.

ELMORE M. HUNT,

Bell Branch, Mich.

Acting Sec'y.

BOOK ON POULTRY DISEASES FREE

Conkey's book on Poultry Diseases sells for 25 cts. Full of information on housing, feeding, sickness, and how to care for the flock. Will help you to make money. Send 4 cents to pay postage and the names of two other poultry raisers, and we will send you a copy of this illustrated book of valuable information free.

G. E. Conkey & Co., No. 80, Ottawa Bldg., Cleveland, O.

If You Want the Bee-book

that "covers the whole apicultural field more completely than any other published," send \$1.20 to :: ::

Prof. A. J. Cook, Claremont, Calif.

— FOR HIS —

"Bee-keepers' Guide"

Liberal Discount to the Trade.

BANAT BEES.—Before you buy imported Italian, Carniolan, Cyprian, Caucasian, or Banat queens, get my prices and the way I will get the queens. I have kept Banats three seasons, and consider them the only non-swarming bees known, and one of the gentlest and best of bees. Eggs for hatching from Partridge, Silver, Buff, Silver-penciled Wyandots; Indian Runners, and Buff Orpingtons; Dutch High-protein seed corn next fall.

L. A. LOWMASTER, Upper Sandusky, Ohio.

PRINTING - PRINTING

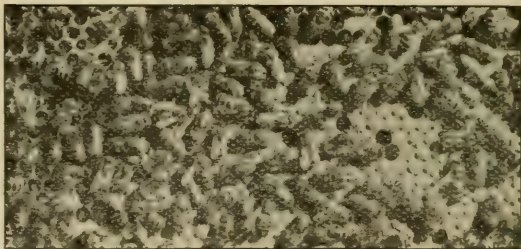
100 XXX envelopes (white or blue), note-heads, art circulars, or business cards, 30c; 250 labels, 24c; neat work; postpaid.

ORVILLE KIGER, Burlington, Iowa.

CAUCASIAN QUEENS.

Guaranteed mated to pure Caucasian drones. Good honey-gatherers. Gentlest bees in the world. Can be handled without veil or gloves.

Notice the distinct gray bands on my strain of Caucasians—can be easily distinguished from other races. I am breeding queens from a mother of wonderful gentleness, whose bees have never stung me, even when I have put them to tests that would have infuriated the gentlest of Italians. I have no mismated queens for sale—only pure Caucasians; and I guarantee every queen sent out to be mated with a pure Caucasian drone. There are very few imported Caucasian queens in this country; I am the owner of two from which I shall breed. Price of Queens, \$3.00 Each.



D. E. LYON, Ph. D., MATAWAN, N. J.

TWELVE YEARS' EXPERIENCE WITH BEES.

Place orders now with P. O. money-order, as queens will be shipped first to those who place their orders now.

Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws apiaries, and double your crop of honey.

I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season. I also offer another car of bees the coming season.

PRICES: Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

W. H. LAWS, BEEVILLE, BEE CO., TEXAS.

All the year round.

We are prepared to supply queens any month in the year. We have secured the services of one of the best breeders, and use select imported stock. Prices as follows:

Untested Italians	66
Tested	\$1 00
Select tested	1 50
Extra select	2 50

We do not guarantee impossibilities, such as sending queens to cold climates in winter, but for any reasonable distance and time we guarantee safe arrival. Write for further particulars.

A. COMES CASSERES,
15 Orange St., Kingston, Jamaica.

CAUCASIAN QUEENS!

Caucasian bees are the gentlest of the PROFITABLE HONEY-PRODUCERS. A trial will convince you. Have your queens, both Caucasians and Italians, bred and mated to order, and then you will have what you want. Address

Robert B. McCain, Yorkville, Ills. R. F. D.

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$3.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

ITALIAN QUEENS AND GLEANINGS.

For \$1.00 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

W. T. CRAWFORD, HINESTON, La.

PURE ITALIAN QUEENS.—From red-clover and five-banded breeders. Untested, 75c; select untested, \$1.00; tested queens, \$1.50; select tested, \$2.50. Safe arrival guaranteed.

H. M. PARKER, JR., James Island, S. C.

The Best Fruit Paper

is The Fruit-Grower, published monthly at St. Joseph, Mo. The regular subscription price is a dollar a year but if you will write for free sample copy and mention this paper, you will receive a proposition whereby you may secure it one year WITHOUT COST. Every one who has a few fruit trees or a garden, should read

THE FRUIT-GROWER
ST. JOSEPH, MISSOURI

Every issue is handsomely illustrated and from 32 to 64 pages a month are filled with interesting matter pertaining to fruit-growing and gardening. The first four issues of 1906 will be handsome special numbers devoted to the following subjects:—January, The Horticultural Societies; February, Spraying; March, Gardening; April, Small Fruits. Any one of these numbers will be worth a dollar to you. We publish the "Brother Jonathan Series" of fruit books. Send your name and Bro. JONATHAN learn how to secure these books free.



TRADE MARK
BRO. JONATHAN

Fruit-Grower @ 152 S. 7th, St. Joseph, Mo.

TO THE
BEE-KEEPERS
OF CANADA

WE ARE pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we are not able to offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee keepers. Moreover, what we do list we propose to keep in large quantities, and will be able to ship promptly.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY

Deer Park

Toronto - Ontario - Canada

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

**Model Incubators
and Brooders.**

Manufactured by Chas. A. Cyphers.

We are sole agents for Toledo and vicinity, and sell all goods at factory prices. Do not be humbugged and buy a cheap machine. The best is none too good.

THE LARGEST STOCK OF

Root's Bee-supplies

always on hand. We sell at Root's prices, and give you the Root quality.

**We can Start You in the Poultry or
Bee Business.**

Several hundred fowls on hand, and over 300 colonies of bees. Write us your wants. Our new illustrated catalog will be out soon. Sent free to any address for the asking. Ask for it.

GRIGGS BROTHERS,

523 Monroe St.,

TOLEDO, OHIO.

Bee-Supplies

For Southern

Bee-Keeper's

I have been over 20 years in the bee-supply business, manufacturing hives and fixtures, and raising bees and queens. With all this experience and the excellent facilities I have, I am able to fill your orders promptly, and give absolute satisfaction. Though I make my own hives I carry a complete stock of The A. I. Root Company's manufacture. Just specify "Root's Goods" and you will get them.

Bees and Queens

I breed with scientific, intelligent methods, from the best Imported and Long-tongued stock. Cheap queens may be had elsewhere. My stock is worth every cent of the price. You will be pleased with it. I GUARANTEE IT.

64-page Catalog

of Supplies and Bees sent free. Tell me you saw my ad. in GLEANINGS.

J. M. JENKINS

WETUMPKA : ALABAMA

**CENTRAL
PENNSYLVANIA**

I am in an unexcelled position to furnish bee-keepers within a hundred miles of Williamsport with Root's bee-keepers' supplies. We have four railroads and three express companies — Adams, American, and the United States. Can deliver goods with great promptness, and save you freight charges. Wholesale or retail. Also can supply you with pure-bred Italian and Caucasian bees in season. Write for our price lists.

E. E. PRESSLER

633 Lycoming Street

WILLIAMSPORT, PENN.

SUPREME EXCELLENCE

is only another name for OUR Make of

BEE-KEEPERS' SUPPLIES

Have you ever used them? If not, give us a trial order this spring. We will do our best to please you. Our prices are as low as any; and if our goods aren't as we claim you'll not have to pay for them.

We Allow Usual Discount for Early Orders

In January, 6 per cent; February, 4 per cent; in March, 2 per cent. Our large illustrated price list and copy American Bee-keeper free.

The W. T. Falconer Manufacturing Co.

Jamestown, New York

 The *American Bee-keeper* for January contains excellent photographic illustrations of Artificial Honey-Comb made over 30 years ago in New England, together with illustrations of the implements used in making, and a portrait of the inventor.

Dadant's Foundation

Bee-keepers like it or they wouldn't buy it. It excels. Sample free. Over 100,000 lbs. sold in 1905. Beeswax wanted at all times. Revised prices on foundation for 1906.

Grade	Size, and Sheets per Pound	In lots of				
		1 lb.	5	10	25	50
Medium Brood...	7 $\frac{3}{4}$ x16 $\frac{1}{2}$ 7 to 8	55	53	51	49	48
Light Brood.....	7 $\frac{3}{4}$ x16 $\frac{1}{2}$ 9 to 10	57	55	53	51	50
Thin Super.....	3 $\frac{3}{8}$ x15 $\frac{1}{4}$ 28	62	60	58	56	55
Extra Thin.....	3 $\frac{3}{8}$ x15 $\frac{1}{4}$ 32	65	63	61	59	58

Bee-supplies of All Kinds

DISCOUNT FOR EARLY CASH ORDERS
January, six per cent; February, four per cent; March, two per cent; after April 1st, no discount.

Wax Worked into Foundation.
Twenty-eighth Year.
We Guarantee Satisfaction.
Send for Our 1906 Catalog.

Dadant & Son, Hamilton, Ill.

New Goods-Big Stock

New Warehouse, Root's Goods,
Prompt Shipment, Low Freight.

Everything for the Bee-keeper at Savannah, Ga.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory.

BEEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog sent free. Correspondence solicited. .

HOWKINS & RUSH

124 West Liberty Street

SAVANNAH - - GEORGIA

GLEANINGS

IN BEE CULTURE

Ventilation of the Hive.

It has been proved by careful experiments that pure air is necessary not only for the respiration of the mature bees, but that without it neither the eggs can be hatched nor the larvæ developed. A fine netting of air-vessels covers the eggs; and the cells of the larvæ are sealed over with a covering which is full of air-holes. In winter, bees, if kept in the dark, and neither too warm nor too cold, are almost dormant, and seem to require but a small allowance of air; but, even under such circumstances, they can not live entirely without air; and if they are excited by being exposed to atmospheric changes, or by being disturbed, a very loud humming may be heard in the interior of their hives, and they need quite as much air as in warm weather.

—Langstroth.

THE A. I. ROOT CO.
MEDINA, OHIO.

Eastern Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

MONEY in BEES for YOU

Investigate. Catalog free. New England bee-keepers will find at my store

IN BOSTON

a full line of the finest bee-supplies in the country. I also furnish queens, and bees by the full colony or nucleus. Best shipping-center for New England; promptness, carefulness, and satisfaction go with every shipment.

Try me.

F. H. Farmer - Boston, Mass.

15 CHARDEN STREET

Our Specialties

Cary Simplicity Hives and Supers, Root and Danz. Hives and Supers; Root's Sections, Weed Process Foundation, and Bingham Smokers.

Bees and Queens in their Season.

32-page Catalog Free.

**W. W. Cary & Son,
Lyonsville, Mass.**

Root's Bee-supplies at Root's Prices

But f. o. b. Baltimore instead of Medina. Write for catalog I.

Rawlings Implement Co.

Baltimore : : Maryland

NORTHEASTERN & NEW ENGLAND BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

MISSISSIPPI

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders.



Bees and Queens

from Select Stock

Correspondence Solicited.

GEO. A. HUMMER,
BRAZELIA, - MISSISSIPPI
Shipping-point, Macon

PENNSYLVANIA

We are giving 4 per cent discount off all cash orders during February. Our catalogs are just being mailed out all through Central Pennsylvania. Send your name in for one. : : :

ROOT'S GOODS

AT ROOT'S PRICES

First car just in and a full stock of all supplies ready for immediate shipment. Best shipping facilities in the State. : : : : :

Frank W. Prothero

Successor to Prothero & Arnold

Dubois, Clearfield Co., Pennsylvania

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusively, at Root's Factory Prices.

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

Four Per Cent Discount For Cash Orders Received in February

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW YORK.—The demand is fairly good for better grades of white comb honey; and while the nearby crop is fairly well cleaned up new arrivals are now coming in from Cuba; besides, several cars have been shipped on from California. We quote fancy white at 15; No. 1 at 13 to 14; No. 2 at 12; amber at 11, buckwheat at 10 to 11. Extracted is in fairly good demand, especially California, of which there is abundant supply. We quote white sage, $6\frac{1}{2}$ to $7\frac{1}{2}$; light amber at 6 to 7, according to quantity; buckwheat at 6c per lb.; Southern, at 50 to 60c per gallon, according to quality. Beeswax, steady at 29 to 31c.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

CINCINNATI.—The honey market is quiet. We do not offer white-clover extracted honey, on account of its scarcity; instead, we offer a fancy water-white honey, equal to if not better than the white clover, in 60-lb. cans, two in a crate, at $7\frac{1}{4}$ to $8\frac{1}{2}$ c. Fancy light amber, $7\frac{1}{2}$ c. Other grades of amber in barrels at 5 $\frac{1}{4}$ to 6 $\frac{1}{4}$ c, according to the quality. Fancy comb honey, $16\frac{1}{2}$ c.

(Bee-keepers, please observe that the above are our selling prices of honey, not what we are paying.)

Beeswax is wanted, and we are paying 30c per lb. delivered here for choice, bright-yellow grade.

THE FRED W. MUTH CO.,
51 Walnut St., Cincinnati, O.

TOLEDO.—The market on comb honey at this writing remains quiet as usual at this time of year. We quote fancy white comb honey at 14 to $14\frac{1}{2}$ c; No. 1, $13\frac{1}{2}$ to 14. Extracted, white clover, in barrels, brings 6 to $6\frac{1}{2}$ c; cans, $6\frac{1}{2}$ to $7\frac{1}{2}$, with very little demand for amber honey. Beeswax remains firm at 27 to 30c.

GRIGGS BROTHERS,
521 Monroe St. Toledo, Ohio.

KANSAS CITY.—The demand for honey is very light, fancy white selling at \$3.00 per case, and amber at \$2.75. Extracted, $5\frac{1}{2}$ and 6. Beeswax, 25c.

C. C. CLEMONS & CO.,
Kansas City, Mo.

SCHENECTADY.—There is improving demand for comb honey, but extracted remains very quiet. The stock on hand of both is quite limited. We quote white clover, fancy, 14 to 15c; No. 1, 13 to 14; No. 2, 12 to $12\frac{1}{2}$ c; buckwheat, 11 to 12. Extracted, light, 6 to 7c; dark, $5\frac{1}{2}$ to 6. Beeswax, 23 to 30c.

Jan. 20. CHAS. McCULLOCH, Schenectady, N. Y.

BOSTON.—New comb honey is cleaning up rapidly, leaving still on hand quite a large stock carried over from last year, which goes very hard, and prices are nominal. Fancy, new, 16c; No. 1, 15c; No. 2, practically out of the market. Extracted, white, 8; light amber, 7 to $7\frac{1}{2}$.

BLAKE, SCOTT & LEE,
Jan. 26. 31-33 Commercial St., Boston, Mass.

ST. LOUIS.—Our honey market is unchanged since our last. The demand for extracted honey is only for the higher grades. The lower grades are more or less neglected, and price on same is nominal. We quote: Fancy white comb honey, 13 to 14c; No. 1, 12 to 13; amber, 11 to 12. Extracted, California, light amber, 6 to $6\frac{1}{2}$ c; Southern, in barrels, $4\frac{1}{4}$ to $4\frac{1}{2}$ c; in cans, 5 to $5\frac{1}{2}$ c. Beeswax, 29c per lb.

R. HARTMANN & Co.,
Jan. 19. 14 So. Second St., St. Louis, Mo.

CINCINNATI.—The nice weather holds back the demand for comb honey. Crops seem to be exceedingly short, and producers in the West keep prices high. We quote as follows: Fancy water white and No. 1 white clover, 14 to 16c; No. 2, 12 to 14. Extracted seems to be more plentiful, and we quote same in barrels at $5\frac{1}{4}$ to $5\frac{1}{2}$ c; in cans, $\frac{1}{2}$ c more; white clover, 7 to 8c. Beeswax, 28 to 30c.

C. H. W. WEBER,
Jan. 23. 2146-8 Central Ave., Cincinnati, O.

TORONTO.—No change in honey market; demand not very brisk; lots of honey to get at a reasonable price; retail prices remain about the same as last report. Bees have been flying for two days as thick as they do in summer.

E. GRAINGER & Co.,
Jan. 23. Toronto, Can.

ATLANTA.—Honey market rather quiet. Light receipts and few sales. We quote as follows: fancy white comb. 12 $\frac{1}{2}$ to 14; A No. 1, 11 to $12\frac{1}{2}$; No. 1, 10. Beeswax, 28 to 30c.

JUDSON HEARD & Co.,
Jan. 20. Atlanta, Ga.

CHICAGO.—The market is steady, with about the usual demand. The prices range from 14 to 15 for best grades of white comb honey. There is not an active demand for off grades, which usually sell at 1 to 3 per lb. less. For extracted a steady demand exists for the best grades at $6\frac{1}{2}$ to 7; but for sour or off flavors there is practically no sale. Beeswax brings 30.

R. A. BURNETT & Co.,
Jan. 18. 199 South Water St., Chicago, Ill.

FOR SALE.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.

HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER-MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

THE FRED. W. MUTH CO.,

51 WALNUT ST.,

CINCINNATI, OHIO.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.

O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

FOR SALE.—One ton No. 1 white comb honey, in no-drip cases, 24 sections to case, at 14c per lb. Water-white extracted 8½c; amber, 7c, in 60-lb. cans, two in a case. Light-weight white comb at 13c.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

WANTED.—Fancy clover extracted honey. Send sample and quote lowest price.

J. E. CRANE & SON, Middlebury, Vt.

FOR SALE.—Three barrels of white extracted honey, candied hard; 7½c cash. Send for sample.

H. C. MILLS, 505 Emerson Ave., Syracuse, N. Y.

FOR SALE.—Fine alfalfa honey in 60-lb. cans. Send for sample and prices.

DADANT & SONS, Hamilton, Ills.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.

EVANS & TURNER, Columbus, Ohio.

WANTED.—Comb and extracted honey. State quality, quantity, and price.

JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—I will pay spot cash for one to ten tons of water-white or amber extracted honey at railroad station.

C. W. DAYTON, Florence, Cal.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.

R. A. BURNETT,
199 South Water St., Chicago, Ills.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.

GRIGGS BROS., Toledo, Ohio.

WANTED.—Clover and basswood extracted honey; also No. 1 amber honey. Send sample, and state quantity and price, delivered at Preston.

M. V. FACEY, Preston, Fillmore Co., Minn.

WANTED.—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey; and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.

THE A. I. ROOT CO., Medina, Ohio.

Chas. Israel & Brothers

486-490 Canal St., New York.

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments Solicited. Established 1876.

A Remarkably Fair Furnace Offer.

The Schafer Furnace Co., Youngstown, O., ship heaters for \$10.00 down, and no profit until user is satisfied. Particulars free, if this paper is named.

FOR SALE.—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog. F. R. DANIELS,
117 Florence St., Springfield, Mass.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

A GOLD MEDAL

at the World's Fair

St. Louis, 1904.



**CLEANEST,
COOLEST,
STRONGEST,
UP-TO-DATE.**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order.

It has no snout to clog with soot.

It gives a light or dense volume of cool smoke, at operator's option, 3 to 5 hours at one filling.

Guarantee: Simplicity, quality, efficiency, durability.

The General Manager of the National Bee-keepers' Association wrote me:

Platteville, Wis., Oct. 28, 1904.

I have given your Twentieth Century Smoker a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

Yours truly, N. E. France.

Prices: By mail, one, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

F. DANZENBAKER, - MEDINA, OHIO.

Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

BEEES AND QUEENS—Orders booked now for spring delivery.

HONEY AND WAX—We handle honey and wax. Write for particulars.

The A. I. Root Co.

Northwestern Branch,
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

Gleanings in Bee Culture.

Devoted to Bees, Honey, and Home Interests.

Circulation 25,000. Reaches every State and sixty foreign countries.

Established in 1873. 52 pages, semi-monthly.

Published by The A. I. Root Company, Medina, Ohio, U. S. A.

A. I. ROOT, Editor Home and Garden Department.

E. R. ROOT, Editor Apicultural Department.

J. T. CALVERT, - Business Manager.

A. L. BOYDEN, - Advertising Manager.

TERMS---\$1.00 per annum; two years, \$1.50; three years, \$2.00; five years, \$3.00, In Advance.

Postage is Prepaid by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU. 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS. 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO. 24 Castle St. *Per year, postpaid, 6/.*

Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publishers.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY.....

STATE.....

DATE.....

If you want Gleanings discontinued at expiration, check here ()

LANTERN SLIDES.

The following list of slides is published in answer to numerous requests from subscribers. We can rent them for lectures, etc., at 5 cts. each for the first five days; after five days, 1 ct. each extra per day. Of most of them we can sell duplicates at 50 cts. each. Slides are standard American size, 3 1/4 x 4, except the few English series which are 3 1/4 x 3 1/4. In renting or selling we select any that may be wanted. Mention the numbers only when ordering. Lanterns rented. Write for terms.

The A. I. Root Company, Medina, O.

PORTRAITS.

- 1 E. T. Abbott.
- 2 Thos. Wm. Cowan.
- 3 A. J. Cook.
- 4 C. P. Dadant.
- 5 D. M. Edwards.
- 6 D. A. Jones.
- 7 F. A. Gemmell.
- 8 J. E. Hetherington.
- 9 P. H. Ellwood.
- 10 Geo. E. Hilton.
- 11 A. I. Root.
- 12 L. C. Root.
- 13 J. H. Martin.
- 14 N. E. France.
- 15 Eugene Secor.
- 16 C. H. W. Weber.
- 17 A. E. Manum.
- 18 George W. York.
- 19 J. H. Hoffman.
- 20 W. A. Selser and family.
- 21 Dr. C. C. Miller.
- 22 W. Z. Hutchinson.
- 23 Wm. Rohrig.
- 24 Udo Toepperwein.
- 25 Louis Scholl.*
- 26 Louis Scholl.
- 27 J. H. Martin (Ramblor).
- 28 M. H. Mendleson.
- 29 J. F. McIntyre.
- 30 L. L. Langstroth.
- 31 L. L. Langstroth, second view.
- 32 R. L. Taylor.
- 33 E. B. Weed.
- 34 E. Whitcomb.
- 35 Wisconsin Bee-keepers' Associ'n.
- 36 Frank McNay.
- 37 M. H. Mendleson and his honey.
- 37 1/2 E. R. Root and C. P. Dadant.
- 38 Wooster teachers.
- 38 1/2 J. W. Johnson.*
- 39 J. W. Johnson.

APIARIES.

- 51 T. F. Bingham's apiary.
- 52 J. F. McIntyre's apiary.
- 53 Louis Scholl's apiary.
- 54 R. L. Taylor's apiary.
- 55 M. H. Mendleson's apiary.
- 56 J. M. Jenkins' apiary.
- 57 Hansen's Sweetwater apiary.
- 58 M. H. Hunt's apiary.
- 59 W. Z. Hutchinson's apiary.
- 60 Wm. Rohrig's apiary.
- 61 P. H. Elwood's apiary.
- 62 France's apiary.
- 63 J. M. Jenkins' out-apiary.
- 64 Harry Lathrop's apiary.
- 65 B. Taylor's house-aparies.
- 66 Harvey Feathers' apiary.
- 67 G. W. Wilson's apiary.
- 68 N. E. France's apiary.
- 69 M. H. Mendleson's home apiary.
- 70 G. W. Drinkwine's apiary.
- 71 Root's New York apiary.
- 72 Root's Jenkintown apiary.
- 73 Detroit City Bee Yard.
- 74 Hanselman's Wisconsin Apiary.

HONEY-PLANTS.

- 100 Alfalfa in blossom.
- 101 Clover-blossoms, red, white, alsike.
- 102 Button-sage bush.
- 103 Button-sage bush, second view.
- 104 White sage.
- 105 Black sage.
- 106 Carpet grass.
- 107 Mesquite.
- 108 Mesquite leaf.
- 109 Catclaw leaf.
- 109 1/2 Catclaw in blossom.
- 110 Marigold.
- 111 Hard maple.
- 112 Apple-blossom.
- 113 Willow-herb.

* Colored plates.

113 1/2 Sweet clover.

114 Buckwheat.

115 Two cacti.

116 Cacti, second view.

BEEES AND BEE ANATOMY.

- 150 Sting.
- 151 Apis.
- 152 Worker and drone.
- 153 Worker magnified.
- 154 Upper view of worker.
- 155 Queen, worker, drone, and comb.
- 156 Legs.
- 157 Two legs.
- 158 Foot.
- 159 Three legs.
- 160 Eye.
- 161 Sectional view of eye.
- 162 Magnified piece of capping.
- 163 Sting and poison-sac.
- 164 Magnified point of sting.
- 165 Head of worker.
- 166 Bee-moth.
- 167 Comb, drone and worker.
- 167 1/2 Wing of bee showing hooks.

BEE-IMPLEMENTS.

- 200 Bingham smoker.
- 201 Entrance-guard.
- 202 Clipping queen with knife.
- 203 Cornel smoker showing parts.
- 204 Cowan extractor No. 15.
- 205 Cowan extractor showing parts.
- 206 Bee veil.
- 207 Hoffman frame.
- 208 Benton queen-mailing cage.
- 209 Bee-veil No. 2.
- 210 Queen-clipping device.
- 211 German wax-press.
- 212 Holmes bee-hat.
- 213 Danzenbaker Frame.
- 214 Honey-board No. 9.
- 215 German wax-press show'g parts.
- 216 Porter bee-escape show'g parts.
- 217 Clark smoker.
- 218 Cornel smoker, three sizes.
- 219 Sample perforated zinc.
- 220 Entrance-guard, Alley trap.
- 221 One-frame obs. hive with super.
- 222 Same without super.
- 223 Quinby frame.

FACTORY VIEWS.

- 250 Root Co.'s printing-office.
- 251 Leahy Mfg. Co.
- 252 Falconer Mfg. Co.
- 253 Another view of Leahy Mfg. Co.
- 254 Plant of Marshfield Mfg. Co.
- 255 Plant of Falconer Mfg. Co.
- 256 Factory of Weiss.
- 257 Factory of Gus Dittmer.
- 258 Factory of Page & Lyon.
- 259 Office and warehouse, Page & L.
- 260 Inter-state factory.
- 261 Factory of Fornbrook.
- 262 Factory of Schmidt & Co.
- 263 Factory of Wm. Bamber.
- 264 Root apiary from roof of factory.
- 265 Unknown view of factory interior.
- 266 Root Co. picnic train in 1899.

HIVES.

- 300 Root Dove'd hive, 8 fr., 1-story.
- 301 Root Dove'd hive, AE64M / 10.
- 302 Root Dove'd hive, AE64P / 8.
- 303 Root Dove'd hive, AE66 / 8.
- 304 Root Dove'd hive, AE64P / 8.
- 305 Root Dove'd super, P / 8.
- 306 Danzenbaker super.
- 307 Root's Observatory hive open.
- 308 Root's Observatory hive closed.

MANIPULATING HIVES.

- 350 Wardell manipulating a hive.
- 351 Unknown man handling a hive.
- 352 Manipulating a hive.
- 353 Handling frames in groups.
- 354 Manipulating hives, colored.

355 Catching a queen to cage.

COMB.

- 356 Bees on comb.
- 357 Frame of queen-cells.
- 358 Specimen of pickled brood.
- 359 Frame of queen-cells building.
- 360 Another frame of the above.
- 361 Photograph of foundation.
- 362 Fully built brood-comb.

ENGLISH SERIES.

- 363 Man manipulating hive.
- 364 Showing super.
- 365 Fastening in foundation.
- 366 Opening a hive.
- 367 Taking out frames.
- 368 Examining a frame.
- 369 Folding sections.
- 370 Folding sections, second view.
- 371 Drafting a swarm.

ALFALFA.

- 400 Stacking alfalfa.
- 401 Stacks of alfalfa.
- 402 Cutting wheat in California.
- 403 Raking alfalfa.
- 404 Horse and carriage.
- 405 Railroad station.
- 406 Mowing alfalfa.

COMIC.

- 420 Ouach, comic, two views.
- 421 He laughs best who laughs last.
- 422 When I get my eyes full of smoke.
- 423 Go vay, you bee.
- 424 After absconding swarm, colored.
- 425 After absconding swarm, uncolored.

HONEY.

- 450 Honey in Aikin sacks.
- 450 1/2 Candied honey in bags.
- 451 Proof of the puddling.
- 452 Sections, plain and beeway.
- 453 Cutting candied honey.

UNCLASSIFIED VIEWS.

- 500 Bottling honey.
- 501 Wardell measuring bee tongues.
- 502 Hetherington's sword.
- 503 Specimen of foul brood.
- 504 Wardell grafting queen-cells.
- 506 Bee-house, old foreign print.
- 507 Hetherington apiary, bee-clamps.
- 509 Honey exhibit.
- 510 Wagon for moving bees.
- 511 Honey-bleaching house.
- 512 Wilkins sisters' home.
- 513 S. W. Ohio bee-keepers' advert't.
- 514 Letter design in comb honey.
- 515 In Sweet Springtime.
- 517 Irrigation scene—two views.
- 518 Selser's honey-wagon, rear.
- 519 Selser's wagon, side, two views.
- 520 Tanks for storing honey.
- 521 Selling honey popcorn crisps.
- 522 Blighted pear-orchard, two pl's.
- 523 New home of Wilkins sisters.
- 524 California home, unknown.
- 525 Capt. Hetherington's home.
- 526 Railroad scene.
- 527 Outside bee-cellar.
- 528 Francis quadruple hive.
- 529 Orchard.
- 530 Cowan and France.
- 531 Cheshire, Hooker, Cowan.
- 532 Back's fair exhibit.
- 533 Swarm on boy's hat.
- 534 Moving bees.

FOREIGN APIARIES.

- 550 Mexican bee-keeping.
- 551 Algerian bee-keeping.

BEE-KEEPING FOR WOMEN.

- 600 Bee-keeping for women.
- 601 Woman hiving bees.
- 602 Swarm on woman's hat.
- 603 Girl hiving bees.

CONTENTS OF THIS NUMBER.

MARKET QUOTATIONS	130	Depredations of Ants or Bee-paralysis.....	149
STRAY STRAWS	139	Mr. Poppleton's Reply to Same.....	149
EDITORIAL	141	Buying Bees	150
Battle between Nest of Ants and Colony of Bees.....	141	Alexander and His Critics	151
Remarkable Weather in January in Parts of U. S.	141	Third Prize Photo of a Swarm of Bees.....	155
Experiments at Medina in Weighing up Stores.....	141	Educational Laboratory.....	156
Experiments in Ventilating Our Shop Bee-cellar.....	141	Are Sections Detrimental to the Honey Market.....	157
High Lights of the Chicago Convention.....	142	Herman Holmes.....	159
Advanced Bee Culture—New Revision	143	NOTES OF TRAVEL	160
CONVERSATIONS WITH DOOLITTLE	145	OUR HOMES.....	161
GENERAL CORRESPONDENCE	146	SPECIAL NOTICES.....	183
Honey-strainer inside the Extractor-can.....	146	CONVENTION NOTICES.....	183

INDEX TO ADVERTISEMENTS.

Banking by Mail.		Coiled Spring Fence Co.	167-184	R. F. Neubert	173
Savings Dep. Bank Co.	135	Kitselman Bros.	167	W. W. Shampamore.....	174
Bee Books.		Page Woven Wire Fence Co.	167	Publishers, Agricultural-paper.	
W. Z. Hutchinson	135	Honey-buyers.		Farm and Stock.....	137
Bee Smokers.		Chas. Israel & Bro.	131	Farmers' Call.....	169
T. F. Bingham.....	180	See page.....	131	Fruit Grower Co.....	137, 173
F. Danzenbaker.....	131	Honey for Sale.		The Rural Home.....	178
Bee Supplies.		Fred W. Muth Co.....	130	Southern Fruit Grower.....	173
Bee and Honey Co.....	184	See pages.....	130, 131	Successful Farming.....	135
J. H. M. Cook.....	179	Incubators.		Publishers, Bee-Journal.	
D. Cooley.....	179	American Incubator Co.....	174	W. Z. Hutchinson.....	135
W. T. Falconer Mfg. Co. Back Cover		Banta-Bender Mfg. Co.....	163	The A. I. Root Co.....	132
Geo. E. Hilton.....	180	Buckeye Incubator Co.....	163	Geo. W. York & Co.....	137
M. H. Hunt & Son.....	178	Cycle Hatcher Co.....	163	Publishers, Poultry-paper.	
Kretschmer Mfg. Co.....	180	Chas. A. Cyphers.....	173	The Howard Pub. Co.....	174
G. B. Lewis Co.....	138	M. M. Johnson Co.....	163	Inland Poultry Journal.....	174
Marshfield Mfg. Co.....	180	J. W. Miller Co.....	164	Ohio Poultry Journal.....	174
Fred W. Muth Co.....	130	Prairie State Inc. Co.....	164	The Poultry Gazette.....	174
Walter S. Pouder.....	176	Racine Hatcher Co.....	163	Poultry Item.....	174
Page & Lyon.....	177	Reliable Incubator Co.....	163	Seeds and Trees.	
W. H. Putnam.....	179	Geo. H. Stahl.....	163	W. F. Allen.....	172
A. H. Reeves.....	179	Machinery.		J. B. Armstrong & Son.....	170
St. Croix Valley Hon. P. Ass'n.....	179	American Harrow Co.....	166	Francis Brill.....	173
The Root Co., Syracuse, N. Y.....	136	The Deming Co.....	169	W. Atlee Burpee & Co.....	170
The Root Co., St. Paul, Minn.....	131	Elkhart Carriage Mfg. Co.....	169	Colorado Seed House.....	165
The Root Co.....	121	Bateman Mfg. Co.....	165	Chattanooga Nurseries.....	175
C. M. Scott & Co.....	119	Electric Wheel Co.....	105	Darling & Beahan.....	171
St. Croix Valley H. P. Ass'n.....	179	Lyons Engine Co.....	168	Flansburgh & Potter Co.....	172
W. D. Soper.....	183	Medina Concrete Co.....	170	L. J. Farmer.....	172, 173
I. J. Stringham.....	179	Manson Campbell Co., Ltd.....	165	Gage County Nurseries.....	173
White Mfg. Co.....	179	F. E. Myers & Son.....	169	Gardner Nursery Co.....	170
C. H. W. Weber.....	129	Seneca Falls Mfg. Co.....	169	German Nurseries.....	172
A. G. Woodman Co.....	178	Stromberg-Carlson Tel. Mfg. Co.....	154	E. C. Green & Son.....	173
York Honey & Bee Supply Co.....	177	United Factories Co.....	169	Green's Nursery Co.....	172
Bees and Queens.		Miscellaneous.		D. Hill.....	172
A. Gomes Casseres.....	184	H. H. Aultfather.....	175	Hillside Nursery.....	172
D. E. Lyon, Ph. D.....	184	Francis Bannerman.....	164	R. M. Kellogg Co.....	171
H. M. Parker, Jr.....	184	F. W. Bird & Son.....	166	Jewel Nurseries.....	171
Robert B. McCain.....	184	Chas. H. Manley.....	137	Geo. W. Park.....	173
W. H. Laws.....	184	Ohio Carriage Mfg. Co.....	169, 175	Henry Phillips Seed & Imp. Co.....	183
W. T. Crawford.....	184	A. L. Rice.....	167	Louis Roesch.....	173
L. A. Lawmaster.....	123	The A. I. Root Co.....	133	St. Louis Seed Co.....	171
The Jennie Atchley Co.....	184	Schafer Furnace Co.....	131	W. N. Scarff.....	172
A. E. Titoff.....	180	Seaboard Air Line R. R.....	137	Sheerin's Wholesale Nurseries.....	173
Comb Foundation.		Poultry Supplies.		R. H. Shumway.....	171
Dadant & Son.....	Back Cover	Berry Golden Rule Poultry Farm.....	174	Storrs & Harrison Co.....	172
Gus Dittmer.....	177	G. E. Conkey & Co.....	174	Wants and Exchanges.	
Fences.		B. H. Greider.....	174	See page.....	182
Brown Fence & Wire Co.....	167	F. W. Mann Co.....	164		

COOK BOOK FREE!

one copy of the **American Family Cook Book.**
Good stories. Stamps taken. **Agents Wanted.**

To each lady who will send 25 cents for one year's trial subscription to **THE HOME INSTRUCTOR, Quincy, Illinois**, we will send free, postpaid, The Home Instructor is a Woman's Magazine from cover to cover and the only Magazine published that lists up-to-date **Dress Patterns at 5 cents each.**

The Top Notch

Is what I at one time felt the Bee-keepers' Review had reached in 1905. There was a time when I honestly doubted if I would ever be able to get out a volume that would contain as much useful information. Correspondence that I have been able to secure in the last few weeks has dispelled all doubts—the information given by the Review in 1906 will surpass that of any former year.

Mr. R. F. Holtermann, of Brantford, Ont., Canada, secured 60,000 pounds of extracted honey from 300 colonies, and he is now preparing for the Review an article giving in detail his method of extracting. Getting the honey off the hives, the bees off the combs, uncapping, extracting, straining, and canning, will be considered. He has not hesitated to depart from established methods, and there are some happy surprises in store even for the old-timers.

Mr. L. A. Aspinwall, of Jackson, Mich., has, for about a dozen years, been using a non-swarming hive and system of management in the production of comb honey. Last year, from about 50 colonies he secured an average of 123 pounds to the colony, which might easily have been 150 pounds had it not been for some experiments that he was carrying out. His hive and methods will be illustrated and described in an early issue of the Review.

R. C. Aikin, of Loveland, Colo., has written an article on the control of increase when working for comb honey, and I consider it the best article he ever wrote. Not only does he tell how to manage to prevent swarming and get good results, but there is a vim, and a dash, and an inspiration about it that is worth reading for itself alone.

P. S.—Each new subscriber for 1906 will receive, free of charge, any back numbers of 1905 that may still be on hand. At present I can send a complete set excepting the January and April issues. March is getting pretty low. As long as they last, however, any numbers that are left will be sent free.

A. K. Ferris, of Madison, Wis., will illustrate and describe a twin baby nucleus which, by a simple change, that it seems strange that no one has thought of before, enables the queen-breeder to maintain these little nuclei permanently without renewing the bees—they can breed and maintain their numbers. M. A. Gill will tell how to make 100 per cent increase, get a good crop of comb honey, yet have no swarming. S. D. Chapman, Mancelona, Mich., sent an article criticising some of the proposed plans of the editor, and he did the work so graphically and so humorously that I laughed until the tears rolled down my cheeks—and there was a lot of good sense, too, in what he said. Frank Coverdale, of Maquoketa, Iowa, illustrates and describes a feeder that can be used on any hive for any purpose, yet it costs only five cents—the simplicity of it makes one exclaim, "Why didn't we think of it before?" E. D. Townsend has sent an article, and promised to send two or three more. But space fails me to tell of all the good things in store for the readers of the Review for 1906. In short, the man who is keeping bees to make money out of them can't afford not to send \$1.00 for the Review—it will come back to him many fold.

Then there is the new edition of ADVANCED BEE CULTURE, with its handsome engravings, and delicate, beautiful binding in three colors, making it an ornament for any parlor table. The contents are terse, concise, practical, and to the point, telling how to manage bees by the most advanced methods from the beginning of the season until they are snuggled away for the winter. Price \$1.20, or, with the Review one year, for only \$2.00.

W. Z. Hutchinson, Flint, Mich.

A Savings Account

Thousands of people are now doing their banking by mail with perfect safety. The U. S. mail, with its free city and rural delivery, brings the strong, liberal savings bank to the very door of every person no matter where they are. You can open an account with this safe bank by simply sending to us

One Dollar or More,

then add other dollars as you can spare them. Deposits can be sent by Postoffice or Express Money Orders, Check on Local Bank, New York Draft, or Currency by Express or Registered Mail. Your money will earn

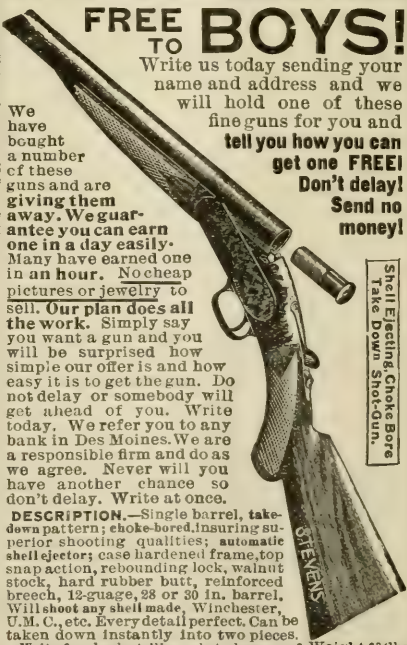
4 PER CENT Interest,

compounded semi-annually, and will be secured semi-annually by assets of over **ONE HALF MILLION** and the management of prudent and successful business men. Write for particulars.

**The SAVINGS
DEPOSIT BANK COMPANY,
Medina, Ohio.**

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

STEVENS TAKE DOWN SHOTGUN FREE TO BOYS!



Write us today sending your name and address and we will hold one of these fine guns for you and tell you how you can get one FREE! Don't delay! Send no money!

We have bought a number of these guns and are giving them away. We guarantee you can earn one in a day easily. Many have earned one in an hour. No cheap pictures or jewelry to sell. Our plan does all the work. Simply say you want a gun and you will be surprised how simple our offer is and how easy it is to get the gun. Do not delay or somebody will get ahead of you. Write today. We refer you to any bank in Des Moines. We are a responsible firm and do as we agree. Never will you have another chance so don't delay. Write at once.

DESCRIPTION.—Single barrel, take-down pattern; choke-bored, insuring superior shooting qualities; automatic shell ejector; case hardened frame, top snap action, rebounding lock, walnut stock, hard rubber butt, reinforced breech, 12-gauge, 28 or 30 in. barrel. Will shoot any shell made. Winchester, U.M.C., etc. Every detail perfect. Can be taken down instantly into two pieces. Write for book telling what dozens of men and boys say of this gun. Write today.

Successful Farming, 94 TENTH STREET, DES MOINES, IOWA

Shell Ejecting Choke Bore
Take Down Shotgun.

250 PER CENT

Root's Goods are Winners!

My sales for the last three months have been larger than ever before—over 250 per cent greater than a year ago for the same time. Why do bee-keepers patronize me so well? Because of the *superior* service and *goods* offered. I give EVERY bee-keeper a square deal. I have a large warehouse filled with *nice clean* stock, ready for *prompt* shipment. I place Root's goods from Syracuse, at your door, with minimum freight charges, which is an *important* item if you will investigate. For many years I have served the bee-keepers of New York State, and know their needs in every way.

The Best is the Cheapest. . .

It *will pay* you well to secure your goods early. The discount is four (4) per cent for February. The season, too, will be upon us before you know it, and it pays to be ready.

Our catalogs are ready for mailing. If you haven't received a copy, drop me a postal and you will get one by *return mail*.

Yours very truly, F. A. SALISBURY.

The A. I. ROOT COMPANY

F. A. Salisbury - Manager

SYRACUSE, N. Y.

A Successful Home-made Hive for only 50 Cents!

Fully described and illustrated by Mr. Allen Latham, in the Weekly AMERICAN BEE JOURNAL, for Jan. 25, 1906. It is a 32-page number. That copy and the thirteen following ones (three months), as a Trial Subscription, will be sent for ONLY 20 CENTS, in stamps or silver. Better order now before the Jan. 25th number is all gone. . . . By the way, the Weekly AMERICAN BEE JOURNAL is a 20-page paper every week now—full of most helpful information on bees.

Yon Yonson's Trip to the Moon in Search of New Races of Bees

in an airship with Mr. A. I. Gleanings (also in the Jan. 25th number) is a very amusing story. : : : : : : : : :

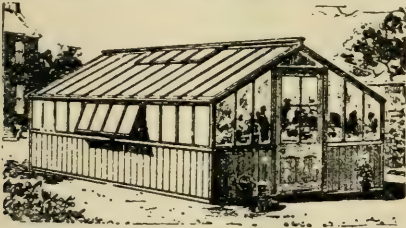
Hershiser Improved Combined Hive-stand and Bottom-board

is also illustrated and described in the Jan. 25th copy. The fact is, that number as well as the numbers EVERY WEEK are crowded with the very best things that are printed these days for bee-keepers. Better take a "TRIAL TRIP" subscription at 20 cents, as offered above and see for yourself; or send \$1.00 for a whole year's subscription. Address

George W. York & Co., 334 Dearborn St., Chicago, Ill.

PLEASURE AND PROFIT

A Premier Greenhouse will keep you supplied with flowers, fruits, and vegetables all the year round. Saves its cost in a season; gives tone to your residence, and creates a pleasant and profitable hobby.



The illustration shows a Premier Greenhouse—length, 12 feet; width, 8 feet; height, 8 feet. It has double walls, double-strength glass, plant-tables, etc., fitted complete; built in sections, and can be erected in two hours. The price is \$63.00.

George B. Clementson, Esq., Lancaster, Wis., writes: "The Premier Greenhouse is the most attractive proposition for the plant-lover I have ever seen."

Catalog and price list on application. Greenhouses from \$20.00. Conservatories, Garden Frames, Summer Cottages, Auto-houses, Poultry-houses, and Portable Buildings of every description.

Charles H. Manley,

Dept. B C. Premier Manufacturing Works, St. Johns, Mich.

Farm and Stock is an illustrated monthly magazine in the interest of CORN BREEDING, Cultivation and Live Stock. Price \$1 a year, but for a short time will be sent a year on trial for 10c and names of ten farmers who grow corn.

Farm & Stock, 251 Charles, St. Joseph, Mo.

GOLDEN Opportunities!

EXIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove or a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

J. W. WHITE

Gen. Indus. Agt., Portsmouth, Va.

Seaboard Air Line Railway



FRUIT BOOKS FREE

Send your name and address at once and you will receive by return mail sample copies of the BEST FRUIT PAPER and full particulars about the "Bro. Jonathan Fruit Books," which may be secured free.

FRUIT-GROWER COMPANY
216 SOUTH 7TH STREET, ST. JOSEPH, MO.

B - U - A BEE-KEEPER

~~~~~

If so, you are entitled to the

## New 1906 Lewis Catalog

WHILE it is desired that this catalog shall be in the hands of every bee-keeper in the land, we beg to advise that the edition is limited and extra copies will soon be at a premium. If you desire the Lewis catalog this year, send now to insure receiving a copy. The Lewis catalog this season leads all the rest. You will find it the handsomest handbook of bee-ware published, listing everything of use to the bee-keeper. The Lewis catalog is acknowledged the plainest bee catalog issued. Any one can understand it, so that it is easy to order from. Hives and supers this year, as well as many other articles, are very clearly illustrated by handsome full-page cuts, which are reproductions of actual pen-and-ink drawings made from the goods themselves, showing plainly all details, which is much to be desired by the bee-keeper, whether he be a specialist, or a beginner with one colony. . . . It is free for the asking, and can be had from any of the following:

## G. B. LEWIS CO.

### WATERTOWN, WIS., U. S. A.

or any of its agents

ENGLAND—E. H. Taylor, Welwyn, Herts.  
CUBA—C. B. Stevens & Co., Havana.

C. B. Stevens & Co., Manzanillo.  
CALIFORNIA—Paul Bachert, Lancaster.

The Chas. H. Lilly Co., San Francisco.  
COLORADO—R. C. Aikin, Loveland.

Arkansas Valley Honey Producers' Association.  
Rocky Ford.

Colorado Honey Producers' Association, Denver.  
Fruit Growers' Association, Grand Junction.

Robert Halley, Montrose.  
ILLINOIS—York Honey & Bee Supply Co., Chicago.

IOWA—Adam A. Clark, LeMars.

Louis Hanssen's Sons, Davenport.

INDIANA—C. M. Scott & Co., Indianapolis.

MICHIGAN—A. G. Woodman Co., Grand Rapids.

MINNESOTA—Wisconsin Lumber Co., Faribault.

MISSOURI—E. T. Abbott, St. Joseph.

OREGON—Norris & Anspach, Kenton.

PENNSYLVANIA—The Chas. H. Lilly Co., Portland.

PENNSYLVANIA—Cleaver & Greene, Troy.

TEXAS—Southwestern Bee Co., San Antonio.

UTAH—Fred Foulger & Sons, Ogden.

WASHINGTON—The Chas. H. Lilly Co., Seattle.

# GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests  
Illustrated : Semi-monthly : One Dollar per Year  
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

FEB. 1, 1906.

No. 3



LOUIS SCHOLL advises a flight after hauling before cellaring, p. 73. Do they cellar bees "in the Southwest"? [Perhaps he is giving some good advice to his friends in the North.—ED.]

CAUCASIAN BLOOD is said to be the hardest kind to get rid of when once introduced, and that seems to be used as an argument against Caucasians. Let's be fair. That fact alone is rather in their favor—shows they have staying qualities.

I'VE READ Hutchinson's new book. It has the fine quality of being readable, and has a lot of good stuff in it. As might be expected from one who is almost daft in that direction, the excellent typography and the fine pictures in the book make it a thing of beauty.

DR. BRUNNICH says, p. 86, that a fertile queen will fast two hours without injury, while a virgin will starve in an hour. One would suppose just the reverse, for the laying queen has the extra draft of furnishing eggs. Yet as I try to recall cases of starvation, it does seem that the doctor is right.

"ADVANCED BEE CULTURE" is said to contain 330 pages, p. 71. It has only 230; but by some curious mistake the last six pages are numbered wrong. [Thanks for the correction, doctor. I looked at the last page, saw the number 330, and supposed it was, of course, correct. There was not much harm done, because this book can not be judged by the number of its pages as to its intrinsic merits.—ED.]

HERE'S HOW Mary Wood, p. 97, can safely poison roaches: Take two small thin boards, and on one of them spread the poisoned food within half an inch of each side. Tack the other board over this; but instead of letting it lie flat down have a piece of section between the two boards at each end, thus keeping them  $\frac{1}{2}$  inch apart. Lay this on the floor of the hive. The roaches can get in, but the bees can't. [That is an excellent plan provided the roaches can get into a space of  $\frac{1}{2}$  inch.—ED.]

G. M. DOOLITTLE doesn't know why a candle disturbs bees in a cellar less than a lamp, page 80. Is it not because the light of the lamp is so much stronger, Bro. Doolittle? Let me suggest this: Take the cover of corrugated paper in which you frequently buy a lamp chimney, cut a hole an inch or so in diameter in one side, put this on the chimney so it will make a sort of dark lantern, turn down the light till it is no stronger than a candle, and see if you don't like it better than a candle.

IMPROVEMENT in bees by "breeding queens on an island with selected drones" is mentioned, p. 76. Good thing. I wouldn't say a word against it, but the thing that's most needed is not so much some great improvement made by one man as even a little attention to the matter of selection on the part of all. My next-door neighbor may keep the best or the poorest cows, and it makes no difference in the yield of milk from my cows; but if his bees are not as good as mine my honey crop will suffer for it so long as I can not control mating.

W. K. MORRISON makes some points on p. 84 that I'll settle with him for if I ever catch him out alone; but his last remark has set me to thinking. If I wanted to try a novelty in sections it would be something like this: A section less in height than width, two beeways,  $1\frac{1}{2}$ , and without separators. I am sure the bees would make more even work than upon thicker combs, and would



finish them more quickly. I'm almost sure that little harm would come from the lack of separators in building combs so thin and of so little height, and I fancy the bees would feel just a bit more comfortable to be allowed to build combs of a thickness they naturally choose, and with no separators in the way.

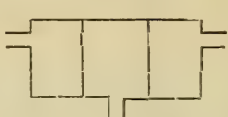
"DIE Europaeische Bienenzucht auf Amerikanischer Grundlage" (The European Bee Culture on American Principles). How is that for the name of a new bee-journal? The editor and publisher is Herr A. Straeuli, Pastor in Scherzingen (Thurgau, Switzerland), a man who for years has consistently advocated American methods. The first number is a fine specimen of typography, and its contents are entirely in keeping with the name of the journal. Herzliche Gruesse aus dem "wild and woolly West," Herr Straeuli.

D. M. MACDONALD quotes in *British Bee Journal* the advantages I claim for bottom starters, and asks: "Does not the use of full sheets secure all this without the labor of double fixing?" Not by a long shot in this locality, my good Scotch friend. I had much experience with full sheets fastened only at the top. The comb was not so fully built to the bottom—sometimes not at all, and, as a consequence, not so fully filled out at the sides. When honey was coming in slowly, one side of the section was filled faster than the other, and that made the comb swing over to one side so much that sometimes the lower edge of the foundation was fastened to the separator. If you will give bottom starters a fair trial, I think you will find that they will work all right in Scotland.

"REVOLUTIONS don't go backward; look out for the Sucker State next time." That is what I said in last Straws. I meant look out for what would be done by the next legislature. Here's an item from a Chicago daily that shows the trimmers are beginning to see the handwriting on the wall:

Representatives who, at the last session of the legislature, voted against the local-option measure, now are begging quarter of the Illinois Anti-saloon League. State Secretary E. H. Curtis, of this city, has received during the last few days letters from fifteen legislators who voted against the bill, promising that, if the League will not oppose their renomination and election, they will vote in favor of the measure at the next session of the legislature.

[The same thing is going on to a greater or less extent in other States. The time was, and is in some States yet, when legislators were willing to curry favor with the brewers and liquor-dealers. It is one of the signs that the millennium is coming when some of these same legislators seek the support of the temperance and church people. Here in Ohio there is a good prospect that one or more important temperance measures will be passed, for one of the issues in the late campaign was the Anti-saloon League of Ohio, with the result that the League was vindicated by over 40,000 majority.



"BUT WHEN we have a triplet box we introduce a complication, because we are compelled to get one pair of holes pretty close together," p. 69. Not if you make 'em this way. [Y-e-s, and perhaps I shall have to confess you have the best of the argument on this point if we consider that alone. But there is one feature that I did not mention, and that is this: The two-compartment mating-box is a perfect cube. The division-board in the middle is very thin. The two little clusters of bees will form in the shape of two hemispheres when cool nights or cool weather comes on, one on each side of the division, making one compact cluster, except that a thin board of only  $\frac{1}{16}$  inch passes between. Now, then, when you divide the mating-box into three compartments you make it oblong, and the result is that the two stronger clusters of bees will form hemispheres on each side of one division, leaving the other cluster of bees high and dry. This is not mere theory, but was proved by our experiments last fall. Briefly stated, my objections to a three-compartment mating-box are that it departs from the shape of a cube, and is liable to result in one of the clusters being left without the advantage of the combined heat of the cluster on the side next to it.—ED.]

"COME, NOW, doctor, will it not pay you to rear pure Italian queens, and requeen every colony that does not have pure yellow blood?" quoth ye editor, page 68. I have thought a little of getting pure Italians, not for the sake of having less propolis, but because my hybrids are so outrageously cross; but just now, when I read your question to my assistant, she promptly replied with some warmth, "Not much, Mr. Ernest, we have worked too hard all these years to bring our bees up to their present standard to throw it all away for a little bee-glue or a few stings." If you'll send me a queen of pure stock that will store within five per cent as much as my present stock. I'll pay for the queen and give you a commission besides. [Tell me, doctor, what your present stock will do; and if I can not pick out pure Italian stock that will average as well as your, 'er, well—mongrels, then I will consent to let you go on with your bee-glue and your bee-stings. But I see no reason why the same intelligent care in breeding will not produce as good honey-gatherers from pure Italian stock as from a mixture of blacks and Italians. If you really want stings and bee-glue, why not have a mixture of cross Cyprians and Punic bees? But, joking aside, is it not true, doctor, that the records of some pure Italians are better than the records you have been able to obtain with your mixed blood? I have never really believed the doctrine that it is necessary to have cross bees in order to get good work. We have had too many examples of gentle bees being good workers to make me think otherwise.—ED.]



**A BATTLE ROYAL BETWEEN A NEST OF BIG RED ANTS AND A COLONY OF BEES.**

A MOST interesting and valuable article on some large red ants in Florida appears in another column, from the pen of Mr. O. O. Poppleton. We have published many an interesting article, but never one more entertaining than that contributed by our correspondent. All of our readers, especially those interested in nature study, should peruse it. A battle royal between a big nest of red ants and a powerful colony of bees must be one of the most interesting sights in the world. Then that big rooster — well, read the story yourself.

I saw some of these large species of ants while in Arizona, but was kindly warned by the bee-keepers to "keep a respectable distance away." But I could not resist the temptation to "poke" them with a long stick. The way they would stand up on all fours (or sixes, I might say), and show fight with their powerful jaws was enough to command my admiration as well as my fear. When they saw me on the end of the "big stick" they made a bee-line for me and I — well, I moved on.

**REMARKABLE WEATHER IN JANUARY IN SOME PARTS OF THE UNITED STATES.**

IN this locality, at least, it has been a most remarkable January. An unprecedentedly hot wave struck us on the 20th, 21st, and 22d, the temperature running up to 74 or 75, and hovering near that point night and day. The remarkable thing about it was that, *during the very same period*, the temperature at Duluth, Minn., was down to zero, and in parts of South Dakota and Canada it was 20 to 30 below zero. At St. Paul it was 2 degrees above. In New Orleans it was not quite as warm as in Cleveland. In Kansas City the mercury stood at 20. The weather-forecasters predicted a cold wave from the west; but although three days have elapsed it has not yet come (Jan. 23, 9 A.M.). But we see by the papers that Chicago is suffering in the embrace of a very severe blizzard, and that communication by telegraph and telephone was temporarily cut off.

We have had January thaws in northern Ohio, but nothing like this for 35 years, according to the Weather Bureau, although in our issue for Feb., 1880, some reported their bees as carrying pollen in January, during which month a remarkably warm spell struck us here in Ohio. On Sunday, the 21st of the present month, doors and windows were

open in most of our homes, and the bees were having as big a gala time as we ever saw during the balmiest days in May. It was so very warm that, before we knew it, there was some robbing. Robbing in January — we never had such a thing before.

*Later.*—The much and long expected has come. The temperature, in five hours, dropped from 63 to freezing, with a high wind. The bees have quit their play and robbing, and the wind pierces to the marrow of the bone.

**EXPERIMENTS AT MEDINA IN WEIGHING UP STORES CONSUMED BY BEES OUT-DOORS AND INDOORS.**

FOLLOWING our usual practice, which practice is in line with that of Doolittle and others, we put up half the bees outdoors in double-walled hives and winter cases, and the other half in the cellar. When they were fixed up finally for the winter the hives both indoors and outdoors were weighed. During the very warm spell of weather referred to in another editorial, we brought a part of the bees in the cellar outdoors, and let them have a flight. After the flight they were all weighed up to see how much of the stores they had used up during confinement. The test comprised 15 hives in order to get an average. These were compared with 15 other hives of equal strength outdoors in double-walled hives and winter cases.

Now, you might guess that the amount of stores consumed outdoors would be twice that consumed indoors; but the figures show that  $4\frac{1}{2}$  lbs. was the average consumption up to date for the indoor bees, and 5 lbs. for the outdoor. Practically there was no difference; but taking into consideration the extremely mild winter we have been having, the winter has been very favorable to outdoor bees and decidedly unfavorable to those inside. But even taking the conditions as they were, the indoor bees showed a slight gain of half a pound in the amount of stores saved.

The winter thus far has been for the bees one of the mildest we have known for many years; and it is not surprising, therefore, that the actual amount of food consumed by the outdoor bees should be little if any more than the food consumed by the indoor bees. When we come to weigh up next spring we may see more difference; for when winter "comes in like a lamb" it is liable to "go out like a lion." Another winter, if a severe one, would show, I think, a decided gain in favor of the inside bees.

**EXPERIMENTS IN VENTILATING OUR SHOP BEE-CELLAR.**

DURING the very warm spell referred to in another editorial, the bees in the shop cellar began to get uneasy because of the high temperature of the cellar, part of the time running as high as 70 degrees. We opened the doors of the other apartments, but this did not have a tendency to reduce



the temperature, much less to quiet the bees. We put a small electric desk fan in the doorway, and let it run for an hour or two, when, presto! the temperature dropped, and the bees stopped their zip, zip, buzzing and flitting to the floor. But the temperature went down no lower than 62. Of course, a blast of air does not change the temperature; but if the air in any part of the cellar is lowered it will tend to equalize the temperature. You see the fact was, the bees had warmed up their apartment by their own body heat. When we gave them fresh air from one of the other compartments by means of an electric fan and reduced the temperature, they quieted down.

On Sunday, the 21st of January, when it was very warm, I found the bees were quite uneasy. As there was no current on to run the fan I opened the doors; but as no air was stirring it did not produce the desired effect; for, as a matter of fact, the temperature outdoors was the same as that inside, and there was no circulation. That night, when the current came on, I started the electric fan, and in the course of an hour I had the satisfaction of observing that the bees were quieting down. Now, mind you, the temperature had *not changed one degree*; but the *air was changed and freshened up*. What was the temperature? It was 63.

When I hear anybody say that it is not necessary to ventilate bee-cellars, I say yes and no. There are very few cellars indeed where it is not better to ventilate, and these are the ones where the temperature can be kept near 45 almost throughout the winter; but where it is liable to go up to 60, then I believe that ventilation is a necessity if we would have good results. Prior to the warm days just mentioned I took quite a prominent bee keeper into our bee-cellar. The bees had been in about two months. We looked down on the cellar bottom, and it was so clean of any stray dead bees that I concluded it must have been swept, and so informed our friend; but later I learned from Mr. Pritchard that the broom had not been used in the cellar at all.

#### "HIGH LIGHTS" OF THE CHICAGO CONVENTION.

I HAD intended to give a summary of some of the discussions, but finally decided not to do so, in view of the fact that the official verbatim report will be out soon, and that the membership, at least, can get a copy, and others interested can secure one by becoming a member by the payment of \$1.00 to the General Manager, N. E. France, Platteville, Wis. In the way of a prelude to the reading of the report, I might say that at this convention there were several "high lights" (borrowing a term used in photography) that left a strong impression on those who were permitted to be present. I will not mention them all; but suffice it to say that Dr. E. F. Phillips, in charge of apiculture at the Department of Agriculture, Washington, fairly captivated the convention. His paper detailing the work done by

the Department was listened to with the closest attention; and the discussion that followed showed that the members were deeply interested.

R. F. Holtermann was another high light who aroused considerable interest in his methods of producing extracted honey. A. K. Ferris, of Madison, Wis., told of his method of swarm control; and L. A. Aspinwall, of Jackson, Mich., described his system of producing comb honey, by which, also, swarms could be held in check at the same time. The details of these various methods will be given later in GLEANINGS, for some of the writers have promised to write them out more fully than they gave them at the convention even. Mr. Holtermann is already describing in this issue his honey strainer.

A very pleasant incident occurred in which Mrs. J. J. Glessner, of Chicago, presented, through Dr. Miller, two gavels—one for the President of the Northwestern Bee-keepers' Association, of which G. W. York is President, and the other to the National Bee-keepers' Association, of which C. P. Dadant is President. These gavels were made out of a tree planted by Rev. L. L. Langstroth at his old home in Dayton many years ago. Dr. Miller was in a reminiscent mood, and gave some interesting history regarding Langstroth. Then he also read some letters from contemporaries of Langstroth that had never been made public. While perhaps there was not much in this in the way of valuable bee-lore, yet I think the convention did well to spend a little time in a substantial recognition of the man who revolutionized bee-keeping throughout the world by his inventions.

O. L. Hershiser read a valuable paper on wax-presses which created an unusual amount of enthusiasm. Some thought presses were unnecessary because they were *sure* they could get *all* the wax out of the comb. Mr. Hershiser jolted the confidence of these people considerably when he offered to pay them a dollar a hundred for all their slumgum and pay the freight on it to Buffalo. He made big money out of people who talked that way, and could do it again.

The unconventional conventions between sessions were a prominent feature of this meeting. There was a large exhibit of bee-keepers' supplies in a couple of rooms adjoining, and thither the bee-keepers would congregate to discuss the merits of the various new things that were presented. I believe that these little conferences between sessions are often more valuable than the regular convention discussions, because each bee-keeper can inquire into the very thing he wishes to know most about by going to the expert who is best posted on that particular phase of the subject concerning which he inquires.

There were numerous other "high lights" such as C. A. Hatch and William M. Whitney, who were active in the discussions on the floor, and contributed much of value to the meeting.

ADVANCED BEE CULTURE—NEW REVISION;  
CONTINUED FROM LAST ISSUE.

In the chapter "The Management of Hives and Buildings" two things, the author says, need consideration: The convenience of the operator, and giving such an individuality to each hive that each bee can readily distinguish its home. The apiary ought to be some distance from the highway. Nearly level ground is preferable. If it slopes to the south, so much the better. The honey-house or building should be located on one side or corner, so that the whole apiary can be taken in at a glance. As to the arrangement of hives, he seems to prefer the group plan rather than the straight-row idea because it gives an individuality to the hives.

In the chapter entitled "Comforts and Conveniences in the Apiary" he enumerates a number of useful tools—first a hive-cart such as is used by H. R. Boardman; an arrangement for opening the screen door into a honey-house by stepping on a pedal, as used by J. A. Green, is especially recommended. A spring-bottom oil-can to squirt kerosene on smoker fuel when firing up the smoker also has his approval. The clothing should be so arranged that one garment can telescope into another in such a way as to prevent the bees from crawling up under against the person of the bee-keeper. He has no use for gloves. They would seem to him too much like a cat with mittens on trying to catch mice. The lawn-mower (scarcely a comfort) is a necessity. A smoker is indispensable. The articles for lighting the same should be convenient, matches especially. A wheelbarrow, and a bee-brush of the Cogshall pattern, receive his special approval.

"Shades for Bees" is the title of the next chapter. This is dependent somewhat on the locality. The regular standard shade-board, the board projecting more in front than in the rear, with hives always facing east or west, he regards as very simple and effective. Trees, he thinks, furnish too much shade at the wrong time.

In the chapter "On the Contraction of the Brood-Nest" he does not advise the contraction of an established colony. If it does not fill its hive properly at the time of putting on the sections, then contraction is necessary if the colony is to be worked for comb honey. A really contractible hive of the right sort he regards as the Heddon, because contraction is accomplished horizontally rather than vertically.

In the chapter "On the Use and Abuse of Comb Foundation," which, by the way, was the subject-matter of his first book, of which this one before us is a revised edition, he says, "All through the working season wax is being secreted by the bees to a greater or less extent; and, if not utilized, it is lost." For the production of comb honey he recommends hiving swarms on starters, then putting on top a super of drawn or bait comb. When the bees once get in the habit of storing above they will keep on putting their surplus there. He made repeated experi-

ments in hiving on full combs, on full sheets of foundation, and on starters. The first plan he found to be expensive and wasteful. The full sheets of foundation gave good results, but no better than the starters. While there will be some drone comb built, yet about eighty per cent of his combs were all worker, and the equal of those built from full sheets of foundation. A queen-excluder must be used when hiving on starters, and a small brood-nest in addition, he says, is imperatively needed. At this point I suppose he refers to the divisible Heddon hive, and the reader will find difficulty in harmonizing this statement with a former one in the book favoring the Langstroth hive. As great emphasis is laid on the production of comb honey, then, after all, the bee-keeper (if he follows Mr. Hutchinson's advice when running for comb honey) would have to use the shallow hive instead of the full-depth Langstroth which he advises earlier in the work. But perhaps the major part of this chapter was not "revised," and was written at a time when he preferred the Heddon.

"Increase, its Management and Control," is the title of a chapter that is very fairly written. He recognizes the difficulties in this vexatious problem of keeping swarming under control. The causes that lead to swarming he believes to be an undue proportion of young or nurse bees to the brood to be nursed. Giving bees an abundance of empty comb in which to store their honey overcomes this condition, and swarming very seldom occurs. In short, he says extracting the honey, or, to be more exact, giving plenty of empty comb, is the most successful practical method of controlling increase. In the production of comb honey it is doubtful if there is a profitable method of preventing swarming. But "shook" swarming he thinks is the best solution of the problem, because it enables the bee-keeper to handle his swarms at his own convenience. Then he goes on to describe the *modus operandi*. For the prevention of after-swarming he recommends the Heddon method, which, though, he says is not infallible. He concludes the chapter by saying the man who is raising comb honey as a business will find it to his advantage to allow each colony to swarm once, then make the most out of the swarm.

The chapter "On Hiving Bees" deals with methods for handling the swarms after they have issued from the hive. Natural swarming, he says, with its uncertainties, anxieties, and vexatious losses, is destined to become a thing of the past. Artificial methods will take its place; but where swarms are allowed, the queen's wings should be clipped or her flight controlled by means of a trap in front of the entrance of the hive. This saves a large part of the work of hiving, avoiding the climbing of trees, and, to a great extent, the mixing of the swarms. Swarm-catchers, devices for putting over the entrance as the bees are pouring out, are described and discussed.

Driving or bringing down swarms while



in the air by means of a spray of water from a suitable pump is recommended.

In the chapter on "Commercial Queen-Rearing," various late methods are described — notably the Pridgen, the Stanley, the Laws, and the Swarthmore. As Mr. Hutchinson is an old queen-breeder, he is at home on this subject, and the chapter is well worthy of a careful reading.

On the subject of "Introducing Queens" Mr. Hutchinson is equally at home. He describes conditions favorable to introducing; and particularly does he mention the importance of having the queen behave properly when placed among her new subjects. The Simmins method of direct introduction is commended. But queens that come from a distance must be handled differently from those just taken out of the hive. When one comes, however, in a jaded condition he would put her in a wire-cloth cage that is open on one side, and press the cage against some brood and unsealed honey. The tobacco method as well as the young-hatching-brood methods both receive favorable consideration.

The chapter entitled "Feeding Bees" will be considered orthodox from the standpoint of most bee-keepers. The author is somewhat doubtful of the value of feeding to stimulate in the spring, although he thinks it is advisable to give syrup when there is a dearth of honey shortly before the honey-flow. He mentions Mr. Boardman and Mr. Alexander, who not only feed to keep brood-rearing in progress, but to fill the brood-nest with sealed stores so the surplus honey, when it does come in, will be forced into the supers.

Feeding back to complete unfinished sections may at times be very profitable, in the opinion of the author. He has fed back thousands of pounds of extracted honey, and his method, briefly described, is as follows:

The unfinished sections are divided off into three grades — the best-filled, the next best, and the poorest, each grade being put into separate supers by itself. He prefers, first, black bees; next, hybrids. The colonies must be strong, and have young queens. Having selected the colonies, he puts on first a super of the best-filled sections, then on this another super of the second-best filled; on top of all, a Heddon feeder. This is filled with the best grade of extracted, which has been thinned down with hot water to the proportion of one quart of water to ten pounds of honey. The feeding should be done at dusk, for any feeding puts the bees in an excited state, and when there can be no flying there can be no uproar. The second-best filled sections, being on top next to the feeder, will get the most feed, so that both upper and lower sets of sections will be filled about the same time. After the combs are drawn out to full length, and filled with honey, he feeds no more for two or three days. This is for the purpose of making the bees cap the sections over in the mean time, instead of drawing out the comb to hold more honey. If there is any time

when separators are needed it is in feeding back.

The author admits that there are two objections to feeding back. One is, that the fed honey has a slightly different or "off" taste from that stored directly from the flowers. The other objection is, that "fed honey" will candy quicker than other honey.

Taking one year with another, he has secured about 2 lbs. of comb honey for every 3 lbs. of extracted fed. With the right kind of weather and colonies he has done much better, sometimes going as high as 4 lbs. for every 5 lbs. fed.

In closing this chapter he urges bee-keepers to be sure that honey to be fed to bees for any purpose contains no germs of foul brood. To buy honey in the open market and feed it to the bees would be a most risky proceeding. For stimulating feeding and for winter stores he strongly urges sugar syrup, because, he says, it is cheaper and safer as well as better.

In the chapter entitled "Production of Comb Honey" our author attaches great importance to strong colonies overflowing with bees; the brood nest should be crowded with bees and brood at the opening of the harvest. Unless there is a crowded brood-nest bees are inclined to store below, and loaf; when the hive is jammed full of bees it results in a "pressure," so to speak, that forces bees and honey into supers.

While he considers unfinished sections or "bait combs" as an advantage to induce the bees up into the supers, he seems to favor the giving first a super of half-depth extracting-combs. When the bees get well started in these they are taken off and section supers are put in their stead. Toward the close of the season these extracting combs may be put on again to catch the tapering flow.

In the matter of tiering up, he has not found it profitable to go more than three supers high at a time.

The chapter entitled "Extracted Honey" is an extra good one. One reason, he says, why comb honey in so many instances is found to be more delicious than extracted is because the former is more thoroughly ripened. Seldom does he find extracted honey equal to that dripping from and surrounding a section of honey.

While he admits that the dark and off grades of honey may be extracted, perhaps before they are fully ripe, because this honey is sold for manufacturing purposes, the real fancy table article he thinks should be left on the hive until it is entirely capped over and ripened. By having an extra supply of combs they may be left on the hive until the bees have been permitted to put on the finishing touches in the matter of flavor. He would leave the honey on the hive a few weeks after it is sealed, because all such honey seems to acquire an added richness. Of course, it may be difficult to extract, but supers containing such combs before extracting should be stacked up in a warm room.



# CELLAR WINTERING UNDER AN EMPTY HOUSE.

"Hello!"

"Is that Mr. Doolittle?"

"Yes. Who is speaking?"

"Alpine McGregor."

"What! 'way down here from 'frozen Canada'?"

"Yes; only, perhaps, we are no more frozen than parts of York State."

"Well, I guess you may be right; for it is cold enough here to satisfy almost any one. But never mind. We have a good fire in the house, or in the shop—which shall we go to?"

"Perhaps the shop, for we shall be the least likely to be disturbed there."

"All right. Enter. Here, take this big easy-chair, for you must be tired from your long journey. What can I do for you?"

"If you have time I should like to have a little talk with you."

"All right. Time is one of the most precious commodities I have; but it may be fully as precious to me when talking with you along bee-lines as when used in any other way. In fact, the time spent with and about the bees always seems to render more value to me than any thing else except time spent in the service of the Master. What is the 'little talk' to be about?"

"I want to know how to fix my house or bee-cellar, or both, so as to secure the same temperature where the bees are to be kept, when no person is living in the house, as now when a fire is kept going night and day in the room above the bees."

"This is quite a problem; but before we tackle it allow me to ask, why this question?"

"Because I expect soon to live in the city during the winter, when the house will be empty and the bees in the cellar."

"Yes, I see. Have you thought of any plans to secure the satisfactory results you wish to obtain?"

"Yes, I have thought of two. First, nail boards on the under edge of the joists, or sleepers, thus ceiling the top of the beeroom."

"How wide or deep are your sleepers?"

"They are twelve inches wide or deep below the floor."

"That is a greater width than is generally used here in this State, and will be a help to you in your plans. What besides the boards had you planned using? Or is your idea that of having only a dead-air space between the floor and the boards?"

"I propose to fill this space with dry sawdust as the boards are nailed on; and when I come near the finishing end I will put in bags of sawdust so it will not run out, or

take up a floor board and fill in from above so that the whole space may be completely filled. Which do you think would be preferable?"

"If the floor board can be easily taken up, the filling in with the loose sawdust will be better; for with the bags there would be liable to be more or less open spaces without sawdust; and this would be against the object you are aiming at."

"My second plan is to make four large sacks, similar to the mattress for a bed, the same being of a size so that the four would just cover the floor above. These are to be filled with chaff or cut straw. And I will also make a long narrow one which will just fit in the hallway, which is slightly to one side of the bee-room below."

"Yes, I see—any thing else?"

"Yes, I had thought of one other way, but consider it too dirty for practical use, so have dismissed it entirely."

"Well, if you have dismissed it probably you may be right. But it often happens that the thing we discard proves to be just the thing that would have been the better."

"Possibly that is right. The thought was that of covering the floor above the bee-room with loose cut straw, chaff from oats, or alsk-clover chaff."

"I see. But what is there dirty about this cut straw or chaff?"

"I thought it would destroy the paper on the lower part of the wall, and make the house unfit to live in during the summer."

"I am not so sure about that. Surely all you have mentioned are clean substances—only, perhaps, the dust, and dust we always have, even with the most particular house-keepers. Just set some boards up edgewise about the room to keep the chaff off the paper; and, if you feel that way, put newspapers over the boards, then fill in the chaff to the depth you wish it, and you are all right. Of course, you will take up the carpet before putting in the chaff. When spring comes, and you wish to live in the house again, take out the chaff, the same as the straw is taken out with those who use it under carpets, and sweep the floor a couple of times, and you have nothing dirty left if I see things correctly."

"Then you prefer the loose chaff to mattresses?"

"I certainly should. Where sacks, bags, or mattresses are used, there are spaces where the air can pass through rapidly; and thus a sort of draft is made at these places; but with the chaff evenly distributed over the whole, such do not appear except as one great whole, and thereby we can secure a greater evenness. But do I understand that you will leave the sawdust below the floor out of your plans, if you adopt the chaff above?"

"Yes, that was my calculation. What do you think?"

"I certainly would use both, for I have found that the best protection you can use, with an empty house above a cellar, is none



too much. Put your sawdust in by all means, as that will not only help regarding the temperature, but it will also take up much of the moisture, thus allowing your chaff above to remain dry and nice till you take it out in the spring."

"Well, I thank you for this thought. I believe you are right."

"What is the temperature in your beehroom now?"

"About 45 degrees. It varies from 42 to 48, but can be kept between 45 and 48 if the windows are properly protected, as I now have them."

"Well, that is a good temperature, I am sure. Do you have any ventilators for the cellar?"

"No; and, so far as I can judge from the past, none are needed."

"That accords with my views."

"Any thing more?"

"I just want your views regarding just *how low* the temperature may go in a beehroom, *how long continued*, and yet secure *fairly* goods results in wintering bees. That is all."

"Of course, the 45 to 48 degrees is the nearest right of any thing you can have; but should the mercury drop to 40—yes, or as low as 35—for a day or two it would do no particular harm. But with the cellar fixed with the foot of sawdust below the floor, and eighteen or twenty inches of dry alsike-clover chaff above the floor, I do not think it will fall much lower than it has been in the habit of doing while you have been living over the cellar. In fact, I think you will get a more even temperature in this way than you have formerly had. Of course, you will see that the outside walls of the cellar are well protected, so that the cold will not get in from that way."

"Yes, I have these walls well protected. I'll be going now. Good by."

"Good by, Mac."



#### A HONEY-STRAINER INSIDE THE EXTRACTOR-CAN.

Honey Direct from the Comb to the Storage-vessel.

BY R. F. HOLTERMANN.

The manufacturer is constantly seeking, through his own ideas and those in his employment, to reduce the cost of production; and the one who has the shortest cuts, who can produce for the least money or least outlay of labor, can, with a smile, reflect upon

the principle of "the survival of the fittest." In honey-production, and in the production of many other articles, we have not only to meet the competition of those engaged in the production of an article the same as what we produce, but we have to face the fact that there are many articles which, in a more or less direct way, enter into competition with our own production.

Bee-keeping, in my estimation, is on the threshold of very great developments. It is going to be on a sounder footing than it has been. Good wintering, better management during the spring, the prevention of swarming, selection and control in breeding, and more modern appliances, are going to result in larger returns per colony. Added to these, better appliances will reduce the cost of production; and, although proper help and effort on our part would and should enable us to create a greater demand for honey, yet, if need be, we shall be able to sell at a lower figure, and yet make a better margin of profit.

For two seasons I have, in a more or less quiet way, been carrying on tests in the straining of honey, and have been seeking to reduce the labor in this connection, as it comes in at the time when every moment counts, when few have any time to waste, be they of the class with whom bee-keeping is a side issue, and those who have but little time to spare for the bees, or be they specialists who have many colonies and all require extracting at about the same time. During robbing time it is desirable to extract quickly in times when honey is coming in rapidly. It is necessary to be expeditious; and if, as is sometimes the case, the bees have turned from gathering light honey in inferior grades, urgent haste is required.

In studying out short cuts, and being crowded during extracting time, I conceived the idea of straining the honey before it left the extractor, and so arranging it that the honey would run from the extractor direct into the storage-tanks, barrels, or cans. All the advantages of the plan were not seen until the system had been tried; and now as far as myself and Mr. Morley Pettit, who has also tested the matter privately, are concerned, we would pay a good deal not to have to go back to the old system. With a six-frame extractor I have extracted and stored at two different times in 8½ hours, between 5200 and 5300 lbs. of honey, which was practically all capped; and I have, besides cleaning up and moving to two different apiaries, averaged for six days over 4500 lbs. per day. This season it is my intention to use an eight-frame extractor and one of your gasoline-engines, and an uncapping-machine at which I have been working for some time, and under the same honey conditions in the hive. I think I shall be able to extract easily 7000 to 7500 lbs. in a day of 8½ hours.

In the old strainer as it has been used, the honey is drawn from the extractor through a gate. It is run into a pail, and from there strained through a cotton or fine wire cloth above a storage tank. Where honey is ex-

tracted rapidly, cost is reduced to the finest point; and yet under such a condition one person is kept pretty busy attending to the drawing-off and emptying of the honey. Who has not had the experience of allowing honey to run into a can or pail, and, in attempting to do something else while the vessel was filling, allowing the honey to run over, with its consequent loss of the same, also the loss of a valuable hive in cleaning up the mess?

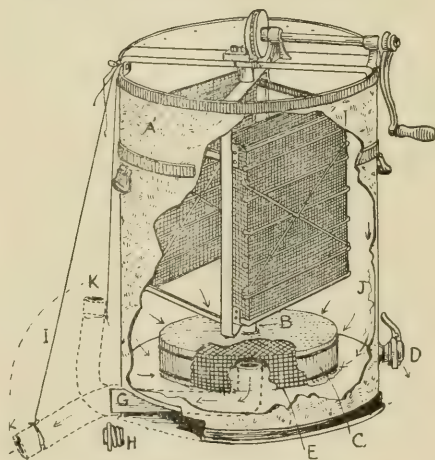
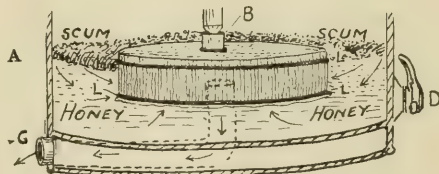
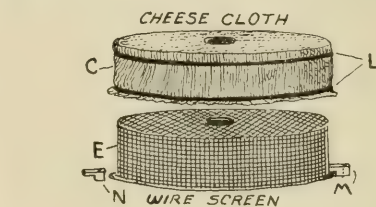
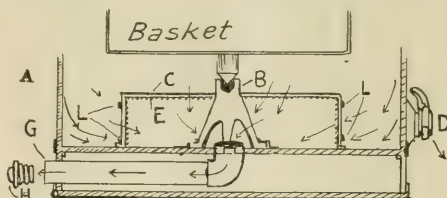
We long ago considered the only safe way was for one person to make this his only business. Next in the act the honey has been allowed to reach the level of the floor, and then it had to be lifted up to the top of the can upon which the strainer stands or lies. The scientific way of figuring this is foot pounds; from the floor to the top of the strainer, say 5 feet,  $4500 \times 5 = 22,500$  foot pounds or lift per day. This work and risk can be avoided. Next, honey strains more readily when warm than when cold. The person who is doing rapid work, and passes the combs from the hive through the uncapper, the extractor, and out, has the advantage of the person extracting slowly and allowing the combs to become more or less cold.

In this process of emptying into a pail from the extractor, and then lifting to a strainer, the honey cools and thickens and becomes more difficult to strain—*heat is lost*.

Again, with any strainer, where the honey is directly above it, every particle of scum, after the honey has run through, will fall on and stick to the cloth; hence the strainer becomes readily clogged and slow in operating. The portion of the strainer that is highest will first become clogged. I refer particularly to such a position as is found in a cloth sagging toward the center, and thus the cloth becoming readily clogged.

The extractor with the strainer illustrated in this article is placed by us either upon legs (I prefer this, and in this matter we might well take a lesson from our European brethren), or upon a high stand. The uncapper, instead of lowering the comb into a super with a drip-tray underneath, puts it into a super about on a level with his arm. The extractor-operator's position is on a stand conveniently high to the extractor. His empty supers are on a convenient pile to dispose of the empty combs. The extractor is set at a height so that the opening from it is higher than the top of the tank, can, or other vessel into which the honey is to be conducted. We, without inconveniencing ourselves, and without discomfort or unnecessary bringing up and down and again up and down, raise the comb to the uncapping-tank, then place it on the super on the same level; then put it in the extractor; work up to a definite point, the top of the extractor, and then by gravitation let it go to the storage-tank. Few are so situated that they can; or would it suit their purpose to run honey down a hill? If they are, the only difference will be that the honey-extractor will not need to be set up so high.

Now for a description of the strainer. A is the extractor-shell; B is the point at which the extractor-reel rests on the cone, which rises above the strainer. The strainer is fastened to the bottom of the extractor by four buttons or a similar device, M (closed); N (open). The strainer is constructed just the opposite way of an ordinary strainer. The pan, let us call it that, is inverted, and



HOLTERMANN'S HONEY-STRAINER.

the outside surface used instead of the inside. The upright surface is used, and the honey approaches the strainer and passes through it sidewise; but only in case of a partial or threatening block does the honey rise above the sides of the strainer, when



immediately a much-enlarged straining surface, the entire top of the strainer, comes into play. The honey runs down the side of the can, and then rushes in its impetus from all sides to the center of the can, where, warm from the comb, every feature, impetus, and warmth being taken advantage of, it is forced through a strainer of wire cloth and a fine quality of cheese-cloth over it. The scum naturally keeps to the top; finer particles are drawn down; but whenever the strained-honey outlet is closed it begins to gravitate toward the top of the honey, and finally, when the extractor is emptied, almost all of it will rest on the bottom of the can between the extractor-can wall and the strainer.

The first thing in the morning, this, with a flat-ended scoop, is collected and emptied through the gate. In this way I have used the strainer, without further cleaning, day after day, or until *that* extracting was finished and every thing thoroughly cleaned as every extractor should be. I used to remove the cloth each day and wash it. This I did by placing the baskets and arms in a position to give the most room to get down, then slip on a long pair of print sleeves and remove and readjust the cloth. There is no great difficulty about this, but I found it unnecessary.

It may be fairly asked, "Why not cover the entire distance across the can with a strainer?" By this method the straining surface is not increased. Again, the scum must all settle on the strainer — a very objectionable feature; and, next, a very important feature in my system, and which is a new feature also, is that if, for any reason, we have to extract honey very thick through cold, etc., artificial heat can be applied to the straining and unstrained honey, and kept applied until it passes out through the rubber hose K. This can be done to the degree required by putting a coal-oil or gasoline stove under that portion of the extractor bottom which has above it unstrained honey. The metal bottom being an excellent conductor, if needed it can heat the entire can, and the honey be made sufficiently warm for every emergency. My son Ivar has attended to using or not using, raising, or heating, covering the flame as required as he turned the extractor. For this idea I am indebted to a young man, a student of mine, Arthur Feather. The honey, as will be seen in the illustration, is drawn off through the pipe G, which runs from inside the strainer to the outside of the can, where it is connected with the pipe K, which is raised when the flow is to be shut off, and lowered when in use. A moment does the act.

The drawing is not quite correct. The outlet from the inside of the strainer should not be directly under the cone, but a little to the side. We have various lengths of this rubber hose, with joints, so the honey can be conducted at various distances. No one need watch the larger tanks, and they can be shut off when about but not quite

full, or the boy who handles the extracting-combs, if a barrel is to be quite filled, watches them at the last moment.

Another advantage I find in the strainer is that, in the old system, fine strings of honey are constantly passing through the air, carrying that air with it into the honey, and producing a froth somewhat like the white of an egg and air beaten together. This scum does not form with my strainer, because the honey, as seen by the lettering, flows unbroken through and out. It has been argued that the froth is foreign matter, such as wax particles. The froth, doubtless, will have this if the strainer used is not perfect, and the same care must be used in properly adjusting the cloth as with other strainers. It is well to bring the cloth right under the edge of the inverted wire-cloth strainer as well as using rubber bands, L, L.

This extractor can, perhaps, be improved. Several who have not used it, and therefore speak simply from theory, have tried to do so and failed. These features, however, must be retained: 1. A strainer inside of a honey-extractor; 2. Two outlets through the can, one for the strained honey, the other for the ejection, from day to day, of the scum which accumulates; 3. A portion of the unstrained honey to reach the bottom of the can before straining, this to enable the application of artificial heat when needed to allow the main portion of the scum to settle on the bottom of the extractor instead of the strainer; and, lastly, to allow a side surface as well as top surface through which the honey can strain.

In this system of straining, the honey is exposed to the air for the least time, and the aroma is retained if the honey is at once stored in air-tight vessels, which, in this system, it can be, as it is strained as it comes from the extractor. In straining in the ordinary way, or by gravitation, which requires storage-tanks, besides the added work, aroma is lost in the storerooms which ninety-nine out of a hundred have, and in ordinary climates moisture is collected, and germs of fermentation, which are always floating about, settle in the honey, and may be the foundation for trouble at a future time.

Brantford, Ont., Can.

#### DEPREDACTIONS OF ANTS OR BEE PARALYSIS.

How Species of Ants will Destroy Large Colonies of Bees in Florida; a Most Valuable and Interesting Account of Their Depredations and How to Combat Them.

BY W. F. MCCREADY.

I have just had an experience with bee paralysis, or something of a similar nature. On the 6th instant, at my out-apiary about a dozen bees were noticed clinging to the grass and trying to fly to their hive. Ex-

amination showed every thing, with one exception, seemingly in about its ordinary condition — bees covering six or seven combs; plenty of honey; pollen; considerable capped brood in two or three combs, although the queen was not seen or looked for. The exception consisted of a crack,  $\frac{1}{8}$  inch in depth, between hive body and bottom, the entire length of one side of the hive, which had been caused by a nail springing them apart when they were being made ready to move at the beginning of this season.

The superfluous opening was closed; and, as the affected bees were so few in number, it was hoped that the disease, if it were such, would be entirely eradicated by the time of my next visit, which it was the intention to make within two days.

Press of work prevented my seeing the colony until to-day, when all of the bees, except about half a dozen young ones, were found to be dead, on the ground about the front of the hive and an army of large red ants was in possession inside. The sick bees did not appear to be much if any swollen. If it was paralysis, did it not operate in an unusually short period of time?

When the combs were removed it was noticed that the bees had placed a covering over the hive entrance for an inch or more, as though trying to exclude the cold — although as yet we have had only a few nights that were sufficiently cool with all windows and doors open to require any addition to the summer bed-clothes other than a single light quilt or blanket; or were they probably trying to make the entrance smaller to enable them better in their weakened condition to repel the ants?

Estero, Fla.

[Not knowing exactly what the trouble might be in this case, and remembering that Mr. O. O. Poppleton, of Stuart, Fla., was not only an expert on all phases of bee paralysis but all other peculiar conditions in Florida, we forwarded Mr. McCready's letter to that gentleman for diagnosis, and he replies as follows. — ED.]

#### MR. POPPLETON'S REPLY.

To comply with your request to answer the questions asked by Mr. McCready in his letter brings up a matter of no great interest to any one outside of Florida, or at least of the extreme South, and one I had supposed had been fully written up; but in this I may be mistaken.

No. Paralysis does not act as quickly as in this case, and, in fact, Mr. McC. describes none of the ordinary symptoms of that disease. His colony was, without doubt, destroyed by ants, the large red species variously known as bull ant, horey ant, and sugar ant. With one exception these ants are the worst enemies bees have here in Florida, and only constant vigilance from September to December inclusive will prevent the loss of many colonies every season.

These ants are usually found in our hummock lands, and only occasionally in clean pine woods; are red in color; of very large size,

frequently measuring nearly or quite half an inch in length; are strictly nocturnal in their habits, being seldom seen in daytime except when disturbed or waging battle with a colony of bees; are usually found in decayed wood, through which they cut out galleries for use as living-apartments. A favorite place is in a partly decayed saw-palmetto root in the ground. Nearly every cabbage-palmetto tree contains a colony of them among the boots near its top, and for this reason a thick palmetto grove is one of the worst places an apiary can be located. They are also found in piles of old boards, and on the ground under old boards or logs. They also like to enter our houses and locate in trunks, boxes, drawers, and in almost any place where they can find a few inches of space to locate in. They are frequently found in the tops of our hives if there is sufficient space above the bees under the cover.

At sundown they start on their nightly quest for food; and if near an apiary a few of them will usually be seen running on some of the hives. As long as only two or three can be seen on any one hive, no special attention need be given them; but if a dozen or more are seen it means that they have probably selected that hive for their own use, and it needs close watching. They will continue their regular attentions to that one hive, gradually increasing in numbers until they decide they are strong enough, when nearly the entire colony of ants will boldly attack the bees by biting off wings and legs, and crippling them so they are of no more use. Bees fight back courageously, the battle continuing for hours, and sometimes a day or two, according to the relative strength of the two belligerents. The inside of the hive and the ground near by will be strewn with dead ants and dead and crippled bees; but it always ends with the destruction of all the bees, and the moving in and occupation of the hive by the ant colony. When ants have once chosen a certain colony of bees to work on, the bee-master has *got* to destroy the ants, root and branch, or they will in time destroy the bees. If a part only of the ants are destroyed they will simply bide their time until they have built up strong enough, and then do the work. I know of few or no living creatures more persistent in evil works than are these bee-killing ants. They also, in certain localities, do great damage to queen-rearing nuclei.

During the fall months I make it a practice almost every evening after dark in my home apiary, and as often as possible in the out-apiaries, to see by the light of a lantern the front of every hive; and any one on which I see three or four or more ants running over has a marker placed on it. If the number of ants on any one of those marked hives increases each night I give that hive especial attention until the ants get numerous enough to begin to worry the bees. When this occurs, bees commence to whine, as I call it — that is, utter a fine sharp note with their wings. As the ants get bolder



the cry of the bees becomes louder and more frequent—so much so that I have frequently heard it fully fifty feet away. The ants usually worry the bees continually for several nights, when suddenly the whole colony of ants starts in on a battle royal, which continues for hours or even a day or two, until every bee is disabled or driven out. A great many of the ants will also be killed; but how the bees do this is a mystery to me.

When the battle has once been joined, the bee-keeper has a difficult task to save the bees; but this can usually be prevented. When the ants become plentiful enough at the hive to begin worrying the bees there is usually a trail of going and returning ants from their nest to the hive, and this can usually be located and traced to their nest, which, when found, should be left undisturbed until the following day, when all the ants will be at home. If the nest can not be found the first time trying, I try again and until it is found. As soon as the nest is found, or search for it is given up for that night, I sprinkle some insect powder on their trail near the hive; also wherever on or around the hive I can do so to worry the ants and not injure the bees. This will usually keep the ants from doing any more harm that night.

The next day, when all the ants are at home, I take a kettle of boiling water, tear open the nest, and, if possible, kill every ant and egg. If a few of them are left they are likely to gather together, increase in time to their former strength, and again attack that same colony of bees. Whenever the nest is found in a box or piece of wood that can be easily moved with all the ants, the easiest and best plan is to carry them into the chicken-yard, break open the nest, and the hens will gladly do the rest of the business. They are very fond of both ants and eggs; and they not only find them good to eat, but give their owner lots of fun watching the old rooster especially, kick and scold every time an ant bites one of his feet. I have had many a hearty laugh watching this performance.

These ants are a great pest here in Florida. They destroy in the aggregate a great many colonies every fall. I know of one entire apiary which was entirely lost, largely, I judge, from what I hear, by these ants. At the best they are a great nuisance because of their compelling the bee-keeper to remain at home watching them at a season of the year when nothing is doing in the apiary, and the apiarist could, but for them, be away on a holiday or some outside business.

Stuart, Fla., Dec. 9.

[This is one of the most interesting and valuable contributions to our bee literature that we have ever given in our columns in many a day. If a minute and accurate account of the work these bee-enemies as they exist in Florida has been given in these columns before I do not recall it. It not infrequently happens, however, that a matter that is of common knowledge with ourselves

is so common indeed that we suppose all the rest of the world is equally familiar with it. I suspect that a good many Florida bee-keepers are in ignorance of the work of this insect, the ant, particularly the manner in which it sets about with the utmost deliberation to carry out its diabolical scheme of robbing a colony of other insects of the product of their hard-earned toil. Criminality in the courts of human affairs is judged largely by the fact whether the crime under consideration was *premeditated*. In the case of the ants here described we shall have to conclude that their crime ought to receive the extreme penalty of the law, which, in this case, ought to be death. But the crime known and proven, apparently, in this case, is not so easily expiated as one might wish.

Mr. Poppleton supposes that the condition here described is peculiar to Florida; but I suspect that the same species, or one closely allied to it, is doing much the same destructive work in other States. Indeed, there have been various intimations of it by our correspondents at various times back. We should especially like to hear from all those who have any thing to offer.

I expect to go to Florida some time in February or March; and I hope Mr. Poppleton will give me the supreme delight of seeing chickens take care of those red ants, and the red ants take care of the rooster's legs. Perhaps it will be the wrong season of the year, but I really should like to see the "varmints" at all events.—ED.]

---

### BUYING BEES.

Timely Advice on Buying and Moving Colonies, and Selecting Hives; Sugar Syrup vs. Honey for Stimulative Feeding.

BY W. R. GILBERT.

Some advice on this subject may not be out of place, seeing the sad havoc careless purchasers have wrought in many districts through the introduction of colonies affected with that fell disease, foul brood.

The safest course in all cases is, when making a start, to purchase new hives and colonies. If stocks are bought, it should be only at a period of the year when breeding is in progress, and when an examination of the brood will prove the healthy or diseased condition of the colony.

Presuming that disease is absent, we must endeavor to secure a strong lot of bees on fairly new combs, and with a queen not more than a year old. The combs should be almost wholly built of the small worker-cells. This fact should be noted at the time the stocks are examined, and any frames containing a superabundance of the large or drone cells would afterward be worked outward, and ultimately be removed from the hive by inserting in the middle of the stock new frames in which a full sheet of worker foundation has been securely fastened by wires.

The best time for moving stocks is in March, the month in which the bees are becoming very active. This removal stirs up the bees, and acts as a stimulus to breeding, after which the increased rate of egg-laying should be kept up by feeding or by the uncapping of sealed honey-cells, should there be a good supply of their natural food in the combs.

Beginners and others with a limited experience of work among bees require guidance on the important question of choosing hives. Wherever fairly extensive crops of flowers—acres in extent—of mustard, turnip, clover, and sainfoin are to be found, a ten-frame standard-sized hive is too small—that is, if large returns are to be secured, such as those of 100 lbs. more or less per hive—which is frequently at hand.

There is one great advantage in a hive of twelve frames. There will be plenty of cells for the use of the queen, with very little manipulating of the frames by the bee-keeper. In smaller hives the room for the eggs of the queen is greatly reduced by the cells being used for the storage of honey, and consequently swarming is almost sure to be induced.

Although twelve frames may be too many in some seasons, that does not matter; for, by the aid of a dummy, the size of the brood-chamber can quickly be reduced to ten or less, according to what is deemed best under the circumstances.

In deciding upon the size of the hive we must be guided by the size of the frame used; but if a large frame is chosen, a less number will give the capacity required in the brood-chamber by a strong stock.

The standard frame is the best to use if interchangeability is desired; in fact, whatever size of frame is adopted must be used in every hive throughout the apiary.

Their natural food, honey, if in a liquid form, is the best food for bees; but syrup is greatly preferable to candied honey, because, on the latter, bees often starve in the winter and early spring. Whenever it is advisable to feed bees for the purpose of keeping them alive during a time when their natural food is scarce, or for encouraging breeding, sugar in the form of syrup or candy must be given. The latter should always be used when the bees are confined to their hives, and syrup when they take their daily flights abroad.

Medicine Hat, B. C.

[The advice given by our correspondent is good; and especially do I approve of the suggestion to buy bees in the height of the breeding season, for then it will be possible to determine whether there is foul brood in the colony or not. Colonies bought late in the fall, early in the spring, or during winter, will not show evidence of disease, probably—at least not to a person unfamiliar with foul or black brood.

Instead of using a twelve-frame hive I would use a ten-frame, but two inches deeper than the regular standard Langstroth. This has the same capacity as a twelve-frame

standard Langstroth. Then it would be possible to use standard bottom-boards and supers—in fact, any thing and every thing that goes with the regular equipment except the frames. The twelve-frame hive does not fit any thing except the frame. The ten-frame Jumbo or Quinby can be used with any standard equipment in the yard of ten-frame width. Then, too, ten large or deep frames are better for brood-rearing; and take less time to handle than twelve-frame L. of equivalent comb surface.—ED.]

#### ALEXANDER AND HIS CRITICS.

Extracting Uncapped Honey; a Reminiscence of the Good Old Days of Father Quinby.

BY E. W. ALEXANDER.

It is with a feeling of pity that I read the criticism of several of my brother bee-keepers on some of the articles I have written for publication during the past year, especially from those who have sent their letters to you, warning you to beware of what articles you published from me.

Then there is another class of critics consisting of a few bee-keepers who are well up in their business, and are making money from their bees, but are so selfish that they don't want any one else to engage in the business. I receive some letters from them, asking me if it is not about time to stop encouraging beginners, and telling the honey-producers of the whole country how to increase their surplus. Now to this class I wish to say you are undoubtedly honest in your opinion in wishing you could *prohibit* any other parties from producing honey, except your particular friends. But I am also honest in wishing it were in my power to lend a helping hand to every bee-keeper in our whole land. You see it is only a case of a little difference of opinion; and from the numerous letters I receive from prominent bee-keepers all over the United States—yes, and some from different parts of Europe, endorsing my ideas, I am led to believe that my friends are becoming quite interested in my writings. I hope it will not be necessary for me to allude to myself again in this way.

The accompanying photo is a snap-shot taken while P. H. Elwood, whom I have known for many years as one of the broadest-minded and most impartial men I ever met, and myself were examining the markings of a colony of bees that were doing remarkably well in drawing out foundation into nice extracting-combs. This colony had at that time its fifth set of nine frames each of foundation drawn out into good combs; and after friend Elwood's visit they completed two more sets, making 63 combs in all. These combs were extracted about every six or seven days, when another set of foundation was given them.

Yes, we extract our honey about every six or seven days when the harvest is good, never using more than one hive of empty



combs on top to extract from; and, although this way of extracting is a perfect success with us, I can not recommend it to the inexperienced bee-keeper with none of the necessary appliances to ripen his honey artificially. But I do say that the man who has had experience, and has the necessary storage-tanks, can ripen his honey after the bees commence to cap it so that it will be just as good in every respect as if left with the bees all summer. In this way we not only get twice the amount, but we save our bees much labor and waste of honey in capping it over, and ourselves at least half the work in extracting.

Before a few of you commence to criticize this point I want you to understand that I never advised any man to extract and barrel up unripe honey, for, as sure as you do, you not only injure your own reputation but you do much harm to the whole bee-keeping fraternity; so, unless you have the proper place, and storage-tanks where it can be ripened as well as it should be, you had better leave it with the bees until fall.

I know I am one of a small minority on this particular way of producing extracted honey; but I would rather stand alone, and feel that I was in the right, than to be one of ten thousand and in the wrong. Please do not forget that we leave it with the bees until they commence to cap a few cells along the top of the combs. If the harvest is poor we sometimes leave it over two weeks before we extract, and run it into the tanks, where it always remains until it is good thick honey weighing fully 12 lbs. to the gallon. If I am not mistaken I think Editor Root sampled our honey in four different tanks last summer when he was here; also some that was in barrels ready for shipping, so I will leave him to tell you as to its quality.

When honey will granulate within three or four weeks after extracting, so it will not run through a large faucet, but has to be dug out of the tanks with a stout shovel in chunks like cheese, I don't see any need of letting it remain more than six or seven days with the bees.

Here is one question I should like to ask those who advocate letting their honey remain with the bees until it is nicely capped over. It is this: Will you please tell me where the profit comes in when you extract nice comb honey that is well capped, and can be sold for 10 to 12 cents per lb., then uncapped and run it through the extractor and sell the same honey for 6 or 7 cents per lb.?

If we could just reverse the prices of our honey I might see a profit in extracting nice comb honey; but as it is, and ever will be, to me it is the most foolish of all foolishness, and I doubt if any man in the United States can show and prove how he can enhance the price of extracted honey in the New York market, which handles more honey than all our other markets put together, a fourth of a cent a pound more than those large dealers can buy it for from other parts

of the world. It is all right for you to make all the handle you can over this point to your customers who take only a few pounds in a retail way; but when your product goes into the markets of the world in carload lots, then you will find that all this nonsense about leaving your honey with your bees until it is nicely capped over amounts to naught. The dealers want honey of good flavor, thick and heavy, that, as soon as the weather gets cool, granulates solid, so if the head of a barrel should be knocked out it could be laid down and rolled across their storehouse the same as a box of cheese with the cover off. Sell them honey of that kind and they will not care whether it was extracted every day or left with the bees until Christmas.

Now I hope you understand how we produce our extracted honey. In regard to selling it we usually have an advertisement inserted in some of the bee journals during September, stating the amount we have for sale, and its price. In this way we frequently obtain from  $\frac{1}{2}$  to 1 cent per lb. more for our honey than we could if we did not let the public know what we had and its price. It may seem a small thing to some of you,  $\frac{1}{2}$  or  $\frac{1}{2}$  cent per lb. on a crop of honey; but when you figure  $\frac{1}{2}$  cent on 30 tons it comes to \$300. That pays quite well for an advertisement that costs less than five dollars.

One party early in October anxiously took the remnant of our crop, and paid us cash down \$1144.89. Since then we have received several letters from old customers wanting from one keg to a carload of our extracted honey, so I don't think it would be any detriment to some bee-keepers if they followed in a few of the tracks we make in producing and selling large quantities of extracted honey. The only honey we have ever had any trouble in selling was our clover honey. This was caused by our bees getting a little from buckwheat, which comes up with the oats where buckwheat was raised the year before. This blossoms in June, and the bees get just enough to give our light honey a dark shade. This was one of the reasons why father Quinby moved from this buckwheat section many years ago. He preferred to keep bees where his clover honey would be of the finest quality.

How time does fly! I can hardly realize that it is now over thirty years since I looked into his smiling eyes and took that friendly hand that was ever extended to encourage and help the inexperienced and unfortunate. His name, with that of that prince of bee-keepers, Capt. Hetherington, will be cherished and honored as long as honey-bees are kept by man. When we used to meet in convention, something over thirty years ago, with Prof. Cook or father Quinby in the chair, and could look around the hall and see Capt. Hetherington, L. C. Root, A. I. Root, P. H. Elwood, Chas. Van Deusen and his father; Doolittle, Birmingham, Hoffman, and my father, with a score or more of us lesser lights, we had good reason to feel proud of our meetings, and I

assure you that, as friend Elwood this fall talked over those conventions with me, and we recalled to memory the valuable advice Capt. Hetherington then gave us so freely, it was with a sense of loss and sorrow that we realized he could never be with us again. No, my friends, those of you who never had the honor of meeting him can hardly realize as I can that, of all the noted bee-keepers of America, we have had but one Capt. Hetherington. Hundreds—yes, even thousands—of dollars he spent in testing and perfecting many things that we to-day are reaping much benefit from. Then let us follow the example these kind-hearted men have set, and encourage the unfortunate with a cheering word until they have a bright and happy future.

Delanson, N. Y.

[Yes, it is true that I observed that Mr. Alexander was extracting without using an uncapping-knife; but I also saw that he allowed the combs to stay on the hives until the bees began capping. The honey, when thrown out, seemed to be very thick and rich. I sampled it as it came from the ex-

tractor and also in the tanks he refers to. While I am not a connoisseur on buckwheat honey I should say that, so far as ripeness was concerned, it was excellent. But I do not believe that the *average* bee-keeper had better extract from uncapped combs; for I suspect that the conditions in Mr. Alexander's locality are such that he can do so, while the rest of us ordinarily could not do it without making a lot of dissatisfied customers. I may in this connection say that a few bee-keepers, notably J. F. McIntyre, of California, who, by the way, has 500 colonies in one apiary, does a part of his ripening, or did do so, in open tanks, although when I was present at his yard he was doing considerable uncapping. He once sent us samples of his bee-and-tank-ripened and bee-ripened honey, and asked us to tell which was which. So far as we could tell they were equal in quality and body, but, taking every thing into consideration, I think it is a safe rule to advise that the average bee-keeper in the average locality let his extracting combs become fully capped before extracting. In all the lake regions I am sure it is imperative.—Ed.]



E. W. ALEXANDER AND P. H. ELWOOD LOOKING OVER THE ALEXANDER BEES.



**THE THIRD-PRIZE PHOTO OF A SWARM OF BEES.****Will Several Swarms Cluster in the Same Spot?**

BY F. P. BRIGGS.

Concerning the swarm of which I sent you a picture, I will say that I keep only a few colonies for pleasure, and do not clip the queens' wings; for, to tell you the truth, I enjoy the fun of chasing and hiving a swarm of bees; but I don't think I should if I had

as many colonies as Mr. Alexander. This swarm gave me more fun than any I ever hived. They came out one bright sunny day about eleven o'clock, and clustered on a scrub oak. It was a big one, and I had quite an audience watch me hive them (neighbors, you know). I placed the hive near the old one, put a sheet down, and dumped them. Before I did that I saw the queen, and she was a nice large one. They began to run in, and soon most of them were in the hive. But, lo! there was a roar, and out they came



THIRD-PRIZE PHOTO OF A SWARM OF BEES, BY F. P. BRIGGS.

and back they went into the old hive. You can imagine my feelings. I put away my new hive, disgusted. In just a week, and at the same hour, they came out again and clustered where the bushes were so thick that I had to cut a path out so that I could carry them to the hive. This time I put the hive *back* of the old one, and with another audience I shook them on to the sheet. Again they went in, and out they came and back into the old hive. Say, you don't know *just* how I felt. They say it relieves a man's feelings sometimes to swear. I didn't do it; but I put my brand-new hive away and went in to dinner. At one o'clock, out they came again and settled on a bush near where they did before. This time I put the hive at the front of the house, where they could not see the old one, and said, "The third time never fails." Then I ran them in again. As they ran across the sheet I said to the man who was taking the picture, "Good! there is the queen."

"Yes," he said, "there is another;" and my wife said, "Why, there is another." There were *three* queens. If this had been an after-swarm it would not have surprised me; but this was a very large swarm, and filled a ten-frame hive. I think I got my money's worth of fun this time.

I sometimes wonder if bees are attracted by scent so that they will cluster near or on the same spot where a swarm has been before. I have a Page wire fence covered with woodbine around my place, and one

year every swarm I had clustered on the same post; and what a job I had getting them out of that tangle of wire and woodbine! Still, with my few colonies I do not think I would give up the fun of catching them.

Ayer, Mass., Dec. 23.

[You did not send us the picture of the bees running into the hive; but the one showing the swarm of bees itself on the limb is excellent. But let me tell you, friend Briggs, after you have had a few more swarms, and after you have had a substantial increase in numbers, you will be very glad to clip your queens' wings.]

Will swarms cluster repeatedly on the same spot? Indeed they will. Probably the scent of the previous swarm remains. Taking advantage of this fact, many years ago a bee-keeper got up an automatic hiver that worked on the principle of the old-fashioned well-sweep. He hung a cage containing a queen on the end of the sweep to attract the first swarm. After that, he reasoned, other swarms would cluster in the same spot, attracted thereto by the scent of the previous lot of bees. This well-sweep was pivoted in such a way that, when there was a cluster of three or four pounds on the end, it would gradually topple over, drop to the ground, bump on an open hive, dumping all the bees therein. It was very pretty in theory, but practically, I believe, it did not do very much in the way of hiving bees.—ED.]



APIARIAN LABORATORY OF DR. EDWARD F. BIGELOW, STAMFORD, CONNECTICUT.



# A LABORATORY DEVOTED TO THE EXTENSION OF THE EDUCATIONAL INTEREST IN THE HONEY-BEE.

BY EDWARD F. BIGELOW.

From various articles by me and references by you to my work in GLEANINGS, I surmise that your readers will be interested in views of the "Home of the Educational Bee." I therefore send three photographs.

The first picture shows the apiarian laboratory. There are eighteen hives within the building, and fifteen in "The Little White City" in front. (Not all the outdoor hives show in the photograph.)

The natural surroundings are exceptionally favorable and picturesque. Growing from the old stump at the left is a clump of several trees and shrubs — walnut, ash, chestnut, sumac, and others. At the right is a picturesque row of wild-cherry trees, sumacs, and evergreens. An old wall is covered with Virginia creeper and a variety of other vines. A ledge in front and a forest in the background make a most ideal location for an apiary.

The second is a corner view of the same, showing, at the left, an outdoor photograph-gallery. In another (building the general biological laboratory, in the same yard) is a well-equipped indoor photograph-gallery, and various appliances for original research. In the distant left and rear is a precipitous ledge and forest.

The third view shows the interior of the

laboratory. In the immediate rear of this are eighteen colonies, most of them under a variety of methods of direct observation and experiment.

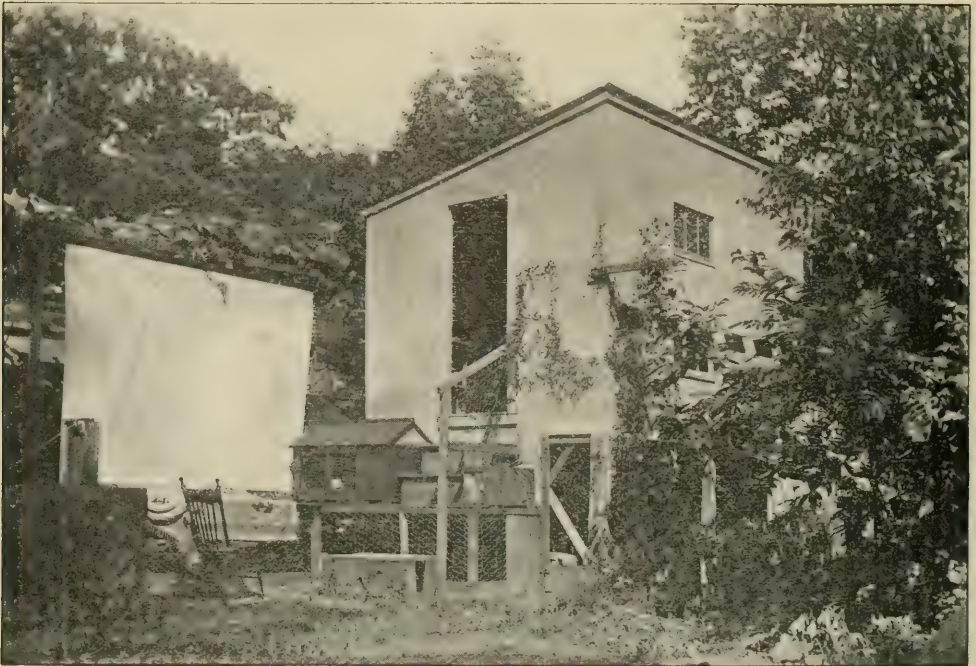
So far as I know, this is the only extensive apiary for observation and experiment from the *educational* point of view. I do not expect to discover any thing new as to methods of producing more honey, nor to sell it at a higher price. Neither do I expect to excel Cheshire or Cowan in exploring the internal regions of the bee. Mästerlinck has set a higher standard than I can hope to attain in philosophizing regarding the wonderful life of the bee.

But one thing I hope to do; and that is, to extend the educational interest in the honey-bee — to advance it as a nature study topic more than has any one else.

Stamford, Ct.

[Our readers will remember that Dr. Bigelow aroused a considerable amount of enthusiasm among the students at Wooster this last summer, and that he brought a large number of them to Medina to look over our apiaries and factory buildings. A glance at the photograph of that group, p. 914, will be sufficient to show that he is capable of arousing interest in this his favorite study.

Being editor of the *Nature and Science* department of the *St. Nicholas Magazine*, he is, of course, very much interested in nature study. Furthermore, he believes that the subject of bees presents an extensive



CORNER VIEW OF APIARIAN LABORATORY.

field for this study, as is shown by his many articles along this line.

He is also the inventor of the Educational hive, described on page 476; the Pearl Agnes hive, for teachers and young folks, and the Lecturer's Hive, for science teachers in the class-room and for lectures before popular audiences. These hives are now sold by dealers in apiarian supplies. All of these ideas he has given to the public.

He writes that he desires correspondence with young folks, and nature-study or science teachers interested in bees.—ED.]

## ARE SECTIONS DETRIMENTAL TO THE HONEY MARKET?

### An Argument Against the Selling of Chunk Honey.

BY G. C. GREINER.

While commendable efforts have been made by the leading members of our profession to improve the honey market, and while co-operation has been the subject of discussions, and leagues and associations have been formed for the purpose of elevating the bee and honey business on an equal basis with other leading industries, it would seem as if certain ones of the chunk-honey advocates were trying their very best to injure the trade of the section-producer. Usually, I am, and have been for the last five

or six years, a great deal in close contact with the retailer and the consumer, and I know from daily observation I am not exaggerating in saying that our little one-pound-section has done more to increase the sale of honey than all the other inventions the bee keeper's genius ever produced. The welcome acceptance of the convenient and attractive section by the public in general is the direct outgrowth of education and refinement, and these again are the natural consequence of prosperity.

A little historical sketch may serve to illustrate the situation.

In my younger days, on a certain occasion I was invited to take dinner with a family of the old pioneer stock. When dinner was ready to be served, we found a large soup-dish, similar to those crocks which are now used by some dairy people for setting milk, in the center of the table. It was filled with a steaming vegetable stew, and presented to us hungry would-be participants a very tempting appearance. Each one of the company was provided with a similar smaller dish and a spoon, and for occasional use a few knives were on the table. A large soup-ladle, which the head of the family used to fill up those individual dishes as they were passed along, comprised the table setting. Besides the stew a loaf of bread lay on the table, which was passed around to let each one, who so desired, cut a piece according to his appetite. Whether there was any



EXPERIMENTAL AND RECORDING SECTION OF APIARIAN LABORATORY.



butter on the table or not I do not now remember; in fact, it is so long ago that I can not recall all the particulars. But this matters not. It will bring out my points just the same.

Now let us visit these same families to-day — that is, their children's and children's children's families, for the old people, blessed be their memories, have gathered at the river long ago, and what do we find? Their extension dining-table is set in up-to-date style. China ware in its different lines is complete; plates, cups, and saucers, vegetable and sauce dishes, cup-plates, individual butter-dishes, etc., are up with the times.

In the line of silverware we also find a full assortment: Knives and forks, soup and tea spoons, butter-knife, sugar-spoon, and many things which we might call superfluous. Their daily diet is in harmony with the table outfit. Fancy delicacies, pastries of all descriptions, sauces too numerous to mention, are served more or less at each meal. Look where we may, every thing the house contains gives striking testimony of progress and refinement. And what has brought all this change about? Simply education.

As the old people prospered and their financial circumstances allowed them to do so, they sent their children to high or boarding school. Here they came in contact with people of more modern ways of living and refinement; they soon forgot the primitive customs of their childhood days; and when they returned home, after they had finished their schooling, these adopted ways of refinement went with them. If we should advise these people to go back to the practices of the old home because it was a cheaper way of living, would they be willing to do so? The reader can draw his own conclusion.

The difference between the use of chunk and section honey is analogous to these two styles of living. In the days of sulphur and brimstone, when this old practice was the usual means of obtaining honey for the table, the demands of the people were easily complied with. They considered honey in any shape, cut out of a brimstoned hive, a dainty morsel. But times have changed. Every up-to-date household, where comb honey is used at all, prefers it in small sections, because it is neat and attractive, and convenient to handle. By the way, let me emphasize right here that many more families would use it if it were brought to their doors and offered to them.

On page 874 Mr. Bohrer says: "Chunk honey in shallow frames can be put on the market in *almost* as handsome shape as it is in the section." I agree with him. He admits that it is in not quite as handsome shape as sections. Any bee-keeper, who deserves that name at all, can find ways and means to get honey in perfect condition to market, in whatever cumbersome shape it may be. But what is the consumer going to do with one of Mr. B's shallow frames after he has bought it? How can it be taken home, and what can be done with it after it is taken home? If it is not bruised and made to leak

on the way home it will certainly leak badly after the first piece for the table is cut out. To catch the drippings the frame has to be put into a pan or a similar dish; and if the frame is somewhere near our common brood-frame in width, one end will rest on the rim of the pan, and the contact will cause it to leak here too. Then, to keep the honey from running down on the outside, all has to be cut out of the frame and placed in the dish. After this cutting and slashing, what appearance will the next piece present that is fished out of this mixture and put on the table?

When we compare the convenience of neatly done-up packages of one, two, or more sections each, as I carry them, is it to be wondered that customers, after buying sections a few times, would not be bothered with chunk honey, even if they could buy it at reduced rates? The expense part receives, as a rule, very little consideration.

I hear the expression almost daily, especially when people inquire for comb honey, and I try to persuade them to buy extracted because it is cheaper: "We do not care for the cost; we like comb honey better, and are willing to pay for it." But when people do object to the price of comb honey I generally sell them extracted.

The claim that more honey could be sold in these large frames than in one-pound sections may hold good in some cases when selling to people in rural districts. Farmers, for instance, who live in the more secluded localities of backwoods sections, and who are accustomed to lay in a year's supply of eatables, may occasionally buy larger quantities. But sales in the country are of too little importance to affect the honey market. The outlet of our honey is the cities, and it is to the honey-producer's interest to cater to the wants of the city people. Having the privilege of calling at the store or market any time they need any table supplies they seldom buy more than a day's ration. Scarcity of store room, convenience in buying, and weekly pay, are probably the cause of this.

I have many customers who call regularly at my wagon every week or two for their supplies. One lady in particular generally comes with smiling face and says, "Well, Mr. Greiner, I am after my Sunday-dinner honey again." She has kept this up all summer; and if we could induce every family to use honey, even at this apparently limited rate, and, as I said before, we could take a long step in that direction by offering it at their doors, what a tremendous impetus it would give to the honey market! The entire honey crop of the country would not go half way around.

To be continued.

[Dr. Bohrer does not represent the feelings of the bulk or chunk-honey producers, I feel sure. That there is a demand for this honey in certain sections of our country can scarcely be doubted, and those who seek to meet it are, many of them, producers of section honey.—ED.]

## HERMAN HOLMES.

The Freckled-faced Boy who has Held a Responsible Position with a Big Trunk Line Railroad for 33 Years.

BY A. I. ROOT.

Between forty and fifty years ago, before there was any railroad within fifteen or twenty miles of Medina, every thing had to be hauled into our town by teams; and with the "Medina mud," such as we have every spring more or less, there were some terrible times about getting things, or, for that matter, getting anywhere. There were stage coaches running in different directions, or some sort of substitute for a stage coach, but a good many times it was pretty nearly an all-day's job to get to the station, eighteen miles away. During one of these slow and wearisome trips I noticed a bright young freckled faced boy who was driver of the coach. About the first I recollect of him, some ladies were getting into his vehicle. He turned the wheels so as to give them the best chance possible to get in, kept their clothing away from the muddy wheels, then proceeded to tuck them up warm and comfortable. If I recollect rightly it was a cool March day. There was a little "skim" of ice on the puddles, and he remarked to the boy who was helping that they needed some more robes and blankets to make the passengers comfortable. Finally he put off on a run himself after the needed things. Somebody said he would be late about getting started; but he remarked that he wanted to have his passengers in good shape and comfortable, adding that the roads were so bad

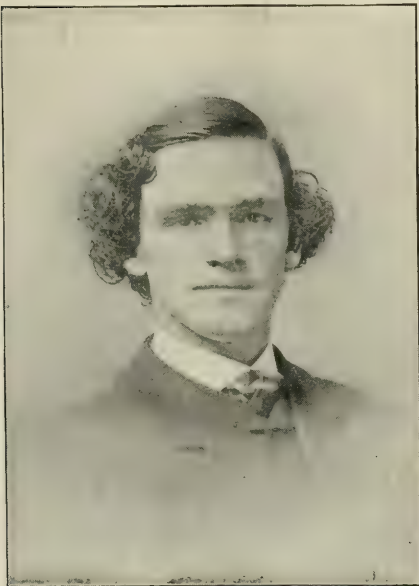


MR. HERMAN HOLMES, TRAVELING PASSENGER AGENT OF THE L. & N. R. R.

they were going to be a good while out in that March wind. He was not very well clad himself, but he did not seem to mind that nor think any thing about it. His special care was for the *passengers* that he was to pilot safely to their destination; and he was so good-natured about it that his vivacity and cheerfulness almost made his load of people forget the mud and the piercing wind.

I used to see him occasionally after that. His anxiety to do every thing well, and his enthusiasm in combating obstacles in the way of weather and bad roads attracted my attention.

By and by, when a railroad got into Medina he was one of the first to get a position. His peculiar trait in life seemed to be a desire to help *anybody* who was *traveling*; and with his assistance the passengers almost always "got there," to use a familiar slang phrase. In order to advise intelligently everybody who wanted to go anywhere, he began to make a study of railroads, railroad guides, maps, and railroading in general. About thirty-three years ago he got a berth as passenger agent on the Louisville & Nashville Railroad, and he is there yet. When I want to go anywhere I tell him just what my wishes are, and in a twinkling the railroad guides and maps are spread out on a table before him, and in a brief time he gives me a written schedule telling exactly what points I shall reach at such a time, and advising me what to do in case the trains are late, or if I miss a train, etc. One remarkable thing about it is he almost never makes a mistake. I remember once while in Cincinnati my route got tangled up a lit-



HERMAN HOLMES AT 25.



tle. I handed my paper to the ticket agent at one of the big depots. He looked at it, then said something like this:

"Well, now, I do not quite catch on to this. It is not exactly according to my understanding; but that man Holmes never makes a mistake. Whatever he does is *done right*."

He finally found out that it was just so in this case. Holmes knew some things about the ticket agent's business that he did not know himself.

A short time ago one of the newspaper reporters made a cartoon sketch of my friend Herman. It was comical, without doubt, but at the same time it was remarkably truthful. Shortly after it appeared in print, the following letter came to Mr. Holmes:

THE DELAWARE, LACKAWANNA &  
WESTERN RAILROAD COMPANY.  
OFFICE OF DIVISION PASSENGER AGENT,  
Buffalo, N. Y., Oct. 14, 1905.

*My Dear Friend Herman:*—

I thought it would come. I expected to see your picture in the rogues' gallery, but not so soon. The article is a good one and very interesting. Of course, no one can tell how much of it belongs to you and how much to the writers. It is a splendid advertisement of your road and a tribute to you personally. I want to congratulate you, not on the article, but on the fact that a sober, industrious, honest member of our craft has been kept in harness by one company so long. It has been thought and preached since I can remember, that, to be a successful passenger agent, one must drink, smoke, and carouse—sink to a lower level than a gentleman should. You have taught us by your example that this is not true; that the better gentleman a man is, the better passenger agent he will make. I don't mean a man must be a preacher, but he must be clean, honest, and aggressive, depending upon making friends upon his own personality rather than by spending his company's money in carousing. You are the oldest apostle of the new and better school, therefore I salute you.

With kindest regards and best wishes, I remain  
Yours sincerely, FRED P. FOX,  
Division Passenger Agent.

Now, friends, I am ready to tell you why I have written up the freckled-faced boy. It is this grand declaration by one of the prominent railroad men of our great country. Let me repeat the last sentence: "You are the oldest apostle of the new and better school, therefore I salute you."

I have not told you before, but I will tell you now, that Mr. Holmes through all his career of almost half a century has neither used beer nor tobacco—has never even smoked a cigar for the sake of getting business; and yet a good many people would say he would *have* to do it in order to succeed.

I hope this letter will have some influence over some other freckle-faced boy who is thinking that perhaps he ought to learn to smoke cigars. It is indeed true, as Mr. Fox says in the letter of congratulation, it is the *newer and better school*.

By the way, it just occurs to me to mention that a Medina girl took a shine to that freckle-faced stage-driver away back in the time when he used to drive a coach through the muddy roads around Medina, before we had steam and electric railroads. We submit two pictures, one of the freckle-faced boy when he first started out, and the other one taken some forty years later.



#### BEES ON THE ISLAND.

As soon as I landed we hastily chose a location, and with some anxiety opened the entrance of the two-frame nucleus containing the Caucasian queen. Although I waited and waited, not a bee came out; and, in fact, not a sound of any kind issued from the little hive. It took considerable time to draw the wire nails and get the cover off; but when it was removed, there were the gentle bees looking as unconcerned as could be. Instead of being all dead, as I feared, there was hardly a dead bee in the colony. After they had rubbed their eyes and discovered it was really summer in December, they ventured out and took a fly; but there was no uproar at all, and they seemed to have borne the bumps of their long trip in the cars in a most remarkable way. As the queen had been laying almost ever since we started, there were eggs and brood ready to start queen-cells.

While they were taking a flight I looked over the five colonies already on the island. Three were in rude Langstroth hives, and the frames were exactly our size, luckily. Two were in what I call "gate-post" box hives—boxes about a yard tall, and perhaps eight inches square inside. The top is nailed on loosely; and when the owner wants honey he takes it off and digs out a panful, more or less, say down until he finds brood. As one of our Langstroth hives was two-story we put a few empty combs in some extra hives, moved the box hives back, putting these empty hives in their places. As there was scarcely a cell of brood in the whole five hives, and hardly a cell of *honey* in one of the box hives, we had easy work transferring. Some heavy roots of a live-oak tree were just in front of where the box hives stood, and Mr. Shumard bumped nearly every last bee out of the old boxes by striking a corner of the hive repeatedly on those oak roots. I invented the plan, and friend Shumard did the work; so when we get it patented we are going to "go halves" in selling "rights."

After the bees were all out friend S. got his carpenter saw and sawed the combs neatly out of the old tall boxes, sawing in from both top and bottom. Mrs. Root cut the flat sheets of comb so neatly as to fit the empty frames. No clasps, wires, or sticks were needed. Of course, I "bossed" the whole job (bosses are very important personages *nowdays* you know). One hive contained some thick combs of sealed honey; and as it had to be "splinted" the job was turned over to me. About this time robbers

got in *their* work so lively that all hands adjourned to Mrs. Shumard's kitchen, and the task seemed to fall "kind o' naterally" on the two women to clear up the muss.

There was very little brood in any hive, as I have said; and in one we transferred, not even an egg could we find, although there was a great plenty of as gentle and nicely striped Italians as one could ask for. As we found no queen we gave them Caucasian eggs; but as no queen-cells were started we looked more carefully and found a beautiful Italian queen. As there were plenty of bees we divided them, giving the eggs to the queenless part, but still no queen-cells. A second search revealed a queen in each half of the divided colony. We killed the poorest-looking one, and then got queen-cells all right. Now, am I correct in deciding that this strong colony, when transferred, contained *two* virgin queens, own sisters? I feel sure neither one was the old mother; and I think neither was fertilized, as we could not make them lay, even with stimulative feeding. We gave new brood three times before we got queen-cells. My old and *tried* friend Dr. Miller is reading this, I take it. What does he say? It is pretty certain there are no drones on the island, and I presume we can't go on with queen-rearing until we can secure drone brood. We have placed drone comb in our strongest colonies, and have been feeding outdoors to push brood. We are getting some pollen, but, I am sure, not enough. This morning, Dec. 28 the bees are getting so much honey I do not think we shall need to feed any more. Our island is about 200 yards wide, as you have been told; but it is nearly *ten miles* long. The width is quite regular the whole length.

#### HOW TO HANDLE BEES WITHOUT VEIL, SMOKER, OR GLOVES.

Aren't you glad, friends, I have started to "*teach school*" again—I mean "bee-keeping" school? Well, I am managing nicely here on my island, without the above-mentioned inconveniences, and if you don't succeed with my instructions perhaps you will have to get an "island" too. Our five colonies are blacks, hybrids (vicious ones too), and Italians. At transferring-time they got to buzzing around in that snarling way every time I opened a hive, and I remembered what Ernest said about open air feeding. A little bag made of thick sail cloth was tacked to a palmetto-tree, and into this the syrup was poured. As it leaked some, a saucer was placed under it with some little sticks for floats. The ugly bees soon found this; and when I wanted to open hives I poured a little sugar and water into the bag. Burr-combs and propolis were fearful in those old hives, and I went at the remedy. I found one extra old hive. I scraped the inside, then spaced the back and front *end just right*, and nailed it thoroughly. Then I put this in place of the first hive; and as I removed each comb I scraped off all propolis and all burr-combs. If dimensions were not "orthodox" I made them so—trimmed pro-

jecting ends, if need be, and drove in staples, so every frame went nicely in my hive-body that was right. When I got through the five-colony apiary every comb could be picked up with one hand, if need be, and not a bee crushed or pinched. There are Hoffman frames, old-fashioned frames, and even a few *metal-cornered* frames; but we have made the *outside dimensions* all exactly alike. You can hardly imagine what a relief it is to me (and to the *bees*) compared with opening hives as I first found them.



This is to be a *Home* paper, dear reader; and when I use the words "dear reader" I am well aware it means a "whole lot" of you. May God bless each and every one of you—yes, exactly as he has recently blessed myself and the dear wife. I am very happy to night, and I long to tell you why, so that you may find happiness, and that your hearts may be full of thanks and praise to God, exactly as ours are. It's a long story I have to tell, so let us get at it.

Last fall, when we were so happy at the cabin in the woods in Northern Michigan, a letter came from Ernest suggesting that we take a trip to Florida and try what could be done at queen-rearing in the extreme southern part of the United States during the winter. After thinking the matter over I decided I should like to try it; but the dear wife objected to the long trip, and she also felt blue over the prospect of being again taken away from the dear children and grandchildren (especially that "nameless" last arrival she is just beginning to love so much, *particularly* as he seems to have already learned to love her just as much in return). I, however, felt sure that God was calling us off among strangers to learn some new lesson he had in store for us. When I received that letter from brother Shumard (see page 1353, Dec. 15), I said it was God's providence that prompted him to write it; and to-day, Jan. 12, after having been with him and a part of his family for almost a month I feel more sure of it. You will remember he suggests a "cabin in the woods" on his island; but Mrs. Root was so averse to putting a lot of money into *another* cabin, and still another lot into an outfit for house-keeping, that we tried boarding at a hotel for a couple of weeks. Now, the hotel is a very good one for the price (\$14.00 a week for us two); but as it was a mile away from my work, and for other reasons, Mrs. R. finally, although somewhat reluctantly, consented to building some sort of a "home"



where "we two" could "keep house" once more after our own fashion and tastes.

As Mr. McAuley, the son-in-law, is a carpenter I engaged him to build it. But before we had really decided, the Phantom (the weekly boat) cast anchor near us, and the captain said if we could give him the order at once he would have all the lumber on hand in a week or less. As he was ready to sail, a bill of materials was made out very hastily. Our carpenter thought a very good temporary Florida cottage could be put up for \$75.00 or \$85.00; but several things transpired very soon to induce us to put more money into it. First, the carpenters neglected to specify low-priced lumber for a temporary residence; but he gave the captain verbal instructions not to send No. 1; but he forgot all about it; and, of course, the lumber folks gave us the very best, or at least the *price* was for the best. Secondly, when we began discussing the matter more thoroughly I said to Mr. Shumard, on whose land we were to build:

"Look here, friend S. Mrs. Root thinks *she*, at least, will never come back here. Now, if I don't either, will you take the building off my hands at, say, half cost?"

Mr. S. has been here only two years, and has a house built only temporarily at first, so he responded at once:

"Yes, sir, and more too; that is, if you two use it only this one winter."

At this Mrs. R. took courage, for such hasty investments a good many times can not be turned into cash again for even half cost. As he is a carpenter too, or used to be, we modified the plan so that it might suit him better in case it became his home. As planed lumber ordinarily costs only a little more, we decided to have all planed on both sides and both edges. This not only makes a much better-looking house, but the carpenter can work a deal faster by having all stuff dressed to exact dimensions. After Mrs. Root's experience in the cabin with a roof made of cull shingles she was very emphatic that we should have a good roof overhead; but when that was settled she held down our expense from beginning to end. The lumber for a building  $14\frac{1}{2} \times 22\frac{1}{2}$ , with a porch on one end  $6\frac{1}{2} \times 14\frac{1}{2}$ , cost for materials less than \$100. The carpenter work was less than \$50.00, and we have so pretty a little cottage that I look forward with much pleasure to the time when I can give you a picture of it. Mrs. Root declares *this* one shall be "the cottage in the woods," for it is too pretty to be called a cabin.

Now, friends, if it isn't plain to you it is to me *why* God called us two to this work. Thousands have homes that are too large and too aristocratic and too *costly* to be a home in every sense of the word. The *home* should be where happiness is to be found, more than and above any other place; and new *expensive* homes often bring unhappiness. How many people look back at the first home in early married life, and tell you the happiest hours they ever knew were in that first humble home! Mrs. Root has oft-

en got so wearied in caring for our home that cost several thousands she has begged to have it sold or given away in order that she might have a little one, that costs only something like this one, say.

Again, there are other thousands whose homes lack simple and inexpensive comforts, but they don't seem to know how to make a little money go a great way. You know I have been studying this matter of homes for years, and I feel sure, therefore, I can give you some helpful suggestions. The carpenters and myself worked together during the whole two weeks like a lot of brothers. There was hardly a board or timber put in place without my eyes on it. The young man worked perhaps more rapidly than Mr. S. and myself, but he always seemed pleased at our suggestions from our riper experience. To be exact, I did very little work with my hands; but my mind, and especially my *tongue*, were very busy.

"Wouldn't it be better to put that board the other end up, so as to cut out that bad place?" or, "If you will lay down your boards between those two windows you can space them so as to avoid cutting," etc.

Some mistakes were made; in fact, I have never seen a house built without mistakes; but I helped to avoid them, and often studied out plans to remedy the results of mistakes. Some may suggest that a *plan* should have been made beforehand; but this little structure hardly required it. Besides, I have seen so many *expensive* blunders with high-priced architects, perhaps I have lost faith in them. The man who builds a home should be on hand with the builders *every minute*, and he should take *his wife* along too. She will have more to do with the home than anybody else in the world, and she knows how things should be better than any other one. These two should spend much time in planning beforehand, but they should bear in mind that various things may make it quite necessary to modify these plans.

We were very anxious to get our high-priced seasoned lumber in out of the weather before it got a soaking from the very frequent but (at this season) unusual rains along about the first of the year. All hands were at work sometimes before daylight, and kept at it as long as we could see. During the building, Mrs. Root and I were cared for by the two families, and the alarm clock went off every morning promptly at 4:30 A. M. (in January, mind you). The rain held off until just as we were laying the last dozen shingles, and all of our nice lumber was safe. As there was no other shelter on the island, there was quite a shout of triumph among the shinglers. The boys, Orville and Jesse, helped put on the shingles; and when some one expressed surprise that Mr. Root was so lucky, Mr. McAuley remarked:

"Well, he ought to be lucky, for he has not only *worked hard* but he has prayed about it."

He meant by this, that, when asking the blessing at our morning meal, I alluded to our anxiety to save our property from dam-

age, recognizing there was hardly a possibility that anybody in this region needed more rain.

To be continued.

#### HATCH CHICKS THAT LIVE.

The efforts of the leading incubator experts of the country in the employ of the Cyphers Incubator Company in the past few years have been directed largely toward perfecting means that will insure larger, stronger, healthier, more vigorous chicks with the result that the new 1906-Pattern Standard Cyphers Incubator, which has made a phenomenal record—not only in the large percentage of eggs hatched, but in the uniformity of the hatches. The secret of its success is explained by the provisions made for giving the embryo in the egg a larger supply of oxygen, effected by giving the egg chamber more complete ventilation, and at the same time avoiding all excessive evaporation of the moisture in the eggs.

The testimony of leading Government Experiment Stations, prominent experts, leading fanciers and the larger commercial plants to the success of the new pattern, is truly remarkable.

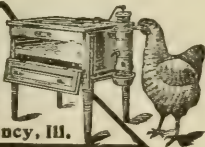
We are sure that our folks will want to investigate the claims made for this new pattern, especially as they are advanced by so reliable and conservative an institution as the Cyphers Incubator Co. Full particulars are given in the Company's new catalogue, a handsome book of 228 pages 8x11, containing seven special chapters on poultry culture and 500 fine illustrations.

Besides incubators and brooders it catalogues more than 70 good articles required by poultry keepers. It's a book worth having. It will be sent free if you say you are one of the Farm Journal folks and send along the address of two friends interested in poultry. Write the nearest office. Cyphers Incubator Co., Buffalo, Boston, Chicago, New York, Kansas City or San Francisco.

**\$12.80 For  
200 Egg  
INCUBATOR**

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

GEO. H. STAHL, Quincy, Ill.



#### Take Your Choice.

Guaranteed Self Regulating Incubators at \$1 and \$2 per month. Let RENT rent pay for it. We pay freight.

Buy on 40 Days Trial or buy parts and plans and build one. Prices, ready to use: \$5.00 up. Free catalog—tells all.

BUCKEYE INCUBATOR CO., Box 64, Springfield, O.

## Take Your Own Time. Old Trusty Incubator

40, 60 or 90 Days Trial.

We want to send you the 'Old Trusty' Book. You ought to read it before buying an incubator, because it has more every-day "chicken sense" in it than any catalog you have ever seen. 300 good pictures. It tells why "Old Trusty" does such good work—why it hatches so many and so good chicks—why it is so easy to operate—why it is so economical. It's sold on 40, 60 or 90 days trial, freight prepaid. Write to us.

M. M. Johnson Co.,  
Clay Center, Neb.



We Pay  
the  
Freight.

## The Racine Incubator



We pay  
the freight

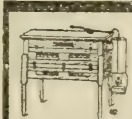
Built by the man  
who devoted 24  
years to its  
present perfect  
development.

Can be operated by anyone, anywhere. Automatic regulator, copper tank, white pine case, double walled, nursery. Built to last 20 years. Don't buy until you read our remarkable Incubator Book, written by the man who made the Racine. When you learn what he knows, you will want his machine, we think. The book is free. Write for it. Address

Racine Hatcher Co. Box 114, Racine, Wis.  
Warehouses: Buffalo, Kansas City, St. Paul.

## BANTA Incubators & Brooders

Backed by 14 Years  
of Successful Use by



poultrymen all over the world. No guesswork. They are automatic in regulation and ventilation. Fully guaranteed to give YOU satisfaction. Send for free book. BANTA - BENDER MFG. CO., Dept. 23, Ligonier, Ind.

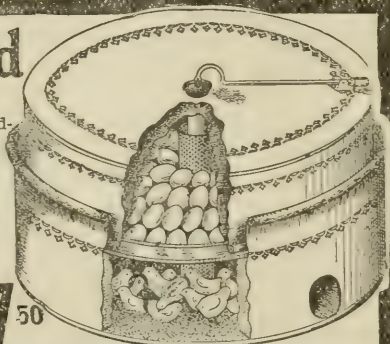
## Hatch and Brood AT SAME TIME

Here's a new thing—a complete hatcher and brooder, one machine that performs both of these operations at the same time and does both well. The

### METAL MOTHER Brooder-Hatcher

is a long step ahead of all others—the most remarkable invention in the poultry world. With it 2 qts. of oil hatches 50 eggs and broods the chicks—brood one batch while you make another hatch. Our nest system enables you to do this. A time-saving, labor-saving, oil-saving machine complete for \$7.50. Free catalog—tells how it works. Regular Cycle Hatchers and Brooders at \$5 each are great favorites. Write today.

CYCLE HATCHER CO., BOX 223, SALEM, NEW YORK



\$7.50



You can't tell a good incubator or a good brooder by looking at them. The only true test is in the Hatching and Raising of Chicks. The machines that Prove Best by that test are the

## IDEAL

Incubators and Brooders.

Made by the man who knows and backed by the J. W. Miller Co., guarantee to give you satisfactory results or your money back after 30, 60 or 90 days Free Trial. If you are discouraged try the Ideal—if you don't want to be discouraged try the Ideal. Send for the book "Poultry for Profit"—Free. 128 pages, illustrates and describes everything needed to raise poultry.

Address **J. W. MILLER CO.,**  
Box 48 Freeport, Illinois.



### The Fresh Air Incubator

Fresh Air applied to Artificial Incubation in a new and effective way, making possible higher per cent. hatches, brighter, healthier stronger chicks.

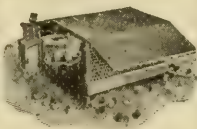
### 5 FREE BOOKLETS ON ARTIFICIAL POULTRY PRODUCTION

1st—The Standard Incubator. 2nd—An Incubator for Beginners. 3rd—Universal Hatcher and Colony Brooder. 4th—Feeding are Doing.

Chicks. 5th—What Users are Doing.

### A PIANO BOX WILL DO

Put the Universal Hatcher into it and make your own brooder. The Universal Hatcher may be attached to any size or form of Colony house, mushroom house, small portable building or piano box and make about as good a brooder as money can buy. Write for catalog and the five books FREE. Others to follow, you'll get them all if your name is on our mail list.



Prairie State Incubator Co., 414 Main St., Homer City, Pa.

## SEE THE 1906 RELIABLE

before you buy. Perfectly practical for poultrymen or beginners. Double heating system gives bigger hatches—saves one-third the oil. Sold on a money back guarantee. Write for free catalog. Reliable Farm Pure-Bred Birds and Eggs. Get prices. Reliable Incubator and Brooder Co., Box B-49 Quincy, Illinois, U. S. A.



## EGGS FROM BONE



Green cut bone doubles egg yield. More fertile eggs, vigorous chicks, early broilers, heavy fowls.

### MANN'S LATEST MODEL BONE CUTTER

10 days free trial. No money in advance. Send it back at our expense if you don't like it, cat'g free. F. W. MANN CO., Box 37, Milford, Mass.



### TAKE NOTICE Army Auction Bargins

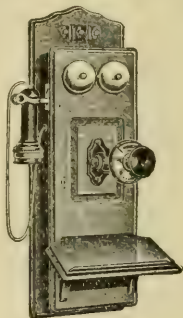
|                                                                     |                                 |
|---------------------------------------------------------------------|---------------------------------|
| Revolvers . \$0.50 up                                               | Officers' Swords (new) . \$1.50 |
| Holsters . . 10 "                                                   | Sole-arm Swords . . . 26        |
| Haversacks . 10 "                                                   | Bayonets . . . 10               |
| Knapsacks . 50 "                                                    | Cavalry Boot . . . 75           |
| Cartridges . 80 "                                                   | Cross Rifles (dozen) . 1.00     |
| Muskets . 1.65 "                                                    | " Sabers " . . . 1.00           |
| Saddles . . 1.90 "                                                  | Screw Drivers " . . . 1.00      |
| Saddle Bags (pr.) . 75 "                                            | Linon Collars " . . . 30        |
| Bridles . . 35 "                                                    | Brass Letters " . . . 35        |
| Navy Hats . . . 10 "                                                | Blue Flannel Shirts . 1.50      |
| Army Campaign Hats . 35 "                                           | Guns' Hammers . . 10            |
| Leggings (pair) . . 15 "                                            | Army Spades . . . 65            |
| Army Uniforms consisting of New Helmet, Coat, Trousers all for 1.65 |                                 |
| 176-page Large Illustrated Catalog mailed (stamps) . . 12           |                                 |

**FRANCIS BANNERMAN, 601 Broadway, N. Y.**  
Largest Stock in the world Government Auction Goods  
15 acres storage—2 1/2 acres Broadway salesroom

# Farm Telephones

## How they Help the Farmer

If the telephone really helps the farmer he is the man who ought to know the "how" and "why." We have recently published a book full of telephone facts for farmers, which every farmer in the country ought to read, whether he intends to buy a telephone or not. It will be sent FREE to all those interested who will take the trouble to write for it. This book tells how and why the telephone helps the farmer and his family, and why the modern farm equipment is not complete without a telephone. The telephone is a time-saver—consequently a profit-maker. Simply reading this book, "How the Telephone Helps the Farmer," will certainly convince any farmer that he is missing much he ought to enjoy if he is trying to do without a telephone in his home. It describes very interestingly the best telephone for the country home—



## Stromberg-Carlson Telephones

Tells just how each part from the case to the most important part is made; illustrates the various parts and shows by a very practical and complete description and explanation the duty and requirements of each; tells why we make them with such care, and exposes the secrets of the construction of cheap telephones; shows why they can be sold cheap, and why they should never be used on farm lines. It shows why Stromberg-Carlson telephones will outwear any other farm telephone made and how we produce an instrument that practically will never get out of order. Cheap telephones are invariably out of service just when you want them most; they quickly lose their talking qualities and are a constant source of annoyance and expense, simply because they are not made right. The principle of operation is just the same in a cheap telephone as in a good one—the difference all lies in the construction, the better materials used, and the greater care and skill employed in the making. We would like to have you read this book. Simply drop us a postal card asking for 36 G, "How the Telephone Helps the Farmer," and we will send it to you by return mail. Do it today before it slips your mind.

**STROMBERG-CARLSON TEL. MFG. CO.**  
Rochester, N. Y. Chicago, Ill.

# Let Me Quote You a Price on a First-Class Fanning Mill

How many dollars could you save if you owned a genuine Chatham Fanning Mill?

Think for a moment what it will do.

It will grade grain so you can get a fancy price for the best.

It will take weed seed, chaff and withered kernels out of seed grain.

It will separate one kind of grain from another.

It will remove oats from wheat.

It will clean Corn, Rye, Barley, Wheat, Oats, Timothy, Clover, Millet, Flax, Rice, Peas, Beans, Kaffir Corn, Potatoes, Broom Corn, Alfalfa, Grass Seed, Cotton Seed, Alsike, Blue Grass, Red Top, Buckwheat, Hungarian Orchard Grass, Rape, Rye Grass and everything of this kind.

And in any one of these processes a Chatham Fanning Mill will save its entire cost in short order.

For the fanning makes every bushel of grain you raise worth more money.

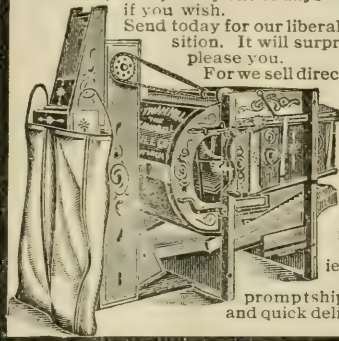
You don't sow weeds if you use a Chatham Fanning Mill.

You don't get "second price" for grain if it has been fanned.

And to prove our claims to you—to convince you that Chatham Fanning Mills are the best made and will do what we say—we are willing to let you try one 30 days **FREE**, if you wish.

Send today for our liberal proposition. It will surprise and please you.

For we sell direct to you and ship from one of our 20 big branch warehouses in leading cities. This means prompt shipments and quick deliveries.



And you get a Fanning Mill made by a factory that makes a specialty of high-grade mills.

You buy at a bargain price.

For we make our own mills in one of the biggest factories in the world.

Our ample capital enables us to buy supplies in immense quantities at low prices.

We turn out hundreds of Fanning Mills.

Our workmen are skilled. They have had long experience. They know just what to use and how to use it.

Consequently we are able to give you bigger value for your money than you can get anywhere else.

## The Chatham

### Name Stands for Quality.

And you can get no such Fanning Mills as ours from ordinary mail order or catalog houses.

You cannot buy mills as good from dealers or at general stores.

Over 200,000 Chatham Mills are in use. We have made them for sixty years. Today they are better than ever—absolutely modern and up-to-date.

Users everywhere will tell you our mills are the best.

But send at once for the rest of the story and our liberal selling terms.

Ask for our little book "How to Make Dollars Out of Wind." It tells how a Chatham Fanning Mill will put dollars in your pocket.

A post-card with your name and address, mailed today, gets it.

### The Manson Campbell Co. (Limited)

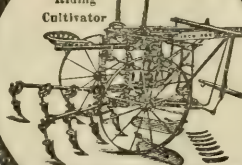
Makers of Chatham Fanning Mills,  
Incubators and Brooders  
342 Wesson Avenue, DETROIT, MICH.

No. 80 Iron Age

Pivot Wheel

Riding

Cultivator



are shown. They are weed killers, crop makers and labor savers. The No. 1

Wheel Hoe with its attachments enables one man to accomplish more and better work than three men by any other method. The No. 80 Riding

Cultivator is wonderful for its adaptability to varying work and conditions. Send for the **New Iron Age Book** which describes the full line of Iron Age Seeders, Wheel Hoes, Cultivators, Horse Hoes, Fertilizer Distributors, and a full line of Potato Machinery consisting of Planters, Sprayers, Cultivators, Diggers. Free on application.

BATEMAN MFG. CO., Box 120, Grenloch, N. J.

## KEEP AHEAD OF THE WEEDS

Poor crop weather seems to be the best kind of weather for weeds. The user of Iron Age Implements has the advantage in any kind of weather because he can get over his crop oftener, cultivate it better and kill the most weeds with the least amount of labor. Two of the famous

## IRON AGE IMPLEMENTS



No. 1

Iron Age

Double

and Single

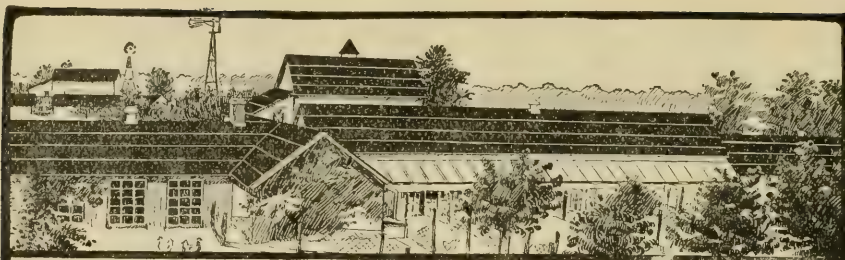
Wheel Hoe

## Western Seeds for Western Planters

Corn, English Blue Grass, Oklahoma Dwarf Broom Corn, Hungarian Broom Grass and full line Garden, Flower and Field Seeds. Write NOW for our 1906 Catalog. Free by mail. Address **Kansas Seed House, Lawrence, Kansas, or Colorado Seed House, Denver, Colo., or Oklahoma Seed House, Oklahoma City, Okla.**

Seeds for Farm and Garden, Alfalfa, Macaroni Wheat, Russian Speltz, Millet, Kaffir





## HERE'S A PAROID ROOF,

"The Roof That Lasts."

The Monmouth Poultry Farm, Freneau, N. J., one of the largest in the country, sends a photograph (see above) showing their Paroid roofs. They like it and so do thousands of poultrymen, the large ones and the small ones, because they found that for roofing and siding, nothing in the world equals

## PAROID ROOFING.

Economical, durable, extra strong, light slate color—contains no tar—does not run nor crack—does not taint rain water. Any one can lay it. Keeps buildings of all kinds warm and dry; spark, water, heat, cold, acid and gas proof, in short it's just the roof you're looking for. Now, don't be put off with a poor imitation, but

**Send for Free Samples** and name of nearest dealer. Investigate its merits for yourself. For a 2 cent stamp we'll send w book of complete plans for poultry and farm buildings.

**F. W. BIRD & SON, Makers.**

Originators of the free Roofing Kit—fixtures for applying in every roll.

East Walpole, Mass.,

Established 1817.

Chicago, Illinois.

## HOW You Get This New TONGUELESS Disc Harrow FREE

It's this way—

An entirely new feature is embodied in the construction of this Harrow.

The Forward Truck, without any Tongue, positively relieves the horses of all Neck Weight and Side Draft, and allows them free, easy movement. They have just an even, steady pull.

Why should a team, that is already having a hard time to work and travel on rough, uneven ground, be hampered and annoyed by the Threshing of a Tongue, and by the weight of a Harrow Frame?

There is absolutely no reason for it.

To give you a chance to examine this Harrow for yourself, and to prove to you that it is exactly as represented, and that it will produce the results claimed for it, we will send any size you select, on a 30 Days' Approval Test, all Freight Charges Prepaid.

If you find the Harrow to be exactly as represented, and to work as we claim it will, you pay for it: Cash or easy terms as you prefer. If not, send it back at our expense.

**See What Mr. Weaver says:**

Dexter Mo., Oct. 26, 1905.

American Harrow Co., Detroit, Mich.

Gentlemen: We are pleased to write you that the No. 1418 Tongueless Disc has been received and thoroughly tested, and found not wanting anywhere.

We have at last a long felt want supplied—a Tongueless Disc. We have concluded that the draft of this harrow is one-fourth less; three horses will draw this harrow with as much ease as four horses will any tongue disc made. We have often wondered why a tongueless disc was so long in getting made. We are surely pleased, and trust you will never make anything but Tongueless Discs.—Yours respectfully,  
L. F. WEAVER.

This Harrow is built on right principles

- No Side Draft.
- No Neck Weight
- No crowding of team in short turns
- Just even, steady pull.
- Front Truck carries weight of Frame, and controls movements of Harrow.

- Ball bearings take the end thrust
- Double levers make handling easy.

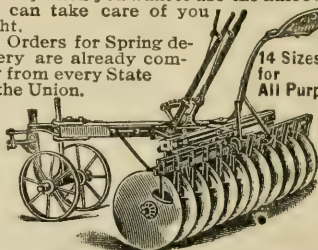
All our output goes direct to the farmers on the 30 Days' Approval Test Plan, with time to pay if you wish.

The Detroit Tongueless Disc Harrow is protected by exclusive patents and manufactured and sold only by us. Write today for booklet giving full description and prices that will please you.

Say when you want to use the harrow, so we can take care of you right.

Orders for Spring delivery are already coming from every State in the Union.

14 Sizes  
for  
All Purposes



**AMERICAN HARROW COMPANY**  
4627 Hastings St., Detroit, Mich.



Protected by Powderpaint.

**D**ON'T judge my discovery, POWDR-PAINT, by the price.

Because it costs you only about  $\frac{1}{4}$  the price of lead and oil paints, don't get the idea that it will not give as good service.

For POWDRPAINT not only lasts long and looks well but it goes farther, its covering power is one-third greater.

As I can prove by many well-known users.

Here's why POWDRPAINT wears so well.—

—Why it resists heat, cold, frost, rain, acids, gases and all weather conditions, to such a remarkable degree?

It is based on the cement principle, as applied to paint.

You know Portland Cement when mixed with water, sets and becomes hard as stone,—hence it is called "hydraulic" cement.

Oil paints stick to various surfaces on account of their peculiar adhesive qualities.

Now, POWDRPAINT is both hydraulic and adhesive. It is made from the purest pigments, combined with adhesive substances much stronger than oil.

Mix cold water with POWDRPAINT and it forms a hard, durable, enamel coating which will not dry out from the sun's heat and become soft and chalky.

Nor will it peel, check, blister or crack.

But, like Portland Cement, it "stays put,"—

—Holds its shape year in and year out.

I was born and raised on a farm.

And I know how expensive it is for the

## Good Paint Without Oil at 1-4 the Cost

farmer to keep his buildings properly protected from the weather with oil paints.

POWDRPAINT is the best paint for barns, poultry, hog and sheep houses. It saves  $\frac{3}{4}$  in price, and you and your hired man can easily do the work at odd times.

For painting inside of poultry houses, etc., to destroy disease germs and for use on fruit tree trunks to destroy insects, it has no equal.

And it reduces your insurance, because POWDRPAINT is fire-proof, as well as weather-proof paint.

I also make DOUBLWEAR PAINT.

—A high-grade, ready-to-mix Oil paint, guaranteed for five years—at  $\frac{1}{2}$  less than the price of other paints not as good.

POWDRPAINT is best adapted for farm buildings, fences, factory, mill buildings, etc.—

DOUBLWEAR PAINT is the cheapest and best oil paint made for the better grade of work, houses, fine interiors, etc.

I make paints in my own factory and sell direct to users at a price representing cost of material and labor, plus one small profit.

You save all dealers' profits—and I pay the freight.

If you have anything to paint this spring it will pay you to send for my free paint samples. State whether you want POWDRPAINT or DOUBLWEAR, and I will also send you a very interesting booklet filled with practical paint advice, showing just how you can save from  $\frac{1}{2}$  to  $\frac{3}{4}$  on your paint bills.

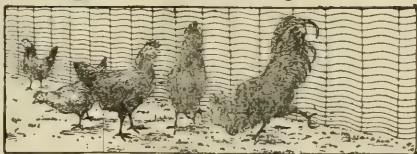


Discoverer of Powderpaint.

A. L. RICE, Paint Maker,  
515 North St., Adams, N. Y.

## Powdrpaint

## Page Poultry Fence Costs Less



Page Woven Wire Fence Co., Box 542, Adrian, Mich.

erected than common nettings; fences poultry in and stock out; requires no boards and but few posts; never sags, bags, or buckles, and outlasts the posts. Complete description and prices furnished on request. Write today.

### COILED SPRING



## FENCE

Closely Woven. Can not Sag. Every wire and every twist is a brace to all other wires and twists full height of the fence. Horse-high, Bull-strong, Pig-tight. Every rod guaranteed.

### 30 DAYS FREE TRIAL

and sold direct to farmer, freight prepaid, at lowest factory price. Our Catalogue tells how Wire is made—how it is galvanized—why some is good and some is bad. Its brimful of fence facts. You should have this information. Write for it today. Its Free.

KITSELMAN BROS.,  
Box 21 MUNCIE, INDIANA

## BROWN PAYS THE FREIGHT

### HEAVIEST FENCE MADE

All No. 9 Steel Wire. Well Galvanized. Weighs  $\frac{1}{2}$  more than most fences. 16 to 25¢ per rod delivered. We sell all kinds of fence wire at wholesale prices. Write for fence book showing 110 styles. The Brown Fence and Wire Co., Cleveland, Ohio.



### LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address COILED SPRING FENCE CO., Box 448 Winchester, Ind.

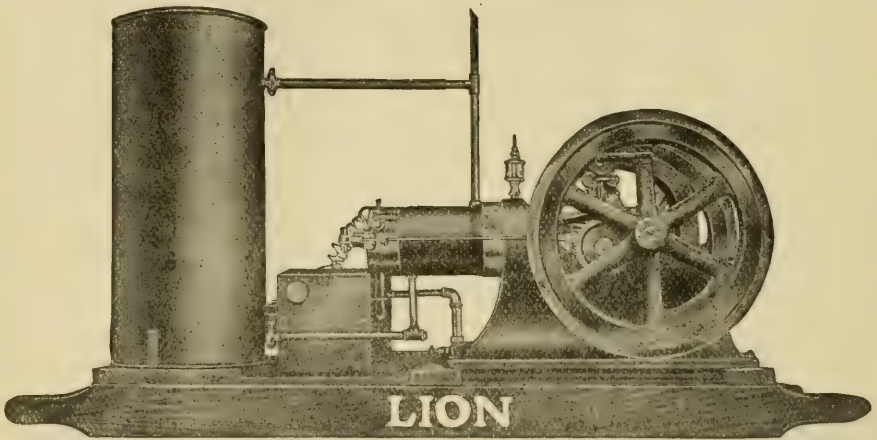


# YES! WE ARE SELLING GAS AND GASOLINE ENGINES.

**DIRECT FROM FACTORY TO USER.**

The secret of our success in this field, hitherto unoccupied, is the extraordinary pains we take in teaching the purchasers of "Lion" engines how to operate them intelligently.

**THIS ENGINE IS NO EXPERIMENT.**



The "Lion" Gas and Gasoline Engines are simplicity simplified; they are used for all purposes where power is required, and will be found the most economical in operation.

**WRITE US A LETTER LIKE THIS TODAY.**

LYONS ENGINE COMPANY, Lyons, Mich.

Gentlemen: I am about to purchase a gas or gasoline engine for.....  
purposes, and wish you to send me full particulars about your approval offer as ad-  
vertised in "Gleanings in Bee Culture." Yours very truly,

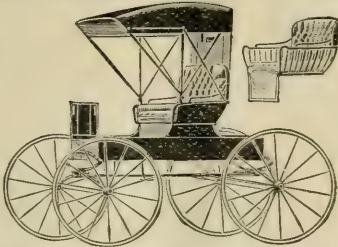
Name..... Town.....  
State..... Street No. or P. O. Box.....  
R. F. D.....

When writing, please state definitely for what purpose you wish to use this engine, and whether gas or gasoline for fuel. This information is very important to us.

Send for descriptive catalog and further information in regard to our special "installment plan" of purchase. If you are thinking of buying a gas or gasoline engine, it will be worth your while to see how cheaply we can sell you a high-grade engine.

**LYON ENGINE COMPANY, Lyons, Michigan**

PLEASE REMEMBER WE SEND THE ENGINE, NOT THE ENGINE AGENT.

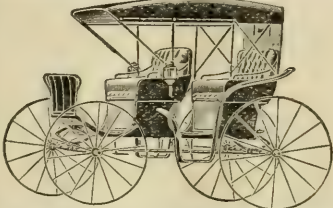


No. 629½. Combination Top Buggy with Bike Gear and ¾ in. rubber tires. Price complete with extra stick seat, \$69.50. As good as sells for \$25 more

### 33 Years Selling Direct

Our vehicles and harness have been sold direct from our factory to user for a third of a century. We ship for examination and approval and guarantee safe delivery. You are out nothing if not satisfied as to style, quality and price. We are the largest manufacturers in the world selling to the consumer exclusively. We make 200 styles of Vehicles, 65 styles of Harness. Send for large free catalog.

ELKHART CARRIAGE & HARNESS MFG. CO., Elkhart, Ind.



No. 330. Extension Top Surrey. Price complete, \$70.50. As good as sells for \$25.00 more.

## SPRAY PUMPS

The Pump That Pumps

SPRAY PUMPS

Double-acting, Lift, Tank and Spray

PUMPS

Store Ladders, Etc.

HAY TOOLS

of all kinds. Write for Circulars and Prices.

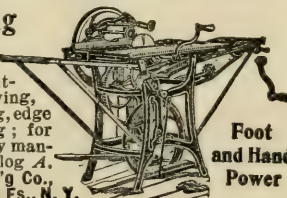
Myers Stayon Flexible Door Hangers



with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—“Stayon.” Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.  
F. E. MYERS & BRO.  
Ashland, Ohio.

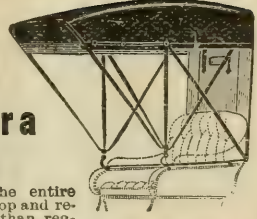
## Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog A. The Seneca Falls M'g Co., 44 Water St., Seneca Falls, N. Y.



Foot and Hand Power

## TRADE Your Old Buggy for a New One



We are selling the entire output of a buggy top and repair factory at less than regular factory prices. You can make your old bug look like new for only a few dollars.

### Eight Factories With One Selling Head. Entire Output direct to you.

The entire output of eight factories making Buggy Tops and Supplies, Vehicles of all kinds, Paints and Varnishes, Steel Ranges, Sewing Machines, Farm and Blacksmith Tools, Steel Wheels and Handy Wagons, Telephones and Supplies. All combined to cut down selling expense and deliver goods to the consumer direct at unheard of low prices.

### Write for Big Free Catalog.

describing and illustrating the output of all of our factories in one big volume. The greatest selling plan ever devised, to save money for the buyer, plainly and clearly explained. The Book is free. Write for it.

THE UNITED FACTORIES CO.,  
Dept. 38 Cleveland, O.

Get a Genuine  
**SPLIT HICKORY**  
It costs no more than the unknown kind. Rock bottom factory prices and double value.

---

Here's a Beauty—**\$41**  
Made to order. 30 days free trial. 2 year steel-clad guarantee. Write us what style vehicle you want. 1906 Catalog—100 styles—Free. Write for it today.



The Ohio Carriage Mfg. Co.  
H. C. Phelps, Pres.  
Station 293  
Cincinnati, Ohio.



## Whitewashing

and disinfecting with the new “Kant-Klog” Sprayer gives twice the results with same labor and fluid. Also for spraying trees, vines, vegetables, &c.

Booklet free. Address

ROCHESTER SPRAY PUMP CO.,  
Rochester N.Y. 32 East Ave.

## Deming's Sprayers

are the ideals for many thousand fruit growers. Get the best. Something for every purpose. Knapsack, Hand, Bucket, Barrel, Etc. Also Power Outfits. Every approved device for right working. Agitators, superior nozzles, etc. Send for free catalog. The Deming Co., 230 Depot St., Salem, O. Henton & Hubble, Western Arts., Chicago.



65c for 25 NAMES—For names and P.O. of 25 farmers and 15c (stamps taken) we will send for 2 years, the Farmer's Call—regular subscription price, 40c a year. F. C. is a weekly, 25 years old; 1300 pages a year; sample free. Farmer's Call, Quincy, Ill.





makes from 25 to 35 blocks. Write for descriptive circular and list.

## These Blocks

were made on one of our \$50 concrete building-block machines. Prices range from \$50 upwards. Every machine complete with all parts ready to go to work, and guaranteed to give satisfaction. Two men make from 100 to 150 of these blocks per day. One barrel of Portland cement



**Medina Concrete Company**  
Medina, Ohio



This **TRADE-MARK** insures  
**THE BURPEE QUALITY**  
of the

**Best "Seeds that Grow"**

## Burpee's Seeds

cost but little more than do usual commercial grades - and

yet are *worth* much more. At our own farms in Pennsylvania and New Jersey, as well as in the gardens of planters everywhere, **Burpee's Seeds** are proved by test to be the **BEST SEEDS THAT GROW**. Consequently we hold the largest mail-order seed trade in the world.

Our "Silent Salesman," neatly dressed in a "coat of many colors," and telling the *plain truth*, with photographic pictures of the superior products of BURPEE'S "SEEDS THAT GROW," will be **mailed FREE**—if You will write for

1876

*Burpee's*

1906

## Farm Annual for 1906

Thirtieth Anniversary Edition of "The Leading American Seed Catalogue."

This is a handsome book of 168 pages, carefully edited and neatly printed; bound in cover lithographed in nine colors, it shows, *painted from nature*, Seven Superb Specialties in Vegetables of unequaled merit and Six Novelties in Flowers—including LUTHER BURBANK'S *New Floral Wonder*.

**This Invitation** to write for our New Complete Catalogue and then participate in the Special Celebration of our Thirtieth Anniversary is given to all planters who delight in raising the Choicest Vegetables or most Beautiful Flowers.

If you intend to garden this spring you will want to lay your plans, and therefore we urge you to **WRITE TO-DAY!**—the very day you read this advertisement. Mention this paper and address

**W. ATLEE BURPEE & CO., Seed Growers, Philadelphia, Pa.**

## CORN, FIELD, AND GARDEN SEEDS!

We are headquarters for medal-winning, premium-taking, pedigreed, fire-dried sweet corn; all the leading varieties. Send at once for our new catalog of farm, field, and garden seeds. It tells you how to double your crop, as many farmers are doing. Sent free on application. Address

**J. B. Armstrong & Son, Shenandoah, Iowa.**

# Early Crops Mean Big Prices

The sooner your early vegetables are on the market, the higher the prices they command. You know this and you know also that our

**Hardy Northern Grown Seeds** grow fastest, mature earliest, and make largest crops. You know why. The Northern growing season is shorter, plants grow quicker and mature sooner. This makes them strong and sturdy. Their vitality is greater. Their seeds sprout very quickly, grow very rapidly and mature in the shortest possible time. This means early crops. Early crops mean first markets, and first markets mean fancy prices. Try it yourself and see.

**TAKE POTATOES!** We grow all the popular varieties, but **Our Extra Early Petoskey** is the fastest grower—the quickest to mature—the biggest producer. You can get them on the market from two to three weeks ahead of all other varieties. And the potatoes are big, tempting beauties—snow white, mealy and delicious eating.

**FOR 25 CENTS** (stamps or coin) we will send you a big **Petoskey Potato** and our complete catalog of **Hardy Northern Grown Seeds**. Catalog alone **FREE**. Write today and get your seed in the ground early. You won't be sorry. Remember you can prove all we say if you act promptly and send at once.

**DARLING & BEAHAN, 72 Michigan Street, PETOSKEY, MICH.**



**THE WORLD'S LARGEST  
TOMATO  
WEIGHT, 6 LBS. AND 2 OZ.  
FREE SEEDS**

Send us your name and address today for a **Free Pkt.** of this Mammoth Tomato Seed, together with our Big 1906 Catalog of "Pure and Sure" Seeds. It describes everything needed for the Field, Garden and Lawn at Wholesale Prices direct to the consumer, as well as our New 372 Bus. Per Acre Corn, "Nichols' Golden Chief," for which we offer to pay \$5.00 per ear to Growers this season. It is the handsomest Garden Guide ever issued—mailed free. Write Today

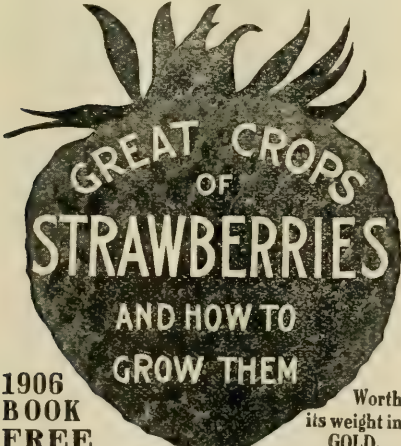
**ST. LOUIS SEED CO.  
704-706 N. 4th Street St. Louis, Mo.**



**"DOOR-STEP FLOWERS"**

There are two great classes of out-door flowering plants: the **ANNUALS** which are grown from seed each season, and the **HARDY HERBACEOUS** plants which live from year to year. We are large growers and collectors of both classes—38 years experience—and we offer all the best **HARDY** varieties. Send for our 1906 **SEED CATALOG**, which includes also **TESTED VEGETABLE SEED**. Remember we are the largest growers of **STRICTLY HARDY** fruit and ornamental trees and plants in the United States. Established 1868. 1200 Acres. **FREE CATALOGS**. Reliable Agents Wanted.

**The Jewell Nurseries, Box 12 Lake City, Minn.**



**GREAT CROPS  
OF  
STRAWBERRIES  
AND HOW TO  
GROW THEM**

**1906  
BOOK  
FREE**

Worth its weight in **GOLD.**

The Book that beats them all because it tells how **big crops** of big fancy strawberries can be grown every year and how to pick and pack them for big prices. It keeps Experienced Growers posted on new discoveries in plant breeding and latest cultural methods. It takes beginners through a complete course of instruction; tells just when and how to do everything to get **Big Results**, and how to start a Profitable Berry Farm with little capital. Beautifully illustrated with photo-engravings. Don't order your plants until you read this book. It is free.

**E. M. KELLOGG CO., BOX 400 THREE RIVERS, MICH**



**GOOD SEEDS  
CHEAP**  
BEST EVER GROWN

A wonderful big catalog **FREE** Full of engravings of every variety, with prices lower than other dealers. The book is worth a dollar to any one who plants seeds.

**Big Lot of Extra Packages Free to Every Customer.**

Send yours and neighbors address.

**R. H. Shumway, Rockford, Illinois.**



**HARDY EVERGREENS**

grow them by the million. To prove they are healthy and vigorous we offer 12 **Spruces and Pines 2 years old FREE** to property owners. Mailing expense 6c, which send or not. A postal will bring them. Catalog with 45 colored plates of **Hardy Fruit** etc., free. Write today.

**The Gardner Nursery Company, Box 743, Osage, Ia.**



# APPLE TREES 7c



All  
The Best  
Hardy Varieties

Two Years  
Old  
7c to 15c Each

## POPLAR TREES AND ROSE BUSHES, TEN CENTS EACH

ASPARAGUS, the most popular vegetable, yields at the rate of \$400 per acre, two year plants 75 cents per 100; \$4.50 per 1,000. Grape vines and fruit plants at low prices. **POPLAR TREES** for driveways, shade and lawns. The most rapid growing trees, 10c to 17 cents each. **ROSES**. A large collection of hardy varieties, also our Live-for-Ever Pink Rose, 10c to 20c each.

## BUY DIRECT FROM GROWER — SAVE 35 PER CENT

Let us price your list of wants. Green's 1906 Catalogue, also copy of Green's Big Fruit Magazine free. Send postal card for them today. **GREEN'S NURSERY COMPANY, 41 WALL ST., ROCHESTER, N. Y.**

### EVERGREENS AND FOREST TREES

**That are Sure to Satisfy**

I have been growing evergreens and forest trees for 31 years, always with one idea—trees that satisfy. When you buy Hill's trees you get honest value—highest quality. My catalogue is my salesman; it's free. Contains 48 pages illustrated with beautiful pictures; describes all kinds of nursery stock for all purposes—hedges, windbreaks and ornament. Also fruit trees, shrubs and vines. 50 Best Bargains ever offered—\$1.00 to \$10.00 per 100 Prepaid. Everything first-class, guaranteed exactly as represented. Write for catalog today.

**D. HILL, Evergreen Specialist  
Dundee, Ill.**

## Seeds, Plants, Roses,

Bulbs, Vines, Shrubs, Fruit and Ornamental Trees



The best by 52 years test, 1200 acres, 40 in hardy roses, none better grown, 44 greenhouses of Palms, Ferns, Ficus, Geraniums Everblooming Roses and other things too numerous to mention. **Seeds, Plants, Roses, Etc.** by mail postpaid, safe arrival and satisfaction guaranteed, larger by express or freight. You will be interested in our extraordinary cheap offers of over half a hundred choice collections in **Seeds, Plants, Roses, Trees, Etc.** Elegant 168-page Catalogue FREE. Send for it today and see what values we give for a little money.

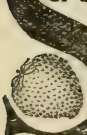
**THE STORRS & HARRISON CO.,  
Box 188, PAINESVILLE, OHIO.**

## Strawberry Plants

Virginia and Chesapeake, winners of \$100 GOLD PRIZE offers; also Cardinal, Commonwealth, North Shore, Oaks Early, New York, Glen Mary, Stevens Champion, and 90 others; best list, good stock, fair prices. Dewberries: Lucretia and Austins.

**Seeds** Full line best new and standard old varieties GARDEN, FIELD and FLOWER SEEDS. **New 60 Page Catalogue Free.** It tells about good plants and seeds and where to get them. Send now to **W. F. ALLEN, Dept. 20, SALISBURY, MD.**

## SCARFF'S STRAWBERRIES



I grow millions of strawberry plants that yield luscious fruits. All true to name—full of life. They're money—corners that will yield **\$300 PROFIT PER ACRE**

My handsome, new catalog of small fruits, fruit and ornamental trees, farm and garden seeds and general nursery stock sent free. Get it—write today. **W. N. Scarff, New Carlisle, O.**

A beautiful colored plate of our

## New Eaton Red Raspberry

and our strawberry catalog of valuable information about varieties with instructions for beginners. Free to all.

**THE FLANSPURCH & POTTER CO.,  
Leslie, Michigan.**



### 50 BULBS

25 Cents.

Will grow in the house or out of doors. Hyacinths, Tulips, Gladioli, Crocus, Fuchsias, Oxalis, Tuberoses, Begonia, Jonquils, Daffodils, Chinese Lily, Dewey Lily, Gloxinia, Lilies of the Valley—all postpaid, 25c. in stamps or coin. As a premium with these Bulbs we will send FREE a big collection of flower seeds—over 200 kinds.

**HILLSIDE NURSERY, SOMERVILLE, MASS.**

## Trees, Plants & Seeds THAT GROW

Best quality. Good bearers. Low prices. Apple 4c; Plum and Cherry 12c; Peach 4c; all budded; Concord Grapes 2c; Forest Tree Seedlings \$1 a 1000 up.

**GERMAN NURSERIES**  
Carl Sonderegger, Prop.

Tested seeds very cheap. Freight paid on trees. Catalogue, English or German, free. Write for it today. Address **GERMAN NURSERIES, Box 33 Beatrice, Neb.**



## THE BEST RASPBERRY

is Plum Farmer, early, large, enormously productive. Catalog of raspberry, strawberry and other berry plants free. Write for it NOW. **L. J. Farmer, Box 608 Pulaski, N. Y.**

# Mr. Green says

☞ It is time to plan your garden.

☞ Just take a pencil, make a diagram, plot it out with what you desire, and then select the varieties. You will find with a little forethought you can have a much better garden than last year.

☞ Of course you will want our catalog to aid you. It tells you how to make good gardens. A postal will bring a copy.

**E. C. Green & Son**

Seedsman,

Medina, Ohio, U. S. A.

## The Best Fruit Paper

is The Fruit-Grower, published monthly at St. Joseph, Mo. The regular subscription price is a dollar a year but if you will write for free sample copy and mention this paper, you will receive a proposition whereby you may secure it one year WITHOUT COST. Every one who has a few fruit trees or a garden, should read

# THE FRUIT-GROWER

ST. JOSEPH, MISSOURI

Every issue is handsomely illustrated and from \$2 to \$4 pages a month are filled with interesting matter pertaining to fruit-growing and gardening. The first four issues of 1906 will be handsome special numbers devoted to the following subjects:—January, The Horticultural Societies; February, Spraying; March, Gardening; April, Small Fruits. Any one of these numbers will be worth a dollar to you. We publish the "Brother Jonathan Series" of fruit books. Send your name and learn how to secure these books free.

Fruit-Grower Co. 152 S. 7th, St. Joseph, Mo.



### THE BEST STRAWBERRY

is Senator Dunlap—large, fine colored, very productive. Catalog of Strawberry and other berry plants FREE. L. J. Farmer, Box 408, Pulaski, N. Y.

## 450,000 TREES

200 varieties. Also Grapes, Small Fruits etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. Lewis Koesch, Fredonia, N. Y.

## 300,000

**PLUM TREES.** 2 years on plum roots, 6 to 7 feet, 15c each; 5 to 6 feet, 12c; 4 to 5 feet, 7c; 3 1/2 to 4 feet, 5 cents. 250 Trees for \$10. Boxing free. Liberal discounts on early orders. Millions of Fruit, Shade, and Ornamental Trees. Small Fruits of every description. Secure varieties now, pay in spring. 80-page Catalog Free to everybody.

SHEERIN'S WHOLESALE NURSERIES, Dansville, N. Y.

## INVESTIGATE THE POULTRY BUSINESS



Write for a free copy of my book describing

**Profitable Combinations of Egg, Broiler and Roaster Farms**

It gives the prices paid for eggs and poultry week by week for the past three years. It tells how and when a hatch taken off each week in the year could be most profitably marketed. It shows how you can make \$2.00 on a large winter roaster. It tells what profits can be made with each of the popular breeds, and the costs of production.

I have helped thousands to make money with poultry. My Model Incubators and Brooders are used on the money-making farms. It is my business to teach those who use them to do so profitably. Whether your needs are small or large, I will furnish without charge, estimates and plans for a complete equipment that will insure success without your spending a dollar uselessly. Send for my complete literature.

**CHAS. A. GYPFERS**

3927 Henry St.

Buffalo, N. Y.

## Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.



**40 BREEDS** Fine pure-bred, chickens, ducks, geese, and turkeys. Northern raised; hardy and very beautiful. Largest poultry-farm in the Northwest. Fowls, eggs, and incubators at lowest prices. Send 4c for fine 70-page poultry book and catalog.

R. F. NEUBERT, Box 778, MANKATO, MINN.

## Long Island CABBAGE SEED

American cauliflower seed and other choice vegetable seeds for gardeners.

Francis Brill - Grower - Hempstead, N. Y.

**FREE Flower Seeds.** 1000 sorts, new and old, for a big bed, also PARK'S NEW FLORAL GUIDE FREE. Tell your friends. GEO. W. PARK, La Park, Pa.

## FRUITFUL TREES

MILLIONS OF FRUIT AND FOREST TREES Small Fruits and Evergreens. Russian Mulberry and Black Locust, \$1.00 per 1000. Carefully dug and packed. Freight prepaid on \$10.00 orders. Catalogue free. Fine trees guaranteed.

Gage County Nurseries, Box 647, Beatrice, Neb.



# The Big Two of the Poultry Press

go every week to thousands of exclusive readers who buy liberally in the desire to beautify their Rural Homes. . . .

## The Feather

The most conservative and instructive of all monthly journals devoted exclusively to the advancement of poultry culture in all its branches.

## The American Fancier

The great weekly journal devoted to the interest of the business in all its branches, goes continually on Saturday to those most interested in standard-bred poultry.

THE ADVERTISER looking for profitable returns can not afford to neglect the advantages to be gained from the use of the advertising pages of *These Two Journals*.

## Begin Now, the Harvest is at Hand

For special rates send to publishers of this journal or to the home office of the two publications.

**The Howard Publishing Co.**  
714 12th St. N. W., Washington, D. C.

## PROFITABLE POULTRY

Send 3c for our 64-page book, finely illustrated, that tells how to make money raising poultry. Others are doing it; why not you? This book gives full information on breeding, feeding, rearing and hatching. Illustrates and tells why Berry's "Biddy" incubators and brooders hatch and raise the largest per cent of chicks—the kind to buy. Contains cuts of our fine pure-bred poultry with prices of birds and eggs for hatching.

Berry's Golden Rule Poultry Farm. Box 53 Clarinda Ia.

## You Need It. : : : : :

- If you have only a few chickens;
- If you are at all interested in poultry;
- If you are breeding for fancy points;
- If you cater to the market trade;
- If you are in the business on large scale, you need

## Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. a year, but we offer it **AT HALF PRICE** for a short time to introduce it to readers of Gleanings. Send only 25 cts. and get it a year; or, if you send us \$1 for a year's subscription to Gleanings in Bee Culture, we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.

## EGGS FOR HATCHING

Buff Plymouth Rocks, White Wyandottes, Black Minorcas, White Leghorns, Reds, \$1; Houdons, Lt. Brahmas, \$1.25. We guarantee as good as you pay double for, or your money back. Send for catalog.

W. W. SHAMPANORE,  
Box D. Little Silver, N. J.



## Greider's Fine Catalog

of Prize-Winning Poultry for 1906. This book is printed in several Beautiful Colors and is larger than ever. Contains a Fine Chromo of lifelike fowls. It illustrates and describes 60 varieties of poultry, ducks, geese, pigeons, etc. It shows best equipped poultry yards and houses—how to build houses; cure for diseases; **Best Lice Destroyer** how to make hens lay; poultry supplies and all kinds of information indispensable to poultry-keepers. Prices of eggs and stock within reach of all. Send 10 cents for this noted book.

B. H. GREIDER, RHEEMS, PA.



## FREE! FREE!

Send for a copy of the INLAND POULTRY JOURNAL, and receive a fine color picture free. Cost us \$400 costs you nothing. Our paper has the admiration of every poultry man. Have you seen it? Well do not miss it. Address Inland Poultry Journal Co., 50 Cord Bldg., Indianapolis, Ind.

## POULTRY PAYS

if you get the right start, the right eggs or fowls and the right materials to work with. Our complete poultry guide pictures and describes all breeds, gives incubating, brooding and feeding directions. It lists **Thoroughbred Fowls and Eggs**, incubators, brooders, poultry ration and everything needed for profit. **All at lowest prices** and all guaranteed satisfactory or your money back. Send for Free Book for 10 cents postage.

American Incubator Co., Box 115, Freeport, Ill.



## BOOK ON POULTRY DISEASES FREE

Conkey's book on Poultry Diseases sells for 25 cts. Full of information on housing, feeding, sickness, and how to care for the flock. Will help you to make money. Send 4 cents to pay postage and the names of two other poultry raisers, and we will send you a copy of this illustrated book of valuable information free.

G. E. Conkey & Co., No. 80, Ottawa Bldg., Cleveland, O.

## DO YOU RAISE CHICKENS?

If so, you will find The Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cts. a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

## 100 SPECIAL PRIZES

Besides our regular premiums of Post Cards, Books, Eggs for Hatching, Cash Commissions, etc., for getting subscribers. Write at once for sample copy, blanks, etc. Also souvenir bee post cards. . .

Poultry Item : : Fricks, Pa.

### Regarding Our Advertisers.

J. B. Armstrong & Son, Shenandoah, Iowa, whose ad. appears on page 170, have issued their 24th annual reed-corn catalog. They will send this instructive book and generous samples of corn and field seeds free.

Kitselman Bros., Muncie, Ind., make a stock-proof fence which really has merit. Their fences are growing into very wide use. They make a liberal trial offer in their ad. on page 167, and have a 40 page catalog for free distribution.

Mr. J. Wallace Page is to be congratulated on the large and successful business he has built up during the last twenty-two years. The secret of his success is a well-known one—goods of the highest quality, and square business methods. The Page Woven Wire Fence Co.'s adv't appears on page 167. Write for their free printed matter.

Berry's Golden Rule Poultry Farm is a name new to poultry-men. The firm, however, is not new in the poultry business, and they handle many of the latest varieties. The new Biddy incubator which they manufacture is worth knowing about. See the Berry adv't on page 174.

Mr. A. L. Rice, Adams, N. Y., in his adv't on page 167, tells of his new cold-water paint for barns and buildings, and his oil paints for interiors. Mr. Adams advocates the plan of painting frequently, and using good paint. Surely experience has proved that this is the profitable way. Free samples and color-cards will be sent if requested.

Mr. Chas. A. Cyphers, Buffalo, N. Y., presents the subject of poultry culture in a new, helpful, and attractive way in his book, "Eggs, Broilers, and Roasters." This book is the best on this subject we have ever seen. It is well worth sending for. Mr. Cyphers promises to send it free to all who ask for it.

The name "Iron Age" has come to be known wherever farm implements are used. The Bateman Mfg. Co., Box 120, Grenloch, N. J. (ad. on page 165), issue a very fine catalog this year. It shows about every implement a farmer could use, from cultivators and seeders to sprayers and diggers. The book is for free distribution.

A 180-page catalog is a rather large book for free distribution, especially when so attractively printed and profusely illustrated as the catalog of the Ohio Carriage Mfg. Co., Cincinnati, Ohio. Every thing in Split Hickory carriages and vehicles will be found in this book. See the offer made in this company's ad. on page 169.

A great stride was taken in the advertising of railroads when the Southern Pacific appropriated \$100,000 for advertising their road in the leading magazines. Their advertisements tell of the great scenic beauty of their route, and make known their offer to send an illustrated book, "The Road of a Thousand Wonders," free. For the benefit of our readers who wish to send for this book we give the address of the distributor: Chas. S. Fee, Passenger Traffic Manager, S. P. R. R., 431 California St., San Francisco, Cal. This entire series of advertising was prepared and is being placed by the N. W. Ayer Advertising Agency, Philadelphia.

We wish to announce the change in the firm name of our jobbing agent in Central Pennsylvania. Prothero & Arnold, Dubois, Pa., have sold out to Frank W. Prothero, of the same city. Mr. Prothero will continue to be the sole manager of the business as heretofore, but the business has been greatly enlarged. We have already shipped them a large car of all kinds of supplies and expect to ship them several more in the near future. Mr. Prothero has in his large establishment every facility for the quick and careful handling of orders, and our customers in West-Central Pennsylvania will save time and money by sending their orders there.

E. C. GREEN & SON, SUCCESSORS TO A. I. ROOT IN HIS SEED BUSINESS

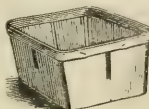
For its size there is surely not a better seed catalog issued than Mr. Green's. It is packed full of valuable garden information—not an inch wasted on any thing that does not appeal to the average garden-maker. It is illustrated with beautiful, truthful halftones. Complete prices, which will pay you to see. You had better write Mr. Green to-day, asking for a copy. Below is a reduced halftone of their cover for 1906.



**\$41.00 Is All**

you have to pay for a 2-year direct steel-clad guaranteed, genuine  
**SPLIT HICKORY WINNER**  
Top Buggy, sold on 30 days' Free Trial. It costs no more to get something good. We make in our own factory everything we sell. Write and tell us the kind of vehicle you want. 1906 Catalogue, 180 pages, Free.

THE OHIO CARRIAGE MFG. CO.  
H. C. Phelps, Pres.  
Station 293,  
Cincinnati,  
Ohio.



**Free! Free!**

Our catalog of berry-plants, 32-quart berry crates and baskets. Special prices for Febr'y orders  
**H. H. Aultfather**  
Box 3 Minerva, O.

**Fruit Trees.**—\$6.00 per 100 and up. Fine assortment of trees, shrubbery, vines, plants, etc. Our ideal soil and climate, produce best trees. Well packed; guaranteed against damage in transit. Catalog free,  
CHATTANOOGA NURSERIES, Chattanooga, Tenn.



----"If Goods are Wanted Quick, Send to Pouder."----

Established 1885.



# BEE-KEEPERS' SUPPLIES.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I.

Root Company, and I can save you money by way of transportation charges.

**Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,**

## EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

**Over Two Tons** of New Weed-Process Foundation on hand. I secured this while the weather was warm, on the advice of The Root Company. I am glad I took their advice, for there is not a cracked sheet in the lot. It is two to three cents lower than it was last year, but it might advance again in May. Wouldn't you like to secure yours right now?

**480,000 Sections** here ready for immediate shipment. I had not thought that they could be made better, but I really believe they are just a little nicer than they have ever been.

**Hives Calore!** Any kind—eight-frame, ten-frame, or Danzenbaker. My catalog describes every thing required in the bee-yard. My new stock of smokers have the latest improvements. It would be a pleasure to mail you my new catalog, and it is free for the asking.

**If you send** in your order before March first you may deduct 4 per cent for early-order discount. In March the discount will be 2 per cent.

## BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight; always sure to attach your name to package.

# WALTER S. POUDER,

513--515 Massachusetts Ave.,      INDIANAPOLIS, IND.

# PAGE & LYON

## NEW LONDON, WISCONSIN

✿ Manufacturers of and Dealers in ✿

### BEE-KEEPERS'

### SUPPLIES

4 per cent Discount during February on all Orders Accompanied by Cash

**Send for Our FREE  
New Illustrated Catalog and Price List**

## Dittmer makes a Specialty of Working Beeswax into Comb Foundation

Write for our price list, samples, and early-order Discount  
We would like to send them to you at our expense.  
Our warehouse is full of bee-supplies.  
Jobbing - Wholesale - Retail.  
Beeswax always wanted.

**CUS DITTMER,**

--

**AUGUSTA, WIS.**



H. M. ARND, MANAGER

## YORK HONEY AND BEE SUPPLY CO. Not Inc.

141 ONTARIO STREET : CHICAGO, ILLINOIS

CARRY A FULL LINE OF

### Lewis Bee-supplies and Cornell Incubators and Brooders

and poultry-supplies at factory prices. Write for the 1906 catalog of either or both. Honey for sale. Beeswax wanted; 27 cts. cash, or 29 cts. when taking bee-supplies in exchange.  
Early-order discount, four per cent for February.



# HIVES - HIVES



Now is the time to place your order for the hives you will need this year. By getting them now you will save the discount, and can have them nailed and ready for your bees in the spring. . . . We should like to quote you prices in any quantity on the following:

## The Root Chaff Hive

The best chaff hive made

## The Danzenbaker Hive

The comb-honey hive

## The Root Dovetailed Hive

Standard size and extra quality

Send for Catalog

# M. H. HUNT & SON, BELL BRANCH, MICH.

We Sell Root's Goods in Michigan



## Michigan Distributors

—FOR—

## G. B. Lewis Co.'s Beeware, Dadant's Foundation.

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service. Regular discounts allowed.

**SPECIAL.** A quantity of Dovetail and Wisconsin hives, slightly damaged by water, in packages of five at \$1 25 per hive for 1½ story 8 frame; 10-frame, \$1.40 per hive. Satisfaction guaranteed.

**ADVANCED BEE-VEIL.** Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

## A. G. Woodman Co.,

Beeswax Wanted.

Grand Rapids, Mich.

## BIG DISCOUNT till April 1 ON ALL SUPPLIES

Dovetailed hives, eight-frame, 1½-story, \$1.30; 10-frame, \$1.45. No. 1 sections, \$3.75; No. 2, \$3.25. Foundation, smokers, etc., reduced. Berry boxes, crates, boxes, etc., kept in stock. Honey wanted. Twenty-four page list free.

W. D. Soper, Rt. 3, Jackson, Mich.

# SEEDS

## 1905 CROP

We sell the best grade of Garden, Field, and Flower Seeds, also Bulbs, that money will buy.

We are recleaners of Clover, Timothy, Red Top, Blue Grass, Mammoth White Rye, Beardless

Barley, Seed Wheat, and a full

line farm seeds. Catalog and Field Seed price list free.

THE HENRY PHILLIPS SEED & IMPLEMENT COMPANY

115-117 St. Clair St., Toledo, Ohio

# CO-OPERATION

Means—you work for me and I  
work for you for Mutual Benefit

A well known manufacturer wishes  
to cash \$2000 worth of goods during

## JANUARY.

He has made me the lowest prices I  
have been able to secure in years, viz.:

The 8-frame Dovetailed hive, 1½-story, at \$1  
each, any frame, any cover, etc.; 10-  
frame, \$1.10.

No. 1 white basswood standard-size sections,  
at \$3.25 per 1000; No. 2, \$2.75 per 1000.

I will take you, Mr. Bee-keeper, into partner-  
ship. There are three conditions, viz., 1st—  
Cash to reach me not later than Jan. 30, 1906.  
2d—You subscribe for Rural Bee-keeper one  
year, \$1.00. 3d—You pay me a commission  
for my services, viz., 10 per cent on all orders  
for \$50 or less; 8 per cent on \$50 to \$100; 7  
per cent on \$100 to \$200; 6 per cent on \$200 to  
\$300; 5 per cent on \$300 to \$500; 3 per cent on  
\$500 to \$1000; 2½ per cent on all orders over  
\$1000.

No catalog. Prompt shipment. Money re-  
funded in case all are sold. No risk.

**W. H. Putnam, River Falls, Wis.**

FOR 14 YEARS  
**I. J. STRINGHAM**  
OF 105 PARK PLACE  
**NEW YORK**

has been furnishing bees and apiarian supplies of  
every desired kind to bee-keepers of the East. A  
very liberal discount is now allowed early orders.  
Apiaries, Glen Cove, L. I. - - Catalog free.

### NOTICE!

The firm of Cooley & Deuel has dissolved partnership.  
D. Cooley will continue to sell bee-supplies. All orders  
will receive prompt attention. Address all orders to  
**D. Cooley, - - Kendall, Mich.**

**A. H. REEVES**  
DISTRIBUTOR OF ROOT'S GOODS FOR  
**NORTHERN NEW YORK**  
Perch River, Jefferson Co., N. Y.

## Bee-keepers, Co-operate!

We are Bee-keepers--Organized in  
the Interest of Fellow Bee-keepers  
(No Matter where They Live)

Membership dues, \$1.00 per year.

Present membership—about 200 bee-keepers.

Our 1906 price list of bee-supplies, and a leaflet  
containing valuable information, are now ready to mail.

If you wish to assist in co-operation among bee-  
keepers write us now and send the names and addresses  
of all your neighbor bee keepers.

**The St. Croix Valley Honey-producers' Association**

Headquarters Until June 1, 1906  
Glenwood, Wisconsin

## Something New in Honey-jars...

Cook's Square Jar combines a new fea-  
ture that improves the package and  
reduces the cost, and is the best and  
cheapest 1-pound glass package made.  
Send for circular and full catalog of  
hives, bees, and useful implements. . .

**J. H. M. COOK, 70 Cortlandt St., New York**

The Oldest Supply-house in the East, and  
only Reliable goods sold. 10 cents brings  
sample jar by mail.

## BEE - SUPPLIES

Distributing-house for Lewis' Goods.  
Dadant's Comb Foundation, etc., at  
Factory Prices.

Every thing the bee-keepers need. No order too large  
for us, nor none too small. Cash orders before February,  
6 per cent discount.

**FINE EXTRACTED HONEY** ✕ ✕ ✕

The best the world can produce. Sample sent, 8 cents.  
How much can you use? We always buy beeswax.  
Catalog and "Special" free.

**C. M. SCOTT & CO.**  
1004 E. Washington St.  
**Indianapolis : Indiana**

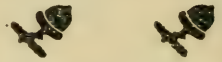
# Southern Bee-keepers!

If you want bee-keepers' supplies of best quality and for the least money possible, you should buy  
them from the **WHITE MANUFACTURING COMPANY**. Situated, as we are, right near the great pine  
belt of North Texas, Louisiana, Arkansas, and Indian Territory, we can secure the best material possible  
at least cost, thus enabling us to give entire satisfaction. Catalog and price list free.

**White Manufacturing Co. - Blossom, Lamar Co., Texas**



# Bee-supplies



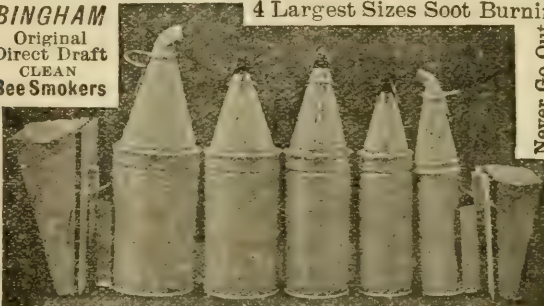
We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

**Kretchmer Mfg. Co., Council Bluffs, Iowa**

**BINGHAM**  
Original  
Direct Draft  
CLEAN  
Bee Smokers

Pat'd 1878, '84, '92 & 1908



4 Largest Sizes Soot Burning

Never Go Out  
And last from 5 to 21 years

**BINGHAM was the FIRST**

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.

Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. **L. L. LANGSTROTH**

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder  
Prices—\$1.50; \$1.10; \$1.00; 90c; 65c by mail on receipt of price.

**T. F. BINGHAM, FARWELL, MICH.**

**ONLY BINGHAM SMOKERS**  
Have These Latest Improvements.

## WISCONSIN BASSWOOD FOR SECTIONS

We make them and the very best of Dovetailed Hives. Shipping-cases, and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

**MARSHFIELD M'F'G CO.**  
MARSHFIELD, WISCONSIN.

## A Prosperous

Season is yours.....

if you take time by the forelock, and be prepared for the season when it comes. **DON'T** put off ordering your supplies until you need them. Order now, and get the discounts.

I have a full line of Root's Goods, and sell them at factory prices and discounts. Send me a bill of what you want and let me tell you what I will deliver them at your depot for. Send for my 36-page catalog—it will be sent free—also a full description of the Hilton Chaff Hive and Supers, with a comparison made by the Michigan State Agricultural College between the single and double walled hives. All free for the asking. Cash or goods in exchange for wax.

**Geo. E. Hilton, Fremont, Mich.**

# Get Caucasian and Italian BEES - AND - QUEENS from California

WE HAVE received a number of letters from bee-keepers all over the U. S. asking us how to get and where to get good queens of pure Caucasian stock. The wonderful gentleness of Caucasian bees has attracted the attention of all practical bee-keepers, and therefore it is no wonder that they're going to introduce them into their apiaries and make a trial of them. We know that, to come to the right conclusion regarding the value of the testing race, the principal condition is to have the testing-subject from right source. So if one wishes to test Caucasian bees he must be assured he is testing pure Caucasians.

In order to furnish pure stock of Caucasian bees, last summer we imported numbers of Caucasian breeding queens direct from Caucasus from the best breeders that there are in that country. From the best of these imported queens we are now raising young ones for the market on a large scale, and we make very reasonable prices, wishing to give the opportunity to every one to have them.

California with its high mountains and deep canyons gives us the opportunity of having isolated places for the special yards for Caucasian bees.

We sell only tested queens, and we guarantee the purity of the race.

Also we have procured several Italian breeding queens from the principal American breeders, and we have large quantities of three and five banded Italian queens of the best honey-gatherers.

Our method of raising is up to date. The man who manages this business has spent thousands of dollars and years of time in studying the matter up. He is well acquainted with the best apicultural establishments in both Europe and America, and was for two years with the famous A. I. Root Company.

| Caucasian                  | PRICES | Italian                                 |
|----------------------------|--------|-----------------------------------------|
| 1 Tested .....\$3 00       |        | 1 Untested...\$1 ; 6, \$5.50 ; 12, \$10 |
| 1 Best Breeding ..... 6 00 |        | 1 Tested .....\$1 50                    |
| 1 Imported ..... 7 00      |        | 1 Best Breeding..... 5 00               |

Send for particulars.

We sell bees in one, two, and three nuclei and full colonies.

Our terms, full cash payment with orders, and earliest orders we supply first.

**A. E. TITOFF, IOAMOSA, CALIFORNIA**  
SAN BERNARDINO COUNTY



## Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—To exchange stock of groceries for bees or small homestead.

A. E. SHAW, Boscobel, Wis.

**WANTED.**—To exchange ginseng seed for any thing I can use. Make offers.

FRANK ERKEL, Le Sueur, Minn.

**WANTED.**—To correspond with parties having bees to sell in carload lots for May delivery. Quote prices and give particulars.

H. & W. J. MANLEY, Sandusky, Mich.

**WANTED.**—Refuse from the wax-extractor, or slumgum. State quantity and price.

OREL L. HERSHISER,  
301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—Honey, wax, slumgum, or supplies, in exchange for standard-bred White Wyandottes.

H. E. CROWTHER, No. Kingsville, Ohio.

**WANTED.**—Raw furs of all kinds. The highest cash prices paid. Prices on application. Goods held separate if you wish.

O. H. MORLEY, Hector, N. Y.

**WANTED.**—Old books on bee culture, especially from foreign countries. Please state titles, authors, year of publication, edition, binding, condition, number of pages, and price wanted.

A. L. BOYDEN, Medina, Ohio.

**WANTED.**—Old combs or slumgum from solar extractors. Will pay for the amount of wax secured less the cost of time in rendering. None can be used after Feb. 15.

THE A. I. ROOT CO., Medina, Ohio.

**WANTED.**—The addresses of persons who are in possession of the Texas mink, as I wish to purchase a trio or half dozen.

JAS. FENNEL, Shelburne, Ont.

**WANTED.**—To exchange one Spangler corn-planter with guano attachment, for bee-supplies, poultry, or cash.

AUGUST WOLBERT, Eldora, Ga.

**WANTED.**—Two-frame 2d-hand honey-extractor.

A. C. MEYER, 191 Spring St., Gloversville, N. Y.

**WANTED.**—100 to 200 colonies Italian bees in good eight-frame hives, within shipping distance of Central Kentucky. Give full particulars.

C. WEAVER, Brooksville, Fla.

**WANTED.**—To exchange job-printing for queens.

YOUNG BROTHERS, Rt. 2, Girard, Pa.

**WANTED.**—About 100 colonies of bees from Maryland or Carolina, located near the water.

I. J. STRINGHAM, 105 Park Place, New York.

**WANTED.**—A good second-hand buzz-saw for hive-making.

LOUIS BIEDIGER, Lacoste, Texas.

## Help Wanted.

**WANTED.**—Competent bee-keeper. Single man; one that can do farm work also. Employment the year round. State age, and wages desired.

W. F. SMITH, Penn, Londnes Co., Miss.

**WANTED.**—Experienced bee-keeper (married man preferred), one accustomed to large apiaries. We will keep satisfactory employee by the year. Address with age, experience, wages asked and references.

DR. GEO. D. M TCHELL & Co., Ogden, Utah.

**WANTED.**—Young man to work on farm where bees are kept, celery grown, and market gardening followed. Give references, wages expected, and experience had.

MILAN STILL, Winona, Wash.

**WANTED.**—Man to take charge of an apiary of 200 swarms. Live in city and drive or wheel to the yard two miles out.

H. C. MILLS,  
505 Emerson Ave., Syracuse, N. Y.

**WANTED.**—A temperate and industrious young man to work on farm and help in bee-yards when necessary. State age, and wages desired.

W. J. MANLEY, Sandusky, Mich.

**WANTED.**—Young man who wishes to learn the bee-business as assistant four to six months. State age, experience, wages desired, and give reference—all in first letter; no tobacco, etc.

THE E. F. ATWATER CO., Box 37, Meridian, Idaho.

**WANTED.**—Last year my students helped to secure a harvest of 60,000 lbs. of honey from 296 colonies, spring count. I can take one or two young men, able-bodied, using neither tobacco nor liquor and of good habits (none other need apply). They must be willing to work right along. I will give board and washing; and if student does well and I do well, will give something more.

R. F. HOLTERMANN, Brantford, Ont., Can.

## For Sale.

**FOR SALE.**—Fifty stands of bees; have not time to attend to them.

A. WATKINSON, Corning, Cal.

**FOR SALE.**—Leaming corn, White Wyandottes, Barred Rocks, Queens. Circular.

J. F. MICHAEL, Winchester, Ind.

**FOR SALE.**—Weed-process foundation business; a rare chance to buy a foundation business with good growing established trade; price \$800.

H. F. HAGEN, Denver, Colo.,

Or The A. I. Root Company, Medina, Ohio.

**FOR SALE.**—150 colonies of bees, 30 in Danz, and balance in Root eight-frame Dovetailed hives, at \$3.50 per colony complete, in excellent condition for winter; heavy stores; a great bargain for the price. If interested, write for further particulars.

W. M. BAILEY & Co., Spartanburg, S. C.

**FOR SALE.**—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season.

W. N. CANNON, Greenville, Ala.

**FOR SALE.**—Root's bee-supplies at factory prices: full colonies Italian bees; queens in season (catalog free); Plymouth Rock chickens and eggs; incubators, brooders, poultry food, etc.

H. S. DUBY, St. Anne, Ill.

**FOR SALE.**—Different kinds of cow peas, stock peas, etc. Write for prices. Buy now before they advance.

E. R. MILLER, Hearing, Norfolk Co., Va.

**FOR SALE.**—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to

FRANK S STEPHENS,  
Paden City, W. Va.

**FOR SALE.**—Eight acres on foothills, 'twixt orange and sage; 105 stands bees, three stories; good bee-house, etc.

J. C. HALL CO., 29 Nordina, Redlands, Calif.

**FOR SALE.**—4500 Root's No. 1 polished sections, 4/4x 4/4x1 1/8, slotted, for \$18.00.

R. S. CHAPIN,  
598 Junction Ave., Detroit, Mich.

**FOR SALE.**—My home, apiaries, and best equipment in the State. Will lease bees with complete working outfit, even to living-rooms for apiarist. Four hundred to eight hundred colonies. I furnish supplies.

R. C. AIKIN, Loveland, Colorado.

**FOR SALE.**—Three untested Italian queens for \$1.00 after July 1, if ordered new; warranted pure mated, 10 cts. extra. Satisfaction, or money back. Only 300 at this rate. All you want as long as they last. Orders filled in rotation. Particulars free.

S. F. TREGO, Swedona, Ill.

**FOR SALE.**—Fifty portico Langstroth hives, \$50; 25 Jumbo hives, 500 Langstroth and Jumbo brood-frames; one honey-extractor, \$5; 50 Doolittle division-board feeders; honey-tanks, Hill devices, etc.

R. C. HUGENTOBLE, Miami, Ohio.

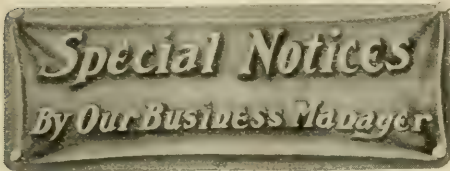
**FOR SALE.**—Cheap, 32 colonies of Italian bees in eight and ten frame two and three story hives. Reason for selling, have no time to take proper care of them.

N. O. PENNY, Vero, Indian River, Florida.

**FOR SALE.**—Rosecomb Buff Leghorn eggs, \$2.50 for 15, \$10.00 per 100; largest breeder and finest flock in the world; largest and best layers of all Leghorns. Gold Dust (original). F. BOOMHOWER, Gallupville, N. Y.

**FOR SALE.**—Surveying and mapping course in the International Correspondence School, Scranton, Pa., for \$45.00, cash with order. A fine chance for a young man. E. S. HACKER, Ephrata, Pa.

**FOR SALE.**—Five hundred two-story double-walled hives for comb honey; use Langstroth frame, thick top-bars, 3½x5 or 4x5 sections; almost as light as single-walled hives. at a less price; crated and sold only in lots of five or multiples of five. Will also furnish you with the finest of Carniolan queens; had 20 years' experience; nothing but the best sold. Send orders now—\$1.00 each, two for \$1.75, six for \$4.50 for queens mailed in May and June. W. W. CRIM, Pekin, Indiana.



#### MAPLE SYRUP.

We still have about 40 gallons of fine rock-maple syrup, which we offer in cases of six one-gallon cans, at \$1.10 per gallon; ten gallons or more, at \$1.00 per gallon. Order at once if you want to secure the goods.

#### BEE SWAX WANTED.

Until further notice we will pay 28 cts. cash, 30 cts. in trade, for average wax delivered here. This is as high a price as we paid any time last year when foundation was selling at 2 cts. a pound more than it is listed at present. Besides, the early-order discount is greater now than at the same time last year.

#### BRITISH BEE JOURNAL.

So many of our subscribers in the United States have wanted prices on the weekly *British Bee Journal* that we now are prepared to furnish it with GLEANINGS one year for only \$2.00. To countries where second-class postage rates do not apply, the price is \$3.00 for both postpaid. To those who prefer the monthly *Bee-keepers' Record* in place of the *British Bee Journal* it can be substituted at the same price.

#### WINNERS IN THE FIRST SUBSCRIPTION CONTEST.

Below will be found a list of winners in our First GLEANINGS Subscription Contest, from September 15 to February 15. We publish this list so that if those not included wish to present claims they may do so before too late. A number sent in subscriptions without stating a desire to compete, and were not counted. After February 15 this contest is considered closed, and on that date books and smokers will be mailed and orders entered for queens to be mailed in the spring.

|         |                   |                      |
|---------|-------------------|----------------------|
| \$10 00 | red-clover queen, | J. P. Berg, Wash.    |
| \$7 50  | "                 | J. S. Yoder, Va.     |
| \$5 00  | "                 | J. H. Thomson, Ont.  |
| \$3 00  | "                 | T. J. Dugdale, N. Y. |
| \$2 00  | "                 | S. E. Johns, Penn.   |

Sixth to fifteenth prize, half-leather A B C to  
Oscar Anderson, Wis.  
Irving Long, Mo.  
H. Mansperger, Mo.

J. H. McCargo, Ark.

L. J. Berg, Wis.

C. L. Harris, Mass.

Frank L. Aulick, Ky.

John L. Emlet Ohio.

C. E. Dibble, Wash.

Geo. W. Copenhaver, Mich.

Sixteenth to twenty-fifth prizes, one Standard Corneil smoker, to

Edward Semmelroth, Mich.

D. Esfensheat, Ohio.

L. S. Books, N. Y.

Vincent J. Haag, N. Y.

R. H. Baker, Wis.

P. E. Jones, Ind.

J. H. Stoneman, Mich.

C. M. Nichols, Mich.

Fred W. Allen, N. Y.

John W. Moyer, N. Y.

#### SECOND GLEANINGS CONTEST.

Twenty-five prizes.—First prize, \$10.00 queen (variety, winner's selection); second prize, \$7.50 queen (variety, winner's selection); third prize, \$5.00 queen (variety, winner's selection); fourth prize, \$3.00 queen (variety, winner's selection); fifth prize, \$2.00 queen (variety, winner's selection); sixth to fifteenth prizes, one cloth-bound A B C; sixteenth to twenty-fifth prizes, one Junior Corneil smoker.

Conditions same as last contest, and will be published later. Contest closes July 1. Any one may enter who makes known his intention to us.

Last contest every contestant that sent in more than one subscription obtained a prize. It will doubtless be so in this contest, so that besides the regular commission you will receive a prize that will more than pay any effort made.

#### ADVANCING PRICES.

Pine lumber has advanced during the last few months to higher prices than it has ever reached; and, in the opinion of lumbermen who understand the outlook, and ought to know, the price will advance still more. The advance already is equivalent to \$6.00 per 1000 feet. Fortunately we are provided with stock on hand, and contracted sufficient to see us through this season. If it were not for this we should have to withdraw the liberal early-order discounts now being made.

Sheet zinc has also advanced a cent a pound within six months, and over two cents in the last year and a half. Tin and lead are also 30 per cent higher than a few months ago. If the present high level is maintained very long or extended very much, we shall be compelled to increase prices on some articles into which these materials enter. We will not change prices during this season if we can avoid it.

#### METAL SPACERS FOR HOFFMAN FRAMES.

We have not shown any thing in GLEANINGS for a long time which has brought us so many inquiries as the metal-spaced Hoffman frames shown in the Jan. 1st issue. We have been hard at work for several weeks on special dies and tools for turning these out rapidly and cheaply, so we could afford to sell them low enough to make them go in large quantities. We have been unfortunate in having two different dies crack in tempering, so we have been delayed in getting the tools into operation so we could say definitely what we could do. We are aiming to furnish the frames with spacers at \$3.00 per 100 in flat. These frames have end-bars ¾ in. thick, 1½ in. wide. The spacers only, we hope to furnish to fit this size of end-bar at 30 cts. per 100; \$2.50 per 1000. If you desire to use them on frames with a thinner or narrower end-bar it will be necessary to insert a thin piece between the spacer and end-bar to make up for the difference in width. This will be held in place by the same nail that fastens the spacer. Nails are included with spacers. Postage, 20 cts. per 100.

#### Convention Notices.

The Washington State Bee-keepers' Association will hold its annual meeting in the old M. E. church on North Third St., North Yakima, Feb. 14, 15, and 16. An interesting program is assured. One feature will be the illustrated lectures on bee-keeping. Get all bee-keepers from different parts of the State to attend, as many subjects of vital interest will be discussed.  
No. Yakima, Jan. 15. VIRGIL SIRES, Sec.



# Pure Caucasian Queens

## Guaranteed Mated to Pure Caucasian Drones, \$3

Gentlest bees in world; no bee-veil or smoke required to handle them;  
good honey-gatherers; my strain distinctly marked: easily distinguished.

Every queen I send out is select. Shall sell only a small percentage of all I raise, as I shall destroy all queens that do not come up to the highest points of excellence.

### NO MISMALED OR UNTESTED QUEENS FOR SALE

Only best stock, guaranteed purely mated. I have as breeders, queens direct from the Caucasus, Russia : : : : : Remit by postoffice money-order with order, as cash orders will be filled first; others in rotation.

D. EVERETT LYON, Ph. D. 12 Yrs. Experience with Bees MATAWAN, NEW JERSEY

## Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws apiaries, and double your crop of honey.

### I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season. I also offer another car of bees the coming season.

**PRICES:** Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

**W. H. LAWS, BEEVILLE, BEE CO., TEXAS.**

## All the year round.

We are prepared to supply queens any month in the year. We have secured the services of one of the best breeders, and use select imported stock. Prices as follows:

|                         |        |
|-------------------------|--------|
| Untested Italians ..... | 66     |
| Tested .....            | \$1 00 |
| Select tested .....     | 1 50   |
| Extra select .....      | 2 50   |

We do not guarantee impossibilities, such as sending queens to cold climates in winter, but for any reasonable distance and time we guarantee safe arrival. Write for further particulars.

**A. COMES CASSERES,**

15 Orange St., Kingston, Jamaica.

## CAUCASIAN QUEENS!

Caucasian bees are the gentlest of the PROFITABLE HONEY-PRODUCERS. A trial will convince you. Have your queens, both Caucasians and Italians, bred and mated to order, and then you will have what you want. Address

Robert B. McCain, Yorkville, Ills. R. F. D.

## Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprins, Holy Lands, Italians.

**The JENNIE ATCHLEY CO..**

Box 18, Beeville, Bee Co., Tex

## ITALIAN QUEENS AND GLEANINGS.

For \$1 10 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

**W. T. CRAWFORD, Hineston, La.**

**PURE ITALIAN QUEENS.**—From red-clover and five-banded breeders. Untested, 75c; select untested, \$1.00; tested queens, \$1.50; select tested, \$2.50. Safe arrival guaranteed.

**H. M. PARKER, JR., James Island, S. C.**

**PLEASE TAKE NOTICE** that we have purchased the Atchley steam bee-hive factory, and are now putting in up-to-date machinery for making dovetailed bee hives and supplies. We earnestly solicit a share of your patronage. We quote prices on two hives for comparison: One two-story eight-frame hive in the flat for extracted honey, complete ready to nail. \$1 25; one story and-a-half hive in the flat with sections, complete ready for comb honey, \$1.25; self-spacing Hoffman frames in the flat, \$15.00 per 1000. Remember these are standard goods and Dovetailed hives. Get prices on large lots. Dittmer's foundation at Dittmer's prices. We are headquarters in the South for bees and queens—untested, \$1.00 each; \$9.00 per dozen; tested, \$1.50. Full colonies nuclei and queens in large lots our specialty. Send for catalog. **THE BEE AND HONEY CO.,** Will Atchley, Prop., Beeville, Bee Co., Texas.



## FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today **COILED SPRING FENCE CO.** Box 101 WINCHESTER, INDIANA.

# TO THE BEE-KEEPERS OF CANADA

WE ARE pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we are not able to offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers. Moreover, what we do list we propose to keep in large quantities, and will be able to ship promptly.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

## E. GRAINGER & COMPANY

Deer Park

### Toronto - Ontario - Canada

CANADIAN AGENTS FOR  
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

# Model Incubators and Brooders.

Manufactured by Chas. A. Cyphers.

We are sole agents for Toledo and vicinity, and sell all goods at factory prices. Do not be humbugged and buy a cheap machine. The best is none too good.

THE LARGEST STOCK OF

## Root's Bee-supplies

always on hand. We sell at Root's prices, and give you the Root quality.

### We can Start You in the Poultry or Bee Business.

Several hundred fowls on hand, and over 300 colonies of bees. Write us your wants. Our new illustrated catalog will be out soon. Sent free to any address for the asking. Ask for it.

### GRIGGS BROTHERS,

523 Monroe St.,

TOLEDO, OHIO.

# Bee-Supplies

## For Southern

## Bee-Keepers

I have been over 20 years in the bee-supply business, manufacturing hives and fixtures, and raising bees and queens. With all this experience and the excellent facilities I have, I am able to fill your orders promptly, and give absolute satisfaction. Though I make my own hives I carry a complete stock of The A. I. Root Company's manufacture. Just specify "Root's Goods" and you will get them.

### Bees and Queens

I breed with scientific, intelligent methods, from the best Imported and Long tongued stock. Cheap queens may be had elsewhere. My stock is worth every cent of the price. You will be pleased with it. I GUARANTEE IT.

### 64-page Catalog

of Supplies and Bees sent free. Tell me you saw my ad. in GLEANINGS.

## J. M. JENKINS

WETUMPKA : ALABAMA

# CENTRAL PENNSYLVANIA

I am in an unexcelled position to furnish bee-keepers within a hundred miles of Williamsport with Root's bee-keepers' supplies. We have four railroads and three express companies — Adams, American, and the United States. Can deliver goods with great promptness, and save you freight charges. Wholesale or retail. Also can supply you with pure-bred Italian and Caucasian bees in season. Write for our price lists.

## E. E. PRESSLER

WILLIAMSPORT, PENN.



# SUPREME EXCELLENCE

is only another name for OUR Make of

## BEE-KEEPERS' SUPPLIES

---

Have you ever used them? If not, give us a trial order this spring. We will do our best to please you. Our prices are as low as any; and if our goods aren't as we claim you'll not have to pay for them.

### We Allow Usual Discount for Early Orders

February, 4 per cent; in March, 2 per cent. Our large illustrated price list and copy American Bee-keeper free.

**The W. T. Falconer Manufacturing Co.**  
Jamestown, New York

 The *American Bee-keeper* for January contains excellent photographic illustrations of Artificial Honey-Comb made over 30 years ago in New England, together with illustrations of the implements used in making, and a portrait of the inventor.

### New Goods-Big Stock

New Warehouse, Root's Goods,  
Prompt Shipment, Low Freight.

### Everything for the Bee-keeper at Savannah, Ga.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. . . . .

### BEEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog sent free. Correspondence solicited. .

**HOWKINS & RUSH**

124 West Liberty Street

**SAVANNAH - - GEORGIA**

Dadant's

## Foundation

It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!  
No sagging; no loss.  
Twenty-eighth Year.  
We Guarantee Satisfaction.  
Wax Worked into Foundation.

~~~~~  
Bee-supplies of All Kinds
~~~~~

~~~~~  
Beeswax wanted at all times.
Send for Our 1906 Catalog.
~~~~~

**Dadant & Sons, Hamilton, Ill.**

# GLEANINGS

## IN BEE CULTURE



THE A. I. ROOT CO.,  
MEDINA, OHIO.

**Eastern Edition**

Entered at the Postoffice, Medina, Ohio, as Second-class Matter



## MONEY in BEES for YOU

Investigate. Catalog free. New England bee-keepers will find at my store

## IN BOSTON

a full line of the finest bee-supplies in the country. I also furnish queens, and bees by the full colony or nucleus. Best shipping-center for New England; promptness, carefulness, and satisfaction go with every shipment. Try me.

F. H. Farmer - Boston, Mass.

15 CHARDEN STREET

## Our Specialties

Cary Simplicity Hives and Supers, Root and Danz. Hives and Supers; Root's Sections, Weed Process Foundation, and Bingham Smokers.

*Bees and Queens in their Season.*

*32-page Catalog Free.*

**W. W. Cary & Son,**  
Lyonsville, Mass.

## Root's Bee-supplies at Root's Prices

But f. o. b. Baltimore instead of Medina. Write for catalog I.

**Rawlings Implement Co.**

Baltimore : : Maryland

## NORTHEASTERN & NEW ENGLAND BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

**J. B. Mason, Mechanic Falls, Maine**

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

## MISSISSIPPI

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders.



## Bees and Queens

from Select Stock

Correspondence Solicited.

**GEO. A. HUMMER,**  
BRAZILIA, - MISSISSIPPI  
Shipping-point, Macon

## PENNSYLVANIA

We are giving 4 per cent discount off all cash orders during February. Our catalogs are just being mailed out all through Central Pennsylvania. Send your name in for one. : : :

## ROOT'S GOODS

AT ROOT'S PRICES

First car just in and a full stock of all supplies ready for immediate shipment. Best shipping facilities in the State. : : : : :

**Frank W. Prothero**

Successor to Prothero & Arnold

**Dubois, Clearfield Co., Pennsylvania**

**C. H. W. Weber,**

Headquarters for

# Bee - Supplies.

**Distributor of Root's Goods Exclusive-  
ly, at Root's Factory Prices.**

Give me your order for the **BEST GOODS MADE**. You will be pleased on receipt of them. You will **SAVE MONEY** by ordering from me. My stock is complete; in fact, I keep **EVERY THING** the **BEE-KEEPER** needs. **CINCINNATI** is one of the best **SHIPPING-POINTS** in the Union, **PARTICULARLY IN THE SOUTH**, as all freight now **GOES THROUGH CINCINNATI**. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly **FREE** of charge.

## Four Per Cent Discount For Cash Orders Received in February

I will buy your **HONEY AND BEESWAX**. I pay **CASH ON DELIVERY**; or, if you are in **NEED OF HONEY**, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of **EXTRACTED** or **COMB HONEY**. I guarantee its purity.

## QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest **GOLDEN ITALIANS**, **RED-CLOVERS**, **CARNIOLANS**, and **CAUCASIANS**. Can furnish **NUCLEI** beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: **White and Yellow Sweet-scented Clover**, **Alfalfa**, **Alsike**, **Crimson Clover**, **Buckwheat**, **Phacelia**, **Rocky Mountain Bee-plant**, and **Catnip**.

**C. H. W. WEBER,**

Office and Salesroom, 2146-2148 Central Ave.  
Warehouse, Freeman and Central Avenue.

**Cincinnati, - Ohio.**



## Honey Market.

### GRADING-RULES.

**FANCY.**—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

**A No. 1.**—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

**No. 1.**—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

**No. 2.**—Three-fourths of the total surface must be filled and sealed.

**No. 3.**—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

**DENVER.**—Owing to the mild winter weather the demand for honey has not been as good as it usually is at this time of the year. We have a fair stock of both comb and extracted of very fine quality which we are quoting as follows: Strictly No. 1 white alfalfa comb honey, \$3.35 to \$3.75 per case of 24 sections. Off grades and light amber at \$3.00 to \$3.30 per case. White extracted alfalfa in 60-lb. cans,  $7\frac{1}{2}$  to 8 $\frac{1}{2}$ ; light amber extracted, 6 $\frac{1}{2}$  to 7 $\frac{1}{2}$ . We pay 24 cents per pound for clean yellow beeswax delivered here.

THE COLORADO HONEY PRODUCERS' ASS'N,  
Feb. 10. Denver, Colo.

**ST. LOUIS.**—Our honey market is unchanged in prices with a limited demand for extracted honey. We quote: Fancy white comb honey, 13 to 14; No. 1, 12 to 13; amber, 11 to 12. Extracted California, light amber, 6 to 6 $\frac{1}{2}$ ; Southern, in barrels, 4 $\frac{1}{4}$  to 4 $\frac{1}{2}$ ; in cans, 5 to 5 $\frac{1}{2}$ . Beeswax, 29c per lb.

R. HARTMANN & CO.,  
Feb. 9. 14 So. Second St., St. Louis, Mo.

**CHICAGO.**—The demand is about normal, with sufficient stocks to meet all requirements. The best grades of white comb honey bring 14 to 15, with off grades 1 to 3 cts. less, depending upon color, condition, and shape. Extracted, aside from white clover and basswood (choice grades of which are practically unattainable), is in ample supply at 6 $\frac{1}{2}$  to 7 $\frac{1}{2}$ ; amber, 6 $\frac{1}{2}$  to 7, with off grades still lower. Beeswax, 30.

R. A. BURNETT & CO.,  
Feb. 7. 199 South Water St., Chicago, Ill.

**BOSTON.**—The demand for strictly new honey continues good with a light supply, while there is a large quantity of old carried forward from 1904 that moves very hard. Strictly new stocks, fancy grades, 16, and from that down to 14, according to quality. Extracted is moving quite freely from 6 to 8, according to quality.

BLAKE, SCOTT & LEE,  
Feb. 9. 31-33 Commercial St., Boston, Mass.

**BUFFALO.**—The honey is pretty well cleaned up around this market. It has sold better this winter than usual. Generally there is very little sale after the first of January. No. 1 to fancy white clover comb, 13 to 14; mixed, 9 to 10; dark, 10 to 11; white extracted, 6 to 7 $\frac{1}{2}$ ; amber, 6 to 6 $\frac{1}{2}$ ; dark, 5 $\frac{1}{2}$  to 6. Jelly-tumblers, \$1.00 per doz. Beeswax, 28 to 32.

W. C. TOWNSEND,  
Feb. 9. Buffalo, N. Y.

**CINCINNATI.**—The honey market is quiet. We do not offer white-clover extracted honey, on account of its scarcity; instead, we offer a fancy water-white honey, equal to if not better than the white clover, in 60-lb. cans, two in a crate, at 7 $\frac{1}{4}$  to 8 $\frac{1}{2}$ c. Fancy light amber, 7 $\frac{1}{2}$ c. Other grades of amber in barrels at 5 $\frac{1}{4}$  to 6 $\frac{1}{2}$ c, according to the quality. Fancy comb honey, 16 $\frac{1}{2}$ c.

(Bee-keepers, please observe that the above are our selling prices of honey, not what we are paying.)

Beeswax is wanted, and we are paying 30c per lb. delivered here for choice bright-yellow grade.

THE FRED W. MUTH CO.,  
Jan. 20. 51 Walnut St., Cincinnati, O.

**SCHENECTADY.**—There is quite a scarcity of buckwheat comb and white extracted in our market. From present indications there will be no honey carried over this season, which is rather unusual. No change in prices.

Feb. 8. CHAS. McCULLOCH, Schenectady, N. Y.

**KANSAS CITY.**—The market on comb honey is sluggish, but we look for it to be better after the 1st of the month. It is selling, white, at \$3.00; amber, \$2.75. Extracted, 5 $\frac{1}{2}$  to 6 $\frac{1}{2}$ , according to quality.

C. C. CLEMONS & CO.,  
Feb. 8. Kansas City, Mo.

**ATLANTA.**—The scarcity of honey is being rather keenly felt, and we look forward with pleasure to the opening of the new season. We quote as follows: Fancy white, 12 $\frac{1}{2}$  to 14; A No. 1, 11 to 12 $\frac{1}{2}$ ; No. 1, 10. Beeswax, 28 to 30c.

JUDSON HEARD & CO.,  
Feb. 8. Atlanta, Ga.

**TOLEDO.**—The demand for comb honey at this writing is not very brisk, and the prices are the same as last quotations. The demand for extracted honey is good, and would bring in barrels 6 $\frac{1}{2}$  to 7 $\frac{1}{2}$ ; cans, 7 $\frac{1}{2}$  to 8 $\frac{1}{2}$ . Beeswax, 27 and 30.

GRIGGS BROTHERS,  
Feb. 8. 521 Monroe St. Toledo, Ohio.

**CINCINNATI.**—The nice weather holds back the demand for comb honey. Crops seem to be exceedingly short, and producers in the West keep prices high. We quote as follows: Fancy water white and No. 1 white clover, 14 to 16c; No. 2, 12 to 14. Extracted seems to be more plentiful, and we quote same in barrels at 5 $\frac{1}{4}$  to 5 $\frac{1}{2}$ c; in cans,  $\frac{1}{2}$ c more; white clover, 7 to 8c. Beeswax, 28 to 30c.

C. H. W. WEBER,  
Jan. 23. 2146-8 Central Ave., Cincinnati, O.

## BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

## THE FRED W. MUTH CO.,

51 WALNUT ST.,

CINCINNATI, OHIO.

**FOR SALE.**—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.

HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

**FOR SALE.**—One ton No. 1 white comb honey, in no-drip cases, 24 sections to case, at 14c per lb. Water-white extracted 8½c; amber, 7c, in 60-lb. cans, two in a case. Light-weight white comb at 13c.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

**FOR SALE.**—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.

O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

**FOR SALE.**—Fine alfalfa honey in 60-lb. cans. Send for sample and prices.

DADANT & SONS, Hamilton, Ills.

**WANTED.**—Comb and extracted honey. State quality, quantity, and price.

JUDSON HEARD & Co., Atlanta, Ga.

**WANTED.**—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,  
265-267 Greenwich St., New York.

**WANTED.**—Fancy clover extracted honey. Send sample and quote lowest price.

J. E. CRANE & SON, Middlebury, Vt.

**WANTED.**—Comb, extracted honey, and beeswax. State price, kind, and quantity.

R. A. BURNETT,  
199 South Water St., Chicago, Ill.

**WANTED.**—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.

GRIGGS BROS., Toledo, Ohio.

**WANTED.**—Clover and basswood extracted honey; also No. 1 amber honey. Send sample, and state quantity and price, delivered at Preston.

M. V. FACEY, Preston, Fillmore Co., Minn.

**WANTED.**—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.

EVANS & TURNER, Columbus, Ohio.

**WANTED.**—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.

THE A. I. Root Co., Medina, Ohio.

## Chas. Israel & Brothers

486-490 Canal St., New York.

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc

Consignments Solicited. Established 1875.



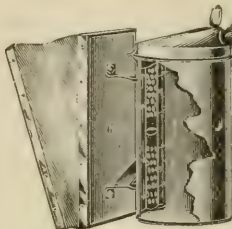
## Free! Free!

Our catalog of berry-plants, 32-quart berry crates and baskets. Special prices for Feb'y orders.

**H. H. Aultfather**  
Box 3 Minerva, O.

## The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize  
**A GOLD MEDAL**  
at the World's Fair  
St. Louis, 1904



**UP-TO-DATE.  
STRONGEST,  
COOLEST,  
CLEANEST,**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool adding to its durability. It has no valves to get out of order or snout to clog with soot.

**Every Thing Guaranteed "Root Quality."**

**ALL THAT IS CLAIMED.**—The General Manager of the National Bee-keepers' Association says:

"I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Platteville, Wis.

**SURPASSES ALL OTHERS.**—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."

Grant Stanley, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

**F. DANZENBAKER, MIAMI, FLORIDA**

## Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

**BEEES AND QUEENS**—Orders booked now for spring delivery.

**HONEY AND WAX**—We handle honey and wax. Write for particulars.

## The A. I. Root Co.

Northwestern Branch,  
1024 Mississippi Street,

J. C. Acklin, Mgr., St. Paul, Minn.



# Gleanings in Bee Culture.

Devoted to Bees, Honey, and Home Interests.

Circulation 25,000. Reaches every State and sixty foreign countries.

Established in 1873. 52 pages, semi-monthly.

Published by The A. I. Root Company, Medina, Ohio, U. S. A.

A. I. ROOT, Editor Home and Garden Department.

E. R. ROOT, Editor Apicultural Department.

J. T. CALVERT, - Business Manager.

A. L. BOYDEN, - Advertising Manager.

**TERMS**---\$1.00 per annum; two years, \$1.50; three years, \$2.00; five years, \$3.00, In Advance.

**Postage is Prepaid** by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

**Change of Address.**—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

**Discontinuances.**—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

**How to Remit.**—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

**Agents.**—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

## Foreign Subscription Agents.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

**Paris, France.** E. BONDONNEAU. 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

**Kingston, Jamaica.** HOOPER BROS. 20 Orange St. *Per year, postpaid, 5/6.*

**Goodna, Queensland.** H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 5/6.*

**Dunedin, New Zealand.** ALLIANCE BOX CO. 24 Castle St. *Per year, postpaid, 6/.*

Other names will be added from time to time.

**THE A. I. ROOT CO., Medina, Ohio, Publishers.**

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....  
Please continue sending Gleanings until otherwise ordered.

NAME .....

POSTOFFICE.....

COUNTY..... STATE.....

DATE..... If you want Gleanings discontinued at expiration, check here ( )

# ABOUT DISCOUNTS

EVERY bee-keeper in the United States should fully understand the advantages of the early - order discount offered by all the dealers in Root's Goods.

There are three ways they affect you personally.

First.—You save money on every dollar's worth of goods you purchase before the rush season. Just for convenience in figuring we will assume that you will need \$100.00 worth of supplies.

The discount for February is 4 per cent. If you put off ordering until April 1st you obtain no discount. Thus, for being TWO months forehand you save \$4.00; and \$100.00 drawing 6 per cent interest for this time would earn only \$1.00. But you earn four times as much—24 per cent. Worth while no *x*, isn't it?

Second.—You have losses in more ways than mere money. During the next few months you will have times when you have ample opportunity to nail your hives and fit your supers—time enough to do a first-class job of it. After April 1st every thing is hurry, hurry. Wasn't that the case last year? Now imagine your hives all stacked up ready for new swarms, and supers ready to go on at a moment's notice. All ready! That's what makes a successful bee-keeper. Twenty-four hours' waiting would mean a great difference in the crop. Worth a little thought just now—no?

Third.—You save annoyances all around. If you wait until April 1st, every chance is

that you will fail to receive your goods promptly. The agent will be out of goods or the factory behind with orders, or the railroads will be unearthly slow in delivering the goods; bees swarming; honey rolling in; no supplies. Ever been in such a pinch? Just think, too, how much trouble you will save other people. Why not try the safer plan this season?

You have nothing to lose. Almost any one can figure very close his needs only 2 months in advance. A few extra supplies will keep without deterioration till next season. Better sure than sorry.

But how can the manufacturer and agent afford to give such liberal discounts? It's very plain. Under ordinary circumstances 75 per cent of their business comes within four months of the year. That is 25 per cent in 8 months. Those eight months are a worry. Then they need money, work for their employees, room for the stock which they must carry. That's why they need your orders then, and are glad to pay for them—just what the discount is.

The discounts are as follows:

February, 4 per cent; March, 2 per cent; after April 1, no discount. These discounts apply to all goods listed in general catalog intended for next season's use.

Let's co-operate!

4 per cent

---

## The A. I. Root Co. Home Office Medina, Ohio, U.S.A.

10 Vine St., Philadelphia, Pa.

Branch Offices in United States

44 Vesey St., New York City

1100 Maryland Ave., S. W., Washington, D. C.

1024 Mississippi St., St. Paul, Minn.

144 E. Erie St., Chicago

1635 Genesee St., Syracuse, N. Y.

Mechanic Falls, Maine



## CONTENTS OF THIS NUMBER.

|                                                      |     |                                                    |     |
|------------------------------------------------------|-----|----------------------------------------------------|-----|
| MARKET QUOTATIONS .....                              | 190 | Storing and Preparing Honey for Market.....        | 220 |
| STRAY STRAWS.....                                    | 199 | Notes on Various Topics .....                      | 220 |
| EDITORIAL .....                                      | 201 | Advertising and Selling Honey at County Fairs..... | 221 |
| Live Bee Demonstration Work.....                     | 201 | A Stone Bee-Cellar.....                            | 225 |
| Death of Two Prominent Bee-keepers .....             | 201 | Bees Living on Combs Built in the Open Air.....    | 223 |
| Mrs. H. G. Acklin.....                               | 202 | A Blind Bee-keeper.....                            | 223 |
| Semi-hibernation on the Part of Bees.....            | 202 | HEADS OF GRAIN.....                                | 229 |
| Bees as Pollinators.....                             | 204 | Why Alexander Does not Shade his Colonies.....     | 229 |
| BEE-KEEPING AMONG THE ROCKIES .....                  | 205 | Double-walled Hives .....                          | 229 |
| GLEANINGS FROM THE PACIFIC COAST .....               | 206 | Bees Passing Through a Long Passage .....          | 230 |
| BEE-KEEPING IN THE SOUTHWEST .....                   | 208 | Long-tongued Bees and Short-tubed Clover .....     | 230 |
| CONVERSATIONS WITH DOOLITTLE .....                   | 209 | An Adjustable Storm-door.....                      | 230 |
| GENERAL CORRESPONDENCE .....                         | 210 | Stingless Bees .....                               | 230 |
| How to Increase the Sale of our Honey .....          | 210 | Feeding for Stimulating .....                      | 231 |
| Outdoor Wintering .....                              | 212 | Feeding Back Unfinished Sections .....             | 231 |
| Are Sections Detrimental to the Honey Market?... 213 |     | Selling Honey.....                                 | 231 |
| Bee-keeping in the Philippines.....                  | 214 | Yellow Spider an Enemy of Bees.....                | 232 |
| Protection for Comb-honey Supers.....                | 215 | Feeding Bees by Spraying Leaves .....              | 232 |
| Poultry vs. Bees.....                                | 215 | Bees Noticing Color.....                           | 232 |
| The Value of Bee Books and Journals .....            | 216 | To What Extent do Bees Hear? .....                 | 233 |
| Some Comments on Mr. Alexander's Methods.....        | 217 | Great Superiority of Italians over Blacks.....     | 234 |
| Banat Bees .....                                     | 218 | Dead Bees in November.....                         | 234 |
| Handling Bees at County Fairs .....                  | 218 | NOTES OF TRAVEL.....                               | 235 |
| Brood-frames and Sections in the Same Body.....      | 216 | OUR HOMES.....                                     | 236 |
| The Oil-stove Method of Warming Storage-tanks.....   | 219 | SPECIAL NOTICES.....                               | 259 |

## INDEX TO ADVERTISEMENTS.

|                                        |                                        |                                        |
|----------------------------------------|----------------------------------------|----------------------------------------|
| <b>Banking by Mail.</b>                | <b>Fences.</b>                         | <b>Publishers, Agricultural-paper.</b> |
| Savings Dep. Bank Co. ....246          | Brown Fence & Wire Co. ....243         | Farm and Stock.....240                 |
| <b>Bee Books.</b>                      | Coiled Spring Fence Co. ....243-245    | Farmers' Call.....197                  |
| A. J. Cook.....254                     | Kitselman Bros.....243                 | Fruit Grower Co.....245, 255           |
| <b>Bee Smokers.</b>                    | <b>Honey-buyers.</b>                   | Kimball's Dairy Farmer.....257         |
| T. F. Bingham.....256                  | See page.....190-191                   | The Rural Home.....242                 |
| F. Danzenbaker.....191                 | <b>Incubators.</b>                     | Southern Fruit Grower.....197          |
| <b>Bee Supplies.</b>                   | American Brooder Co.....240            | Successful Farming.....246             |
| J. H. M. Cook.....255                  | American Incubator Co.....251          | <b>Publishers, Bee-journal.</b>        |
| W. T. Falconer Mfg. Co., Back Cover    | Banta-Bender Mfg. Co.....240           | W. Z. Hutchinson.....195               |
| Geo. E. Hilton.....256                 | Buckeye Incubator Co.....241           | The A. I. Root Co.....192              |
| M. H. Hunt & Son.....254               | Cycle Hatcher Co.....240               | Geo. W. York & Co.....197              |
| Kretchmer Mfg. Co.....256              | Chas. A. Cyphers.....240               | <b>Publishers Magazines.</b>           |
| Leahy Mfg. Co.....257                  | Gem Incubator Co.....241               | Frank Munsey.....238-239               |
| G. B. Lewis Co.....198                 | M. M. Johnson Co.....241               | <b>Publishers, Poultry-paper.</b>      |
| Marshfield Mfg. Co.....256             | Manson Campbell Co., Ltd.....240       | American Poultry Advocate.....251      |
| Fred W. Muth Co.....190                | J. W. Miller Co.....241                | R. R. Fisher.....250                   |
| Walter S. Pouder.....252               | Prairie State Inc. Co.....241          | The Howard Pub. Co.....251             |
| Page & Lyon.....253                    | Racine Hatcher Co.....241              | Inland Poultry Journal.....251         |
| W. H. Putnam.....255                   | Reliable Incubator Co.....241          | Ohio Poultry Journal.....257           |
| A. H. Reeves.....257                   | World Stock & Poultry Sup. Co.....240  | The Poultry Gazette.....251            |
| St. Croix Valley Hon. P. Ass'n.....255 | Geo. H. Stahl.....241                  | Poultry Item.....251                   |
| The Root Co., Syracuse, N. Y.....196   | <b>Machinery.</b>                      | <b>Seeds and Trees.</b>                |
| The Root Co., St. Paul, Minn.....191   | American Harrow Co.....242             | W. F. Allen.....249                    |
| The Root Co.....193                    | W. F. & J. Barnes Co.....246           | Francis Brill.....248                  |
| C. M. Scott & Co.....255               | Callander Cactus Co.....250            | W. Atlee Burpee & Co.....247           |
| H. C. Simpson.....257                  | The Deming Co.....250                  | Charlestown Nursery.....248            |
| St. Croix Valley H. P. Ass'n.....179   | Elkhart Carriage Mfg. Co.....243       | Chattanooga Nurseries.....250          |
| W. D. Soper.....254                    | Bateman Mfg. Co.....165                | Darling & Beahan.....248               |
| I. J. Stringham.....256                | Electric Wheel Co.....246              | L. J. Farmer.....249                   |
| White Mfg. Co.....255                  | Lyons Engine Co.....244                | Flansburgh & Potter Co.....250         |
| C. H. W. Weber.....189                 | Medina Concrete Co.....245             | Gage County Nurseries.....248          |
| A. G. Woodman Co.....254               | F. E. Myers & Son.....243              | Gardner Nursery Co.....250             |
| York Honey & Bee Supply Co.....253     | Ohio Carriage Co.....243               | German Nurseries.....248               |
| <b>Bees and Queens.</b>                | Progressive Vehicle Mfg. Co.....243    | E. C. Green & Son.....248              |
| F. J. Colahan.....260                  | Seneca Falls Mfg. Co.....243           | Green's Nursery Co.....249             |
| A. Gomes Casseres.....260              | Stromberg-Carlson Tel. Mfg. Co.....246 | Hart Pioneer Nurseries.....249         |
| H. M. Parker, Jr.....257               | <b>Miscellaneous.</b>                  | D. Hill.....250                        |
| Robert B. McCain.....260               | F. W. Bird & Son.....246               | R. M. Kellogg Co.....249               |
| W. H. Laws.....260                     | O. L. Chase.....245                    | Jewel Nurseries.....247                |
| W. T. Crawford.....260                 | George M. Clark.....243                | W. A. Mason.....250                    |
| The Jennie Atchley Co.....260          | The D. Co.....197                      | Northrup, King & Co.....247            |
| A. E. Titoff.....260                   | Home Instructor.....197                | Louis Roesch.....257                   |
| C. W. Dayton.....260                   | Chas. H. Manley.....250                | W. N. Scarff.....249                   |
| W. S. McKnight.....250                 | T. Mower.....197                       | R. H. Shumway.....247                  |
| W. H. Rails.....257                    | Seaboard Air Line R. R.....197         | Storrs & Harrison Co.....248           |
| Roselawn Apiary.....260                | <b>Poultry Supplies.</b>               | C. E. Whitten.....250                  |
| J. W. Taylor.....260                   | Berry Golden Rule Poultry Farm.....257 | Wood Co.....248                        |
| <b>Comb Foundation.</b>                | G. E. Conkey & Co.....251              | <b>Wants and Exchanges.</b>            |
| Dadant & Son.....Back Cover            | B. H. Greider.....251                  | See page.....258                       |
| Gus Dittmer.....253                    | F. W. Mann Co.....241                  |                                        |

# Spring Management

of the right kind lays the foundation for a crop of honey, and **ADVANCED BEE CULTURE** covers that feature of bee-keeping most completely. It begins with taking the bees from the cellar, showing how to avoid the "mixing" that comes from improper management; then how to protect them thoroughly at the small cost of only **FIVE CENTS** a hive for both material and labor.

This protection not only enables the bees to rear more brood, but saves it from destruction in any cold

snap that may follow, thus greatly increasing the number of workers that will be ready when harvest comes.

If you have never tried spring protection, just try it on a few hives this year and note the results. Remember, too, that this is only one point—there are hundreds in the book that are equally helpful.

Price, \$1.20 postpaid; or the Review one year and the book for only \$2.00.

**W. Z. Hutchinson, Flint, Mich.**

P. S.—Each new subscriber for 1906 will receive, free of charge, any back numbers of 1905 that may still be on hand. At present I can send a complete set excepting the January, February, and April issues. March is getting pretty low. As long as they last, however, any numbers that are left will be sent free.

## HERE'S YOUR CHANCE

to win a prize by doing a little work in  
obtaining subscriptions for *Gleanings*  
in our Second Subscription Contest.

Last contest **EVERY** contestant that sent in more than **ONE** subscription obtained a prize. It will doubtless be so in this contest, so that besides the regular commission you will receive a prize that will more than pay any effort made.

### Twenty-five Prizes!

(Variety of queen to be winner's selection)

First Prize ..... \$10.00 queen  
Second Prize ..... 7.50 queen  
Third Prize ..... 5.00 queen

Fourth Prize ..... 3.00 queen  
Fifth Prize ..... 2.00 queen  
6th to 15th Prize ..... One cloth-bound **A B C**  
16th to 25th Prizes ..... One Junior Cornell smoker

### Conditions!

**FIRST.**—That subscriptions to be entered in this contest are to be obtained as results of work between February 15 and July 1, 1906.

**SECOND.**—To be eligible to any one of the first fifteen prizes, contestant must have at least five yearly subscriptions, or their equivalents, to his credit.

**THIRD.**—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

**FOURTH.**—That subscriptions can be sent in any time, but must be plainly marked "For Second Subscription Contest."

CUT HERE

## Gleanings in Bee Culture

Subscription Contest Department.

Date .....

**GLEANINGS IN BEE CULTURE, Medina, Ohio:**

*Please send agents' terms and enter my name as contestant in Second Subscription Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions and agree to them.*

Name .....

P. O. ....

I can use ..... sample copies of *Gleanings*. State .....



# A Successful Season

---

depends for one thing—on being prepared. We have had more trade this winter than ever before, and bee-keepers are generally waking up to the advantage of securing their supplies early, before the season begins. A few still will wait till the swarm is hanging on the trees before ordering hives. This is poor policy. We have a large stock on hand, and can make prompt shipment usually. Why not be one of those who are now ordering. . . . .

Four per cent discount for cash orders in February. . . . .

---

***The* A. I. ROOT COMPANY**

**F. A. Salisbury - Manager**

**SYRACUSE, N. Y.**

## A Successful Home-made Hive for only 50 Cents!

Fully described and illustrated by Mr. Allen Latham, in the Weekly AMERICAN BEE JOURNAL, for Jan. 25, 1906. It is a 32-page number. That copy and the thirteen following ones (three months), as a Trial Subscription, will be sent for **ONLY 20 CENTS**, in stamps or silver. Better order now before the Jan. 25th number is all gone. . . . By the way, the Weekly AMERICAN BEE JOURNAL is a 20-page paper every week now—full of most helpful information on bees.

## Yon Yonson's Trip to the Moon in Search of New Races of Bees

in an airship with Mr. A. I. Gleanings (also in the Jan. 25th number) is a very amusing story. : : : : : : : : : :

## Hershiser Improved Combined Hive-stand and Bottom-board

is also illustrated and described in the Jan. 25th copy. The fact is, that number as well as the numbers **EVERY WEEK** are crowded with the very best things that are printed these days for bee-keepers. Better take a "TRIAL TRIP" subscription at 20 cents, as offered above and see for yourself; or send \$1.00 for a whole year's subscription. Address

**George W. York & Co., 334 Dearborn St., Chicago, Ill.**

## COOK BOOK FREE!

one copy of the **American Family Cook Book.** cover to cover and the only Magazine published that lists up-to-date **Dress Patterns at 5 cents each.** Good stories. Stamps taken. **Agents Wanted.**

To each lady who will send 25 cents for one years trial subscription to **THE HOME INSTRUCTOR, Quincy, Illinois**, we will send free, postpaid, The Home Instructor is a Woman's Magazine from

## GOLDEN Opportunities!

**E**XIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

**J. W. WHITE**

**Gen. Indus. Agt., Portsmouth, Va.**

**Seaboard Air Line Railway**

**LADIES  
WANTED**

### ON SALARY

for a large established firm to solicit and demonstrate a modern toilet soap, distinctly different from all other soaps. No traveling. Easy sales everywhere. Write for particulars and free sample.

**The D. Co. 715-725 S. W. St. Canton, O.**

## Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.

### POST CARDS - - - YOUR PHOTO

One dozen postpaid or 60 cents. Send photo. **T. Mower, Athens, New York**

**65c** for 25 NAMES—For names and P.O. of 25 farmers and 15c (stamps taken) we will send for 2 years the Farmer's Call—regular subscription price, 40c a year. F. C. is a weekly, 25 years old; 1300 pages a year; sample free. **Farmer's Call, Quincy, Ill.**



# **R - U - A** **BEE-KEEPER**

If so, you are entitled to the new 1906 Lewis Catalog.

The 1906 Lewis Catalog contains nearly 100 pages devoted to bee-goods, including seven pages of points to beginners.

The 1906 Lewis Catalog contains 16 full-page cuts, which are reproductions of pen-and-ink drawings made from the original Hives and their parts.

The 1906 Lewis Catalog completely and clearly describes all Hives, Supers, and other appliances, so that it is a handbook of Beeware readily understood, and therefore easy to order from.

The 1906 Lewis Catalog just fits your pocket, and while you are working about the apiary or in-doors it will serve as an excellent manual on bee-keeping. It is free for the asking.

~~~~~

AGENTS WANTED FOR LEWIS' GOODS BY THE CARLOAD FOR

**Maine
New Hampshire
Vermont
Massachusetts
Connecticut**

**Rhode Island
North Carolina
South Carolina
Mississippi**

**Alabama
Georgia
Florida
Louisiana
Southern Ohio**

~~~~~

Liberal Territory given. For Further Particulars Address Home Office

## **G. B. Lewis Co., Watertown, Wis., U. S. A.**

**Manufacturer of Bee-keepers' Supplies**

# GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests  
Illustrated : Semi-monthly : One Dollar per Year  
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

FEB. 15, 1906.

No. 4



A GOOD DEAL was said in European journals, some time ago, about increased surplus from having entrances at top of brood-chamber. Adrian Getaz speaks rather favorably of it in *American Bee Journal*. He says not a crack must be left below, and the entrance above must be smaller than if below.

A. I. ROOT'S conundrum, page 161, is a tough one. Very hard to get away from the supposition that two virgins were in the hive at the same time. Ready to grasp at any other solution that may be offered. "There was very little brood in any hive." Possibly at such times of inactivity sisterly rancor is not quite so rancorous.

LOUIS H. SCHOLL, in *American Bee Journal*, says he made cakes of candy by pouring the hot syrup into pasteboard boxes of the right dimensions for a single cake, the boxes first being lined with a sheet of butter-paper. The paper was easily peeled off after the cakes had hardened sufficiently. The boxes can be used over again several times, relining them with paper by simply placing a sheet over them and roughly pressing it down with the fingers.

W. Z. HUTCHINSON, in his new book, speaks of the Heddon honey-board as indispensable for the production of comb honey. But he holds to  $\frac{3}{8}$  as the proper space over top-bars. If he reduces that to  $\frac{1}{4}$  he may find, as I found, that, although burr-combs will still be built, they will be so greatly reduced that honey-boards may be discarded.

He also gives  $\frac{3}{8}$  as the distance bees leave between two faces of sealed honey. In this locality it's  $\frac{1}{4}$ . [In 1886 or '7 I made some quite elaborate experiments in testing  $\frac{1}{4}$  and  $\frac{3}{8}$  spaces over frames in connection with thick top-bars. To me the results were very convincing: viz., that the  $\frac{1}{4}$  inch allowed very much less burr-comb, and was just as good in every other way. Then I discovered that the space that the bees seemed to prefer between sealed combs was  $\frac{1}{4}$  inch.—ED.]

THIS WINTER there are likely to be some bee-keepers south of the 40th parallel surprised to find colonies starved that they thought well supplied with stores, because of the unusual consumption caused by the unprecedentedly warm weather. On the other hand, further north the consumption should be less than usual, owing to the same warmer brand of weather. [Yes, indeed, these mild winters are liable to leave many colonies short of stores in the spring, with the result that some of them will starve unless taken care of. I know of nothing better than a good comb laid on top of the frames. When this is not obtainable a chunk of Good candy as big as the fist is a very good substitute. But, say—our mild winter changed about a week ago, and we have been having almost zero weather ever since. I fear now that a good deal of the brood that was started by the outdoor bees during the warm days of January will be chilled; and, in addition, the bees that try to hover over it. Score a point for cellar wintering, even for mild winters.—ED.]

A THREE-COMPARTMENT mating-box "departs from the shape of a cube, and is liable to result in one of the clusters being left without the advantage of the combined heat of the cluster on the side next to it," p. 140. The departure from the form of a cube does not count in this case. Take two rooms, side by side, a stove in each, the two rooms



forming a cube. If, now, a third room precisely similar be added with its stove, certainly neither room will be made colder. The other objection is valid if there be two combs in the central compartment, for in that case the bees of the center might form a sphere with one of the outside compartments, leaving the other compartment to itself. But if the middle compartment has only one comb, as mentioned on p. 69, and has as many bees as either of the other compartments, then there ought to be no loss of heat by the addition. [But the condition of two or three living-rooms is hardly the same as that of the nuclei referred to. When there are two halves of the cluster, one on each side of a partition, these two portions of the bees will fare a good deal better than that other portion that can not get anywhere near the other two bunches of bees that are practically one. If you could divide a cluster into thirds by means of division, then your three-compartment box would be all right.—ED.]

"THE MORE propolis I have, the more I want Hoffman frames with short rests," says M. A. Gill in *Review*. And M. A. Gill is nobody's fool, either. [When I first introduced the Hoffman frame to the bee-keeping world in 1890 and '91, I followed, as nearly as possible, the original type used by Julius Hoffman, the inventor; but I could not follow the style of his hive; and right here unwittingly I ran against an obstacle. It was this: Mr. Hoffman covered the ends of his top-bars with a quilt so the bees could not get to those ends and propolize them to the edge of the rabbet. He had no bee-space on top of his frames, and it was perfectly feasible for him thus to protect them. I saw at once that the hives that were in general use at the time with a bee-space on top would require a change in the frame. We narrowed down the paddle-like ends of the top-bars, reducing the point of contact, thinking that would overcome the difficulty; but it accomplished the result only in part. Then we discovered that, if we made a bee-space *around the ends of the top-bars*, there would be no propolis sticking. In my opinion the shortened top-bars are so immeasurably superior to any top-bars which the bees glue fast to the rabbets that I can not see how any one can prefer them. The only possible objection that can be urged is the lack of finger room; but as I never handle the frames at these points, but always grasp the top-bar just inside of the end-bars, I am not troubled in this respect. Well, to make a long story short, I can only say that I agree with friend Gill perfectly.—ED.]

I REMEMBER the time when slavery was thoroughly entrenched in the land, and men in northern pulpits defended it. I remember the time when it was as respectable to sell whisky as to sell beef. To-day slavery is only a memory, and about one-half of the territory of the United States is under prohibition, and liquor-selling is under the ban even where it is legalized. Do you sense the progress that has been made? [The

world does move right here in Ohio. For example the Toledo *Blade* reported the other day that there were thirteen strong temperance bills before the legislature of Ohio, with the probability of at least half of them passing. It was not more ten or twelve years ago when the Anti-saloon League of Ohio could do no better than to get a temperance bill into a committee, where it would be promptly killed by putting it in a pigeon-hole. Then later on, when the League succeeded in getting a bill reported favorably out of the committee they thought they had done well, even if the bill was killed in the House. A year or so afterward, enough progress had been made so a temperance bill was finally passed by the House by a majority of one or two votes, but it was killed in the Senate. Four or five years ago one bill went through both Houses, and became a law. When a governor two years ago went so far as to threaten to veto a temperance bill unless weakened by amendments, there was such an outburst of popular indignation, that, instead of being elected by over 113,000 majority, as he was the first time, he was defeated by over 40,00. The tidal wave that threw him out of office also elected a lot of men favorable to temperance; so that to-day we have actually thirteen bills in the hopper, with the prospect of half of them passing. What is being done here in Ohio is being done to a greater or lesser extent in all the States. Never was there a time when the temperance matter was so much of an issue as now, and what is more this great reform will come without bloodshed.—ED.]

I AM GLAD, Mr. Editor, to discuss with you the important matter of pure vs. mixed stock. Your views in the footnote, p. 140, are entirely correct, and I see that I am likely to be misunderstood. Let me define my position more clearly. I do not believe that my stock is unusually good *because* they are hybrids, but in spite of it. I believe with you that the same intelligent care in selection with pure Italian stock will result in as good honey-gatherers as with crosses, *provided* one is situated where one can keep them pure. Moreover, if I had two colonies equally good as storers, one pure and the other a cross, I should much prefer to breed from the pure stock, among other reasons an important reason being that I should feel more sure that the pure stock would keep up to the mark in future generations; in other words, that the pure is more nearly a fixed type. But in deciding on a course of action one must take into consideration all the conditions. Please keep in mind also, that, in trying to breed for improvement, the tendency to sport plays an important part, or, to put it in coarser terms, the element of chance. Keep in mind also that I am surrounded on all sides by blacks and crosses, and to keep Italians pure is impossible. The only way to keep as nearly pure as possible is to introduce constantly fresh blood that is pure. I did that for years. It so chanced that, in a number of instances, hybrid colonies did better than any of the

pure bloods. I ignored that for years, but finally concluded that I would not lose my chance on increased yields by being too much of a stickler for pure blood, and I began breeding from the best storers without regard to color. The result is that I think my stock is considerably better than the average pure stock. But don't understand that I am entirely sure I have taken the wiser course. It is just possible that, if I had always insisted on pure stock, I might have reached the same degree of excellence in the end without the disadvantage of mixed blood. I wish I knew. You ask me to tell you, Mr. Editor, what my present stock will do, and then you think you can pick out Italians that will do as well. That's hardly germane, for you have no stock that have been working under the same conditions as mine, so how can you compare? But I'll gladly tell you any thing you want to know about the results I get, and perhaps it will answer your purpose to say that the best I ever had was 300 sections (not pounds) from one colony.

Now let me ask you a question: Suppose that at that time no pure stock gave me more than 250 sections; would you advise me to breed from the pure or the mongrel? In any case, go ahead, and see if you can "pick out pure Italian stock that will average as much as my er—well—mongrels." I'll be more pleased than you if you can. [I am glad you indorse my views. But look here, doctor, are you not to blame because your locality is made up of black bees and hybrids rather than all pure stock? If you had, twenty years ago, every year raised a large number of pure Italian drones, trapping out all other undesirable stock, you, the largest bee owner, would have so Italianized your locality that it would to-day, and for that matter years back, be one of pure stock. The only trouble is, you simply followed along with the swim, not making any effort to introduce pure stock. As I remember, your policy has been to get an imported Italian queen, not to Italianize, but to keep up a fair grade of hybrids. Nearly all the queen-breeders in the country have Italianized their localities by simply raising more Italian drones than the neighbors would be likely to raise of blacks. The result would be that the yellow stock would run the inferior blood out. Some bee-keepers go further and give their neighbors young virgin Italian queens. During the swarming season most of them will be liable to have a surplus of these, which, together with a large number of Italian drones, will soon change the complexion of the bees. If you had done this, then all these years you might have enjoyed a larger immunity from bee-glue and stings, and you would have had the further advantage that your breeding stock would be more liable to duplicate itself, because, as you say, it would have been of a fixed type. If I didn't have pure stock to equal the work of my mongrels, I would get a pure queen from some queen-breeder or bee-keeper that would.—ED.]



WE shall have to beg the indulgence of some of our correspondents for our delay in publishing matter which they have sent in. Just now we are overwhelmed with copy, some of which we are holding for a more seasonable time, and other portions until such time as the makeup and other conditions admit of their insertion. We hope to catch up in two or three issues.

#### LIVE-BEE DEMONSTRATION WORK IN YORK STATE.

It is but fair for me to acknowledge that I got the idea of giving live-bee demonstrations inside of a wire cloth cage from S. D. House, Camillus, N. Y. He has been practicing this method of advertising his honey business at the Syracuse fair for several years. I have asked him to write up his experience, which he has promised to do. Mr. L. F. Wahl, another York State man, has also worked on the same plan, and he likewise will tell us his experience. I know of no method in the world that will popularize honey any quicker or any better than this live-bee work. To an outsider it looks like a piece of dare-devil work; but to an experienced bee-keeper it is no more than playing with a kitten that will use her claws if not handled properly.

Since writing the foregoing I have returned from the Michigan convention, and learn that it was Mr. R. F. Holtermann who first practiced this live-bee demonstration work in a cage in Canada. While visiting Mr. S. D. House he communicated the idea to him. I picked it up from Mr. House, and Mr. Holtermann learned it from his British cousins. There, now you have the chain of connection.

#### DEATH OF TWO PROMINENT BEE-KEEPERS.

I VERY much regret to have to announce the death of Mr. Ira Barber, of Eddy, N. Y., which occurred the 27th of January. Years ago Mr. Barber was a frequent contributor to the bee journals, especially on the subject of wintering. He advocated wintering in high temperatures with little or no ventilation, and was very successful in bringing his bees out in the spring. This would seem to be contrary to the teachings and experiences of the most of us to-day; but evidently there were some conditions which he had that made his method of wintering a success where it would have been a failure with others without those conditions.

I also regret to record the death of Mr. J. M. Hooker, on January 31, at the resi-



dence of his son, 4422 Chestnut St., Philadelphia. Mr. Hooker, whose picture I showed on page 1134 of last year, was at one time one of the leading bee-keepers of England. He was closely associated with such men as Thomas Wm. Cowan, Frank Cheshire, and others, and, moreover, was prominent at the bee conventions and bee shows of Great Britain.

SEMI-HIBERNATION ON THE PART OF BEES;  
SOME EXPERIMENTS IN CHILLING AND  
FREEZING BEES TO DETERMINE HOW  
LONG LIFE MAY BE SUSTAINED  
UNDER SUCH CONDITIONS.

I AM well aware that hibernation was exploited about 20 years ago, and it was generally decided, and rightly, too, that bees did not hibernate in the ordinary sense of the term (see *American Bee Journal* for 1885). But they do go into a quiescent state when the temperature has been lowered; and this state is somewhat analogous to the torpor experienced by some animals in a state of true hibernation. A hibernating animal enters into a sort of sleep, during which no food is taken and respiration is considerably reduced. Dr. Marshall Hall has stated that "respiration is inversely as the degree of irritability of the muscular fiber." If the respiration is reduced without this irritability being increased, death results from asphyxia. Hibernation is usually induced by cold; and the animal under its influence attains nearly the temperature of the surrounding atmosphere. But the hibernating animal can not resist *any* amount of cold, although its capacity for doing so varies according to the animal. Some animals bury themselves in holes, like snakes and frogs; others, like the bear, crawl under a pile of leaves and brush where they are still further covered with snow. Thus buried they will go all winter without food or water; but there is a waste of tissue. Fish may be encased in ice and still live, I am told. A lively frog, as our Mr. Pritchard testifies, may be dropped into a pail of water four or five inches deep, and exposed to a freezing temperature. Indeed, there may be a thin coating of ice formed over the animal. The next morning, that frog, though stiff and cold, can be warmed up into activity. Mr. Pritchard then tried the experiment of giving the frog a solid freeze-up, and it died. Whether the pressure of the ice crushed it, or whether it was the actual cold, or both, we can not say.

Flies, as is well known, will secrete themselves in window-frames and other hiding-places, subject to cold atmosphere, for weeks at a time, and yet on exposure to warmth they will revive. As is well known, also, ants have been repeatedly dug out of logs, frozen solid — in fact, fairly enveloped in frost; yet on exposure to warmth they will come to. Some hibernators can endure a freezing temperature, while others, like the bear, woodchuck, and the like, can not. Other very interesting incidents may be taken from natural history; but the purpose

of this article is to consider whether bees go into a quiescent state that *approaches* hibernation, in which there is low respiration and a small consumption of stores. A year ago last summer we put a number of cages of bees with some queens (laying the cages down on cakes of ice) in a refrigerator. The bees were chilled to absolute stiffness. Every day we would take out a cage, and each time the bees would revive, including the queen. This thing was continued for several days, and yet the bees would "come to" each time.

The strange part of it was, that the queens went on laying normally when put back in the hives, instead of laying drone eggs as we expected. Just what the temperature to which these bees were subjected was I can not say — probably something below 40 and something above 35, for the doors of the refrigerator were frequently opened, and the ice was constantly melting.

During the past winter, when a cold snap came on, the temperature going down to zero, we put out some cages of bees, exposing them to the cold wind, which was then blowing a pretty good gale, when the temperature was 5 above zero. I had expected that the bees possibly might be able to survive the shock for a number of hours, and yet revive; but 20 minutes of zero freezing was sufficient to kill them outright. I believe if we had taken the bees and gradually acclimatized them to the cold, first subjecting them to 40, then to 35, and gradually down to the zero point, they would have withstood the shock better.

When the weather warmed up a little we took several cages of bees and buried them in the snow, leaving with them a thermometer so that we might know the absolute temperature. We went out and got a cage of bees about every two or three hours, and we found that we could revive them without difficulty; but at the end of 24 hours the bees, when they "came to," seemed somewhat the worse for the experience. The temperature in the snow played around the 32 mark. But the experiments conducted during the summer would seem to show that bees might stand a temperature of 38 for a number of days.

We know it to be an absolute fact that the bees on the outside of a ball or cluster, in the case of an outdoor-wintered colony, will often be chilled stiff while those inside will have almost a blood temperature. It has occurred to me that, during very severe weather, the inside bees may be gradually replaced by those within the cluster; for we know there is a constant movement of the cluster. Experiments show that a bee that has been starved will not stand as much cold as one that is well filled. Bee-keepers who have had any experience in wintering outdoors know how repeatedly they have taken clusters of bees that seemed to be frozen stiff, yet when warmed up before a good fire would revive and appear as lively as ever.

In view of the experiments we have thus far conducted, it would appear that bees

might be able to stand a temperature of 40, or slightly below that, for a number of days; that if a warm spell does not come within a week, or perhaps less, those bees in their chilled condition will starve to death. But if it warms up, the cluster will unfold and the bees will take food, when they will be ready for another "freeze." I have repeatedly seen clusters of bees, after a prolonged zero spell, lasting a couple of weeks, that were stone dead; but the honey had been eaten from all around them within a radius of an inch or more. If a zero spell of weather continues more than a week or ten days, we always find some of the weaker colonies frozen to death in the spring.

I have given a few facts for our readers to consider. Understand, I do not claim that bees hibernate, nor yet do I stand sponsor for the idea that they may assume a state of semi-hibernation. In the language of Dr. Miller, I "don't know." But there are a few interesting phenomena in connection with chilled bees, their quiescent sleep, their low respiration, their light consumption of stores, that simulates a condition of semi-hibernation. The bee in a chilled condition can go only a few days without food, while a bear, a true hibernator, may go all winter. When the temperature of a beecellar goes up to 50 or 60, the bees are active. Their respiration is normal. They must have ventilation, or die in large numbers. If we can maintain a temperature down to 45, with slight variation, there is a state of sleep where the respiration is very low, food consumption slight, and consequently fresh air is not needed, or no more than what will percolate through the walls of the repository. We know that, in true hibernation, respiration is low and no food is taken. Now, then, I ask the question, Is it possible that bees assume a state of torpor that is about midway between that of true hibernation and the sleep of ordinary warm-blooded animals that are aroused at intervals of a few hours to be fed? We are continuing our experiments in freezing bees, and are willing to sacrifice several colonies if we can only learn something.

There is a practical side to this matter; for if we can induce semi-hibernation or torpor we cut down the consumption of stores. Doolittle's cellar comes pretty near giving us a condition where no ventilation is needed and the stores consumed are slight.

MRS. H. G. ACKLIN; SEE FRONT COVER.

ONE of the most successful lady bee-keepers is Mrs. Helen G. Acklin, of St. Paul, Minnesota, whose picture appears on the front cover page of this issue. She is well known in Wisconsin, for she attends the conventions; in fact, she finds she can not afford to miss them.

Mrs. Acklin is a native of New York, but removed with her parents to Wisconsin too early in life to have any clear recollection of the Empire State. She attended country school, and later a village school, fitting

herself for a teacher. The honey-bee always attracted her, and she fully resolved, when in her teens, to own some bees sooner or later. That time came soon after her marriage; for before the house was finished some bees were on the lot, Mr. Acklin having made her a present of seventeen colonies in American hives. Those bees should have had three crosses before their signature, and the frames were literally glued to the hives and to each other. It took a strong man to pull them loose, and one can imagine the consequences. Nevertheless, with Mr. Acklin's assistance they were soon transferred to Root hives. A woman with less perseverance and less love for the busy bee would have given up the adventure in despair; but Mrs. Acklin kept on, learning something by experience and from the bee books, and from Mr. Acklin in the brief intervals he was at home during the day. Gradually the cross bees were replaced by gentle stock, and life became, once more, worth living. Even then, disaster sometimes came. Water overflowed the apiary, running sand into the hive-entrances and smothering the bees. The cellar filled with water, and each colony was enjoying a ride when rescued by men with rubber boots and long poles. But as progress is the watchword everywhere, so it is with Mrs. Acklin and her bees. From that small beginning have come hundreds of colonies and several out-apiaries. Mrs. Acklin has charge of a large queen-rearing apiary located at her home, and finds time for her class of girls in Sunday-school and various other church interests, as well as the bee-keepers' associations.

#### A NEW IDEA ON BEES AS POLLINATORS.

WHILE Secretary Hunt and myself were eating dinner at the hotel in Jackson during the Michigan convention, a gentleman came in and sat down at the same table, and, after listening for a few minutes, he remarked, "You are bee-keepers, I judge." To this we assented. He then said, "I want to tell you something that perhaps you did not know before. Did you know that bees would actually change the flavor of fruit? For example, I never dare raise pumpkins near a large watermelon-patch, because the bees, you see, mix the pollen of the pumpkins and of the melons so that the melons will taste like pumpkins and the pumpkins like melons."

Mr. Hunt's eyes began to dance.

"Oh! now you needn't smile. These are facts. Why," he continued in all soberness, "if I want to raise good melons I always scatter a lot of sweet-clover seed around the outside of the patch. Well, the bees stop on the sweet clover, then go into the patch and mix the pollen of the sweet clover with that of the melons; and the result is I get the finest melons anywhere in the country. They have an actual honey flavor."

This pumpkin yarn would make a first-class story for "boiler-plate" newspaper



matter and it would be just as true as some of the stuff that is published.

#### THE MICHIGAN STATE BEE-KEEPERS' CONVENTION.

THIS was held at Jackson, Feb. 1 and 2, and it was one of the most successful meetings I ever attended. Something over a hundred of the most representative bee-keepers of the State were present, including several from Ontario and a few from other States. There were only two or three papers read, and these were short and to the point, calculated to incite discussion, which they did. The rest of the meeting was made up of off-hand discussions based on a series of questions carefully prepared by the officers in advance. These questions were sent out with the announcements so that every bee-keeper would have time to think them over and come prepared.

The sensation of this meeting was the Aspinwall non-swarming hive, which was indeed a curiosity. When any one has claimed that he had a non-swarming hive for the production of comb honey I have been in the habit of saying to myself that he had a whole lot to learn yet about bees. But when Mr. Aspinwall first gave an inkling of his idea at the National convention in Chicago, and later exhibited the principles in a hive which he had been testing for a couple of seasons, and which had not only enabled him to control swarming but to double and treble his comb-honey crop, I felt satisfied that here was an exception, and that he had struck on to a line that was new as well as valuable. Some of the best and most expert bee-keepers were present; but none of them were inclined to believe that it was the same old story over again—a will-o'-the-wisp.

Mr. Aspinwall is very conservative, and draws his conclusions with the precision of a trained scientist; and when I say that he is probably as familiar with the general subject of swarming, and the causes that lead up to it, as any other man in the United States or perhaps in the world, I do not feel that I am far from the truth.

If you could see the hive and note its odd construction you might almost wonder if it was not an incubator, a creamer, or, mayhap, a bee-hive. Indeed, when I saw it carried upstairs, and knowing the dairymen were in session, I concluded it was some new dairy contrivance, little dreaming that it was a bee-hive until I saw it among the bee-exhibits in the convention room.

The principles that Mr. Aspinwall has incorporated in his hive are decidedly new. Yes, I am sure that nothing like it was ever designed before; and until the real theory of it is explained, if you did not know the "man behind the gun" there would be a sort of feeling mingled with pity for the poor dupe who would waste any time or money on it. But I wish to say to our readers in all seriousness, I believe Mr. Aspinwall has something that will come nearer

solving the problem by mechanical appliances than was ever placed before the bee-keeping world. It would be useless to attempt to give a detailed description of it at this time. Later on I hope to give illustrations with descriptions from the author that will explain the whole thing. For the present I will merely state that the hive proper is a good deal larger than the ordinary hive, but uses actually no more brood-frames. Each frame is separated from every other frame by what I might call a bee spaced dummy. Perpendicular cleats  $\frac{3}{4}$  thick and  $\frac{3}{4}$  apart, one inch wide, edges toward the combs, are secured to the top and bottom-bar of a frame. This makes a clustering space for bees one inch thick between each two combs of brood, except for the perpendicular cleats referred to. The inventor explains that with this hive there will be no clustering out, for there is plenty of room between the brood-frames in a space where the bees will not build combs unless they fill up a multiplicity of bee-spaces, which of course they will not do. The same general plan, the same kind of bee-spaced dummy, is placed between each row of sections.

There, I will not attempt to describe it further, any more than to say that the hive will cost a good deal more than regular hives; but, as Mr. Aspinwall says, if you can thereby double your honey crop without swarms, you can well afford the extra expense.

The whole hive and system have been made the subject of several patents, and in any event I think the bee-keeping world will respect Mr. Aspinwall's rights. He has spent hundreds of dollars in developing his idea; and if it should continue to show up as well in the next two or three years he will have it ready for the public. In the mean time he says to one and all alike that he has no hives for sale. For the present, at least, he will perfect the hive; and then when he has thoroughly demonstrated that it will do all he claims for it he will furnish it to the bee-keeping world.

Mr. Aspinwall is already a successful inventor, and his name has been attached to a potato-planter, as well as some other useful devices that are well known. He was one of the first to recognize the value of plain sections, and he is still a user of them, for, indeed, they are a part of his new hive; only, instead of using fences or separators, he uses his beeway dividers, or dummies, as before explained.

There were many interesting things that occurred at this convention. While the Aspinwall non-swarming hive was the sensation of this meeting, there was a great deal of valuable discussion which, if it had been put in shorthand, would have made about as interesting bee matter as one can often find.

President Hutchinson and Secretary Hunt did much to make this meeting a success. The former drew out discussion while the latter had done a vast amount of work in working up the convention. Both were re-elected, as they deserved.



In my article on foul brood in apiaries run for extracted honey, on page 1299, a mistake occurs that reverses my meaning. I meant to write that, in extracting an apiary, any colonies showing any trace of disease should be extracted from *last*, with proper precautions about cleaning up the extractor afterward. But by some slip, either of myself or the compositor, I am made to say that they should be extracted from *first*. This would not be good practice.

We have had warm weather here for some days, and the bees have had good flights. Most of them are alive so far, but I look for a heavy loss in the spring. Many bee-keepers did not feed their bees any thing in the fall, although they knew they were light, and a great many will not have honey enough to carry them through. Many others went into winter quarters so few in numbers, and with so large a proportion of old bees, that, even if they survive the winter, they are likely to dwindle in the spring.

Most of the Colorado honey exhibited at the St. Louis World's Fair came from the counties of Mesa and Otero. A rather laughable result of this was the awarding of a gold medal jointly to these two counties for their honey exhibit. Some of you may appreciate the joke better if I remind you that Mesa and Otero counties are separated by over two hundred miles of mountains as the crow flies, and by about fifteen hours of travel by rail in as straight a line as the aforesaid mountains will permit. Consequently a joint award is very much like making an award jointly to Massachusetts and Maryland. How that medal is going to be divided up is a conundrum that I believe has not yet been answered. As the Superior Jury of Awards has gone out of existence, there seems to be no way to have the blunder corrected.

Some time ago I made the statement that making a section larger, either by making it higher or wider, or by making it thicker, would make greater the difference in weight between the lightest and heaviest sections. Dr. Miller challenged the truth of this; and, though I showed that I was correct in the latter part of the statement, I must admit that, theoretically, I was wrong in the former. I delayed saying any thing more, thinking that I would make some experiments to see how nearly theory and practice would agree, but the matter escaped my mind until now.

The section that I use is always light-weight, averaging only a little over three-

quarters of a pound. I should like to have them heavier. I am sure that I can not do this by making them thicker, except at great loss. I would make them higher,  $4\frac{1}{2} \times 5 \times 1\frac{3}{4}$ , if it were not for the expense, annoyance, and complication that such a change would make in a large apiary already well supplied with fixtures adapted to standard sizes.

#### WIDTH OF SECTION.

I presume, Mr. Editor, in correcting Dr. Miller for assuming that the  $4\frac{1}{2}$  plain section is  $1\frac{1}{2}$  thick, and in yourself assuming that "as a matter of fact" the  $4\frac{1}{2}$  square plain is  $1\frac{1}{2}$  thick, you simply mean that the majority of the square plain sections used are of that thickness, although you state that, so far as you know, there are no  $4\frac{1}{2}$  plain,  $1\frac{1}{2}$  thick. Let me quote from the catalog of the A. I. Root Co.:

"The regular size of section hitherto has been  $4\frac{1}{2}$  square by  $1\frac{1}{2}$ , with the usual beeway. The same section without beeways will be  $1\frac{1}{2}$ , and will hold about the same amount of honey. The old seven-to-foot with beeways will be  $1\frac{1}{2}$  without beeways."

Further on, on the same page of the catalog, we read, "Widths of . . . sections generally kept in stock . . . plain sections  $1\frac{1}{2}$ ,  $1\frac{3}{4}$ ,  $1\frac{1}{2}$ , and  $1\frac{1}{4}$ ." Again, in quoting prices, "Plain, no-beeway sections,  $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$ ,  $1\frac{1}{2}$ , or  $1\frac{3}{4}$  . . . in lots of 1000 or more, will be 25 cents per 1000 less than prices named above." Now, would not any one be justified in assuming that the  $1\frac{1}{2}$  square section was one of the regular sizes? "As a matter of fact," I have used them for five or six years, have a considerable stock of them on hand now; and if I continue to use plain sections I will continue to use that width unless I succeed with some experiments now under way, in which I hope to use  $1\frac{1}{2}$  plain sections with the same thickness of comb I now get with the  $1\frac{1}{2}$  plain or seven-to-foot regular, in this way getting rid of some of the worst defects of the plain section.

I am afraid that I am unalterably in favor of the thin section. Although there are some inconveniences to be met in the production of light-weight sections, I would rather put up with them than to go back to the old-style thick-comb section.

Did it ever occur to you that a great deal of the sentiment that has grown up in favor of  $4 \times 5$  sections and plain sections is not due to either the size or shape of the section, or to the fact that the combs are built between fences, but simply to the fact that the combs are thinner? Do not understand me as saying that this accounts for all of it, because some who like these things have not used the thinner sections. But a very large proportion of the testimonials in favor of fences and  $4 \times 5$  sections come from those who have changed from the  $1\frac{1}{2}$  section, equivalent to the  $1\frac{1}{2}$  plain, to the  $1\frac{3}{4}$  plain. They have found that they got more honey, plumper sections, and better finish, and they have laid it to the shape of the sections, the kind



of hive, or the style of separator, but never a word as to what is, in my opinion, the principal reason, the employment of a section permitting a thinner comb, more like what the bees build naturally.

#### KEEPING A DIARY.

A very important thing to the bee-keeper, as well as to almost any other man, though more especially to one engaged in any of the rural occupations, is the keeping of some kind of record of the principal events of his business with relation to the season, weather conditions, etc.

The keeping of a regular diary, with a fully written record of each day's doings, is so burdensome that most people soon abandon the whole thing in disgust, and will not attempt any thing of the kind; yet something of the kind is desirable, and is much more valuable if some system is adopted that permits of a ready comparison of one year's record with that of others. I have used with a great deal of satisfaction the "Line-a-day" diary, a little book in which each page, headed with the day of the month, is divided into five spaces, each intended for a year's record. This space is enough for ordinary records, though not enough to tempt one to prolixity. As you make each record you have before you the record of that day in each year since you began to keep the diary, the book serving for five years' use. The recording of only a few things, such as the time of blooming of certain flowers, the condition of the bees on certain dates, the time of the first swarming, or the date and duration of the various honey-flows, will enable you to keep your business in hand much better than if you left these matters to memory. If you wish, you can make entries ahead, of things to be done on certain dates. Then if you keep in touch with your book you will be much better able to carry out those plans you should have been making for the next season's work. Begin this now, and see if you do not like it.

#### EXTRACTING HONEY FROM COLONIES SLIGHTLY DISEASED WITH FOUL BROOD.

Elmer Todd still seems to think that I have misrepresented him in my comments on pages 807 and 1298, and in a communication to the editor he has the following to say: "On page 1298, Dec. 15, Mr. Green says he has carefully re-read my article, and he fails to see that he has misrepresented in any way. Now it is up to me to show him where he did misrepresent on p. 807. In his article entitled 'Extracting Honey from Colonies with Foul Brood' he says I claim, in the *Bee-keepers' Review*, that it is safe to extract honey from a super above a queen-excluder over a colony having foul brood. I now challenge him to point out in that article where I made that claim. What I did say was this: 'A diseased colony that comes up to the expected honey-flow not perceptibly weakened in numbers.' Then in another place I said 'the slightly diseased or doubtful colonies.' He most certainly conveys a wrong impression. He does not de-

scribe the colonies as I did, but quotes me as saying 'over a colony having foul brood.' His language clearly conveys the impression that I said it would be safe with any colony having foul brood, *regardless of the degree of its infection*. His language can not be construed in any other way. His whole article confirms this assertion."

I cheerfully give place to this here, and admit that I did not quote his exact words. It is impracticable, in a department of short items, to elaborate fully on each statement that may be under criticism. It might have been better if I had stated that he meant only colonies that were not badly diseased, though my article on page 1298 shows fully that it was based on that understanding of his position.

Please remember that a colony that is "slightly diseased" with foul brood *has* foul brood, and can convey the disease just as certainly as one that is badly diseased. The difference is only one of degree in the percentage of risk involved in handling it. To extract from even the most slightly diseased along with healthy colonies is gambling on an uncertainty and against heavy odds, since, if you lose, your loss is apt to be far greater than any thing you would gain if you won.

Experience has shown me that some men are unable to detect foul brood until it has made considerable progress. Judgments may vary as to what constitutes a "slightly diseased" colony. The careless and the busy are likely to assume that the disease has not made the progress since the last examination that it really may have. It is because of these things that I have criticised Mr. Todd's conclusions and regretted their publication.



#### ORDERS OF INSECTS.

We have now considered the lace wings, nearly all of which are our friends, and the locust order, which are as characteristically pests, and we next come to discuss the *Hemiptera*, or bugs. These are the true bugs; and, though many use this word as a synonym of insect, yet it were better if all would follow the entomologist and limit the use of *bug* to this one order—*Hemiptera*.

The bugs take the name *Hemiptera* from the fact that many have the front or primary wings quite different from the posterior or secondary ones, and especially from the fact that these front wings are thickened at the base so they appear like half-wings. Such wings are called "hemelytra." These

are all "haustellate," or possess sucking mouth-organs. All bugs only suck, and never devour the plant or foliage. Yet as an animal may as well lose its life or be totally devoured as to be sucked bloodless, so a plant is as surely killed when it loses its juice or sap as when it is eaten wholly up. Thus we understand why the aphides, the scale insects, and the chinch bugs are such dreaded pests. Like the pseudo-neuroptera and all orthoptera, the bugs pass through incomplete transformations. Except that it is wingless and smaller, the wee young bug is like the mature one. The bugs, like the neuroptera, are divided into three sub-orders: The parasitica, or true lice, which are always wingless, possess a simple not jointed beak, and live by sucking the blood of other animals. These, by preying on our chickens, cattle, etc., do us serious mischief. Kerosene oil and lard, half and half, for our poultry, and a tobacco decoction, one pound of tobacco to two gallons of water for our horses, cattle, and hogs, will kill these lice and save much to our farmers, provided it is wisely and properly used. The first is placed under the wings, about the thighs, along the breast, etc., of the birds, while the other is *thoroughly* applied by sponge to horses and cattle, and with a spray-pump to hogs.

The *Heteroptera* are the true or typical bugs, and always have the front wings thickened at the base. The common squash and stinking bugs are examples. Some of these, like the chinch bug of the middle West, are terribly destructive. While a few, like the stinging bug, kill bees, yet these last kill many of our insect pests, and I believe that, on the whole, they are really our friends. The "kissing bugs" do great good, and very rarely sting us. These, like the other sub-order, possess a jointed beak.

The third sub-order, *Homoptera*, show no marked difference in the wings, while the front wings are the same in character from base to tip, or are not thickened at the base. Here we find the aphids, or plant-lice, the scale insects, cicadæ, etc. Many of these are grievous pests.

As the bugs do not eat but only suck we can not poison them by feeding them the arsenites, but must kill them by some application that kills by contact, like insect powder or kerosene emulsion, or distillate spray. The latter is simply a two or three per cent mixture of distillate coal oil and water, which is stirred violently and thrown on to the plants as a fine spray when thoroughly mixed. This has worked wonders against some of the scale insects in California.

While all of the true lice and all the homoptera are destructive pests, some of the true bugs are our good friends, as they prey upon and destroy other and harmful insects, though many of these are also very terrible pests.

Some of the scale insects furnish us with important commercial products. The cochineal insect, which infests the cactus-trees, gives us our valuable red dye or coloring

material, while the lac insect of China and Japan gives us the shellac of commerce.

It only remains to be said that we can never kill these insects by the use of Paris green or other like poisons; for as they suck they pass their sharp beaks right through the poison, and so do not take it into their blood. We may, therefore, be sure that it will count for naught to use such substances in fighting such pests as chinch bugs or plant-lice.

Just a word more about the kissing-bugs. There are several of these. They are large, and have long narrow heads. One at Claremont is beautifully colored, though most are gray-black to black in color. The sting which they inflict as they puncture with their beaks is often quite poisonous and painful. I suppose the name came from the fact that one may have stabbed some person on the cheek or may be lip. I regret the name, as I like to associate the kiss with things pleasurable.

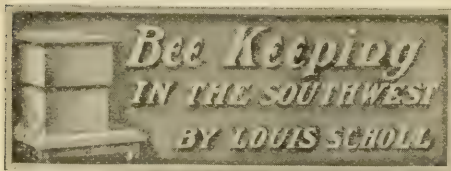
#### THE NATIONAL ASSOCIATION.

The union among bee-keepers, which I believe was originated by our friend the late Mr. Newman, as a protective agency to insure bee-keepers against unjust attack and persecution by those who had an unreasoning prejudice against bees, has done grand work in the line first intended; and under the exceptionally wise and able management of Mr. Newman it was a tremendous power for good. Now, owing to less prejudice and more and better information, there is far less of that work for it to do, and it may well turn some of its energies to other aid. As I see how little honey there is in Europe, and how wretchedly it is prepared for market, I can not but think that here is, as I have often urged, a splendid place for both our organizations for advancing apiarian interests in America to put in telling strokes. I see great dark irregular chunks of honey here, selling for a mark, and often more, a pound. A mark is 25 cts. We all know how cheap transportation by ocean steamer is; and by such reciprocity treaty as may be necessary in countries like this—Germany—where there is often a high protective tariff, and by a wholesome elimination of unnecessary middlemen, I believe our honey market abroad might be vastly improved, both to our own and to the signal advantage of the European consumer. I should like to see a carload of our elegant sections on the market here. Methinks they would go like wildfire. I have repeatedly asked for honey here, only to be told that they had none, or to be shown some that no one would think either of buying or selling in America. Splendid fruit, both fresh and dry, from America, is here in quantity, and sold at a price to please both producer and consumer. The best fruit that we have had came from America, and the dried fruit from over the sea is especially attractive and toothsome. Surely honey would be much easier and safer to ship than is fresh fruit. I hope that intelligent investigation in this line may be undertaken.



## BEE-HIVES IN GERMANY.

Surely there is great need of a Langstroth in Germany. So far as I can learn, there are practically no top-opening bee-hives in this country. In general agriculture Germany is away to the front; but in bee-keeping she is surely away in the rear of America. Most of the hives seem to be straw, and generally of the pattern of our box hives, which surely are now an anachronism, and ought in this age to be relegated to the junk-pile. True, there are movable-frame hives. The frames hang on a rabbet as do ours; but instead of being raised or removed from the top they are drawn out at the end. Some hives which I have seen are a meter (about 40 in.) long; and to draw all these frames out at the end after they are well glued in by the bees must be a task to try even the proverbial patience of the Deutcher. I believe that when manipulation must, of necessity, be so laborious and difficult, it would be likely to be all too rare for the good of such bee-keepers as had foul brood, to say nothing of weak and queenless colonies, of bee moth ravages, and the nameless other conditions where inspection is loudly called for. I have been told that many still use the top-bar simply, so that upon removal the combs must be cut free each time from the side of the hive. I have also been told that the great Dzierzon always used such hives, and that he was remarkably expert in such manipulation. It seems unbelievable that a man who could discover the law of parthenogenesis could ever be induced to use such hives after he had seen a Langstroth hive or even read a description of one. I wonder if Europe has many such bee-men as the Dandants and the Grimms. Have we not taken the cream of the land?



In establishing apiaries this spring do not overcrowd your location. Leave plenty of room for an "off" year.

"A thing that can be done, but has not been done in the past to a great extent, would be to direct our attention more to reaching out to secure better markets, to educating the people to know the difference between good and inferior honey, and to educating all in a direction of producing a better and more uniform article," according to R. F. Holtermann, in *Canadian Bee Journal*.

Bee-keeping, poultry-raising, and truck-growing make a combination hard to beat

when it comes to making a comfortable living. While some of us have a leaning toward specializing in one line alone, yet I know of several instances where, if one failed, either of the other two could be relied upon. Now is still a good time to decide whether to give this combination a trial the coming season.

In making preparations for the coming season's work, do not overlook the keeping of a small note-book in which to jot down and keep an account of important items as they happen throughout the season. It is a good idea to make a memorandum of all important matters as one stumbles on to them, or they may be forgotten. It pays. Bee-keeping is just as much business as keeping a store; yet very few would try to keep a store without keeping books.

Chaff hives are unknown to Texas bees. Six colonies lived in such for three years in the experimental apiary of the Texas Agricultural and Mechanical College; but as the bees did not seem to appreciate these costly homes—at least so far as could be determined—they did no better than the colonies in single-walled hives. They were cast out of them and put into regular hives. The unwieldy chaff hives were stored in an ante-room of the bee-house, where they are only in the way.

## THE ADVANTAGES OF LIGHTER GRADES OF FOUNDATION.

The lighter grades of foundation, rightly used, are better for all purposes. It seems like a waste to use heavy brood foundation and medium brood in wired frames, yet many are doing so. Suppose that a pound of light brood foundation, averaging ten sheets to the pound, costs 50 cents. That would be sufficient to fill a ten-frame hive-body. Medium brood, at 48 cents per pound, would fill only eight frames, necessitating an extra cost of two sheets, or twelve cents per hive, or ten cents over the cost of light brood foundation. While the difference of a single hive-body does not seem a great one, it amounts to a saving of \$10 on every hundred bodies in favor of the lighter grade. The comparison is made on the supposition that both are used in wired frames as many are doing. If unwired frames, with medium and heavy brood foundation, are considered, the difference between these two grades would be about the same as with the other two in wired frames. The heavy brood foundations, running six to eight sheets per pound, although not requiring the wiring of the frames, I would still consider more expensive than light brood with wires.

I have always been in favor of wiring deep frames. The expense in the beginning is slightly more; but as lighter grades of foundation can be successfully used, and the danger of combs breaking out in handling is eliminated, my frames are wired. I have used with much satisfaction home-made foundation running twelve L. sheets to the pound. This was used with four horizontal

wires in the standard-depth frames; but the wires were not imbedded. The sheets simply hang between the wires, two of the wires on each side alternating with those on the other side. If the frames are wired right, and the hives stand level, the imbedding is not necessary, as it weakens the foundation so that it breaks loose at the wires. I have tried thin super foundation in full sheets in this way, and it can be successfully used in the weaker colonies, or by placing it between built-out combs. Swarms can not be hived on such frames, as the foundation tears loose. It works well, however, when building up small nuclei.

The cost of the home-made foundation running twelve sheets to the pound was the same as the manufactured grade of ten sheets at 50 cents per pound. Comparing the twelve-sheet grade with medium brood foundation, both wired, the saving would be increased to 20 cents per hive-body or \$20 for every hundred in favor of the lighter grade. Where several hundred bodies and supers have to be filled with foundation every year this is quite an item.



#### WHAT HIVE SHALL FARMERS USE?

"Good morning, Mr. Doolittle."

"Good morning, Mr.—what's the name?"

"My name is John Jones—only a farmer, and expect to be such all my life. But I am interested in bees just now, and my neighbor Brown told me I'd better come over and see you regarding the best hive for the farmer who wishes to keep a few colonies of bees for honey for his own use, and perhaps a little to sell, should the bees do well."

"Which will be the best hive for you will depend very much upon how you intend to keep the bees, and how much time you will be willing to devote to them. If you intend to hive swarms only when they issue, and put on the surplus boxes when the white clover commences to bloom, as is the case with the majority of farmers who keep bees, paying no attention to them otherwise, then I should say some simple box hive, something after the fashion of the old Miner hive, would be as good as any thing for you."

"That may be right; but what was there about the Miner hive superior to any old box or log, such as my father used when I was a boy?"

"The reason for preferring the Miner form of the box hive is, that all the other box hives or log gums of the past allowed the bees to build their combs in a haphazard

way, while Mr. Miner provided for straight combs by the use of strips running across the top of the hive every one and one-half inches, the same having a sharp edge on the under side, on which the bees would start their combs. With such straight combs in your hives, your bees will bring a dollar or so more per colony, should you ever wish to sell them, than they would were the combs in your hives of the haphazard, crooked kind, as such combs are very easily transferred to other hives by the man who would be most likely to buy bees."

"I see. That would be quite a scheme, and I am glad I asked about the matter. But I expect to devote considerable time to the bees, or as much as I can spare from my other farm work."

"If you are willing to give the bees the time they require, which is far less to each colony, taking the whole of the year through, than you give to one of your horses or cows, then I would say that nothing short of a good movable-frame hive would be good enough for you."

"Well, I want the best, and that is the reason I came over to see you. I have just commenced to take GLEANINGS, and it has set me crazy over the bees—at least, that is what my wife tells folks; and seeing you were answering questions in GLEANINGS had more to do with my coming over to see you than my neighbor's advice. Which is the best frame hive?"

"Well, that is a hard question; for, very naturally, every man thinks the one he is using is the best. And, strange to say, nearly every beginner thinks he can get up a hive just a little better than others are using, so goes at it with a relish and a zest worthy of a locomotive inventor, till he finds, after using, that the most of the older frame hives work better than his 'new idea,' which he really thought was going to revolutionize the world."

"I may be one of those fellows later on, but just now I wish to know which is the best of the older frame hives, so that I may have what I need ready for the opening season of 1906. What shall I take?"

"All things considered, especially if you can winter your bees in a cellar, there is probably nothing better for you than the regular Langstroth hive. The word 'Langstroth' would properly apply to all good hives having movable frames, as such movable frames come under Mr. Langstroth's invention; but there is only one hive that bears his name, and that is what I call the regular one."

"How many frames would you use—eight or ten?"

"I would prefer the ten-frame hive, and especially for the farmer bee-keeper, as such hive is liable to have sufficient stores in it after a poor season so that the bees will come through all right in the spring; while with the eight-frame hive they are quite liable to starve unless they are looked after and fed."

"Then bees are liable to starve after a



poor season, when the small brood chamber is used?"

"Yes, and that is not all. I find that, unless much care is used during winter preparation, the colonies in the eight-frame hives do not come out so strong in the spring, on an average, as do those in the ten-frame hive, and this item of strong colonies in the fore part of the season is the main thing to be looked after where the crop of white honey comes early in the season, as it always does where white clover is the chief source of supply, as I think it is in your locality; and the hive which the most nearly accomplishes this object is the one the farmer, or any other person keeping bees, should look after."

"I think I begin to see what you are after. You want the bees strong, or the colonies strong in bees, when the white clover opens."

"Yes. Lots of bees on the stage of action at the time of the white-clover honey harvest means success for their keeper; and I believe that the ten-frame Langstroth hive will give *just this, with the least manipulation*, of any hive which I am acquainted with; and that is just what the average farmer bee-keeper needs most."

"What is the necessary manipulation to give a ten-frame hive in the spring?"

"The early management of any hive consists in knowing that the bees have a good queen, plenty of stores, and that they are tucked up warm and secure at the top of the hive. Bees will build up, even if the top of the hive has cracks in it; but I think you will easily see that the air which passes out of these cracks takes so much warmth away from the cluster, and causes the bees to burn just so much more fuel (honey) to keep up the required heat inside the cluster, which is from 92 to 98 degrees, when brood-rearing is going on. Therefore it pays well to see that the top of the hive is tight in early spring."

"I should say so, if it requires that amount of heat to rear brood. I did not know what temperature was required."

"Plenty of stores are needed in any event; for if the bees have to scrimp on account of fears of starvation, not nearly so many bees will be reared as there would be were there so much honey in the hive that the bees could use it lavishly. A hive which has twenty pounds of honey in it on the first day of April, will, as a rule, give double the bees at the commencement of the clover harvest that the one will which has only five pounds in it, providing the latter does not starve altogether. And that the ten-frame hive is likely to have twenty pounds or more in it on the first day of April is one of the reasons that I recommend it for farmers."

"Then with the good queen, twenty pounds of honey, and the hive fixed warm and tight at the top, the bees will be likely to care for themselves till about the time the white clover opens."

"Yes."

"Then I will go home and make my hives

so that I may be ready when spring comes. Smith has bees in ten-frame Langstroth hives, and he told me he would sell me five colonies in the spring for \$20.00, hives and all. Can I do better than to buy them?"

"I do not think so. That is not an unreasonable price, considering you have the hives with the bees; and by getting one of his empty hives as a pattern you can make all you want from it, and thus your hives will all be alike."



## HOW TO INCREASE THE SALE OF OUR HONEY.

Why it Pays to Advertise, and to Give away Samples.

BY E. W. ALEXANDER.

This is a very important subject connected with our business at the present time. I can think of no better way than to do as nearly all the successful business men and manufacturers are now doing — that is, advertise our product in every way we can think of that would be likely to bring trade. This is one thing that we as honey-producers have sadly neglected. If we expect to be successful in producing and selling large crops of honey we must apply the same methods to our business that these successful business men do to theirs. Now as to the manner of advertising, each man must decide that for himself. But advertise we must in some way. It is now high time that we awoke to the necessity of this.

From the little experience I have had in having a small notice inserted in our bee journals, and seeing its effect, I am sure that through them a nice large advertisement would be worth ten times its cost to any honey-producer; and why so many of us, myself included, should be so negligent in this important part of our business is hard to understand. We know we have a good thing for sale — one of the best foods God ever gave to man; so let us join hands and place this before the public in a profitable way. Many business firms give away thousands of dollars' worth of sample packages in order to induce the public to buy their goods; and I sometimes think that, if the honey-producers of this country would give away a small per cent of their honey in sample packages for a year or two, it would go a long way toward bringing honey into more general use. Then when the poorer classes get into the habit of using it on their bread in the place of butter we would surely have

a large demand for all we could produce. Most children are very fond of honey, and will nearly always prefer it to butter if they have a chance. This fact I often noticed in bringing up my family of four children. Here is a tender point with many parents. They will buy for their children many things that they would hardly think of buying for themselves.

This is where the sample package would count big. The child would have some, then it surely would want more; and the indulgent parents would commence to buy, and they too would soon like it, and buy often; but don't make your sample package too small. I would advise about a pound. Be sure to have it large enough to do for a meal or two. A mere taste would amount to nothing. Some may think to give away a pound of honey is rather expensive in order to induce a family to purchase some, so we will do a little figuring along this line.

We will suppose a man has 10,000 lbs. of extracted honey for sale. This at wholesale price will bring him about \$600. Now, if he gives away 1000 lbs. to as many families, and in doing so he finds 500 families that commence to buy his honey at 10 cents, this shows that his customers have cost him two pounds apiece, or 12 cents each; and if they buy on an average 18 lbs. apiece during the season he comes out \$300 ahead, or, in other words, he receives \$900 for the honey he would otherwise have sold for \$600. This \$300 would pay for all expenses of selling, and he would have a nice lot of customers to supply another year that had really cost him nothing. This is a case where it is necessary to sow before you can reap, and, like nearly all other cases, you will reap according to what you have sown. So I repeat, don't be afraid to give away some honey in order to advertise your business.

There is one thing we should all bear in mind; and that is, when we get customers try hard to please them so as to supply them with whatever they may want year after year. No business man can afford to lose a customer if he can help it. First furnish a good article, then offer it at a fair price, and always be square in your dealings. If there is any thing about your honey that is not as it should be, call the purchaser's attention to it. Don't wait until after it is sold, and then let him find it out as best he can. If you do, it is only natural that he will be a little careful about buying of you again. It might be of some help to have a circular go with each sample, telling the value of honey for many purposes, and how the children were delighted to have it on their bread.

I sometimes think that we as honey-producers have never taken just the right course to bring our honey into general use. It is all right to teach the public as to its purity and healthfulness, but that is not enough. We must go still further and show them that they can save money by using it. When this is once accomplished we can then, and not until then, let this question rest. I have

retailed in small lots but very little honey; but I have always noticed that, if rightly done, it is sure to bring good results. If we get a family to commence using honey they are sure to continue as long as we supply them with a good article at a moderate price. We have several customers who buy a 160-lb. keg of dark extracted honey every year for their own family use. They have got used to having it on their table, and they tell me they don't see how they could get along without it. They first started by buying a 10-lb. pail once a year. One man in particular bought six kegs this fall to retail out to his neighbors. This man never bought any honey until four years ago, when a friend of mine sold him a pailful. I speak of these incidents to show how easy it would be to start a large demand for our honey if each one went to work in the right way to bring it about.

Now in connection with the selling of honey let me say a few words in regard to the producing. For some time there has been an almost unlimited demand for dark extracted honey, and but little demand for light extracted unless it is water-white, and can compete with the white honey of California. This white extracted honey is a hard thing for us to compete with, and for this reason I would suggest that we try hard to have all our light honey put in sections, and sold as comb honey, and all our dark honey extracted. This would relieve the comb-honey market to quite an extent, and cause those who prefer dark honey, as many do, to buy dark extracted for their table use. I am often asked what our dark extracted honey is mostly used for. I find out from those who handle large quantities that the Jews are our best customers for this grade of honey. They not only eat a great deal, but use it extensively to make a certain drink which they like during their holidays. One of the largest dealers in honey in New York told me last summer that these people used more dark extracted honey than all other classes put together. Then our large bakeries use considerably more dark extracted than they do light, and it is the same with all manufacturers that use honey. A very intelligent Jew once told me that their people were suspicious of all light honey, but had confidence in dark honey being what it claimed to be.

Personally we have been very fortunate in being able to sell all the honey we could produce, at a good price, as soon as it was ready for market; but I know that many others are not so fortunate, and it is for them that I hope some way will be devised so they may turn their surplus honey into ready money.

In attempting to write on this subject I fully realize that I am not competent to do justice to the question; but I hope you may find in the above some little thread that, when woven in with the knowledge of others, will be the means of bringing a better market to us all.

Delanson, N. Y., Nov. 15.



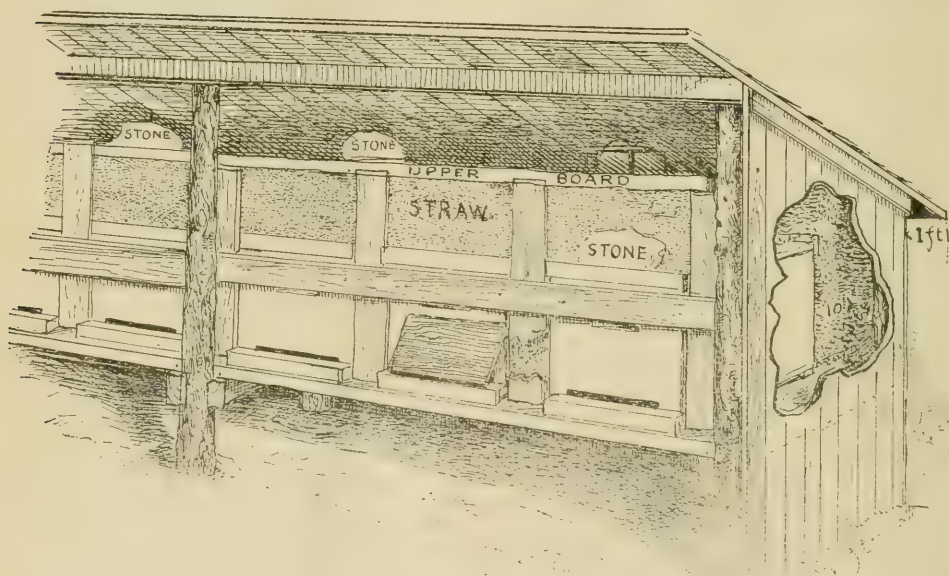
## OUTDOOR WINTERING.

### Packing Colonies in Straw in a Shed.

BY W. T. DAVISON.

During the winter of 1903 I tried absorbents in supers. I did not lose a colony; but some of the forest leaves used for packing in supers got wet, and I am satisfied they were injurious to the bees; so last winter I took off my supers and placed the excelsior cover directly on the brood body. I did this before it turned cold, as the bees must have warm weather to do a good job of gluing the cover down air-tight, and I also laid a stone on each hive to hold the cover down solid. My hives are in a shed with a floor, and banked up with plank. Hives are about ten inches apart, and ten inches from the back wall.

deep on top of the hives. Then I lay plank on top of the straw to hold it down solid. The straw must be kept dry. If it should get wet and freeze, the bees may not do well. I build the shed facing the south, so the sun will shine on the front of the hives in winter, and sometimes the hot sun shining in at the entrance will cause the bees to think warm weather has come, and they will fly out when the wind is from the north, and so cold that they become chilled and drop to the ground and die. To avoid this just set a board on the ground and lean it up against the front end of the hive. This will shade the entrance at noon, and will also keep a cold south wind from blowing in at the entrance. When the air outdoors gets warm enough for bees to fly, take the board down and let the bees have a good flight. I think that Mr. G. M. Doolittle was



W. T. DAVISON'S METHOD OF PACKING BEES IN STRAW FOR OUTDOOR WINTERING.

To begin fixing for the straw to pack with I take lathing or any thing that is handy, and either nail these strips on the front part of the hive just under the cover, or fix them so they will be held firmly against the front end of the brood body. When the laths are made fast, get boards or plank and set them on end between each hive at the front end, and let them rest against the lathing. These boards should be long enough to reach about a foot above the hive.

Now we are ready for the straw. Get good dry wheat or oats straw. I am very careful to place the straw in between and back of the hives so that it will be perfectly solid. I use straw until the hives are completely covered. The straw must be one foot

the first to write about using a board in front of the hive. The idea is valuable. I have seen my bees lying dead on the snow by the thousands, just for the want of a board like this. Before I used this way of packing my bees for winter I lost bees every winter; but since I have used this method I have not lost a colony. I believe I can winter my bees as well (or better) outdoors packed in this way as I could in the average cellar.

Don't think this is an easy place to winter bees. The weather is so changeable that I am satisfied the same amount of packing that it takes here would do fully as well in the northern part of this State.

I leave this straw on my bees until it is

quite warm in the spring, and if I wish to I take off a little straw at a time. For example I would take it down to the cover some warm day, and then wait quite a while before taking the remainder of the straw out. To take it all out at once might chill the brood. Leave the straw on the hives as long as it will be safe. You can tell by the fanning at the entrance when the bees are too warm; then move part of the straw.

No doubt this way of packing is old to most of you; but there may be a few who haven't heard of this method of wintering bees. Those who haven't any cellar can pack their bees in straw, and they are more apt to winter well outdoors than if they were put in a cellar. If they are packed as I have described, especially if the man owning the bees has not had considerable experience in cellar wintering, one good thing is this: My bees get several good winter-flights. Another is, they begin to raise brood early. Both winters I have had very early brood-rearing; and my colonies are very strong for the white-clover flow.

Velpen, Ind.

## ARE SECTIONS DETRIMENTAL TO THE HONEY MARKET?

A Discussion of the Weight of Sections of Honey and the Systems of Selling Them.  
Continued from Last Issue.

BY G. C. GREINER.

The next and by far the most vital point which our chunk-honey friends misrepresent is the weight question. Mr. Bohrer says in the article previously referred to, page 814, "It seldom weighs a pound, oftener falling short three or four ounces, yet it sells in most cases at pound prices, not by weight but by the piece." How unreasonable! Did Mr. B. ever weigh and examine a one-pound section (by size) that weighed four ounces less than a pound? I don't think he has, otherwise he would know that no sane bee-keeper would try to palm off such a deficient specimen for a full-sized section at full price. It would be right out and out dishonest; and as honesty is always the best policy the section-producer is not short-sighted enough to cut his own wings by such a proceeding. Even if we had the disposition to do so, and I hope there are not many of this kind in our ranks, it would be next to impossible. In the first place, when retailing them ourselves the consumer would not accept them at full price; and, secondly, they could not be shipped on account of their frailty. A good share of them would be broken from the wood in transit.

A one-pound section of honey that weighs four ounces less than a pound can be one of two kinds. It is either from two-thirds to three-fourths built out, and all finished capped honey, or it is all built out and very little if any capped, and yet may contain quite a little loose honey. The former we sort out and dispose of in various ways. Making

practical application of the principle that the more we use the better the price will be, we reserve a liberal quantity for our own table. We have it on the table every day, and use all we can of it. Then we distribute the same among our friends and acquaintances as occasion may dictate; and what is left then we sell as chunk honey at reduced rates, although I am not favorably impressed with the idea of doing so.

The latter kind, and every thing in the shape of drawn comb with little or no capped honey, is reserved for next season's bait combs, after the honey has been cleaned out by the bees.

Our friends advise us to sell sections by weight. If they had given their well-meant advice a second thought they would have come to the conclusion that this is not only impracticable but impossible. If we should undertake it, it would amount to the same thing as selling by the piece, only in a somewhat reversed fashion. Instead of selling different-weight sections at the same price we should have to sell even-weight sections at different prices, and that would create new difficulties and dissatisfaction.

If the weight of our sections ran at even ounces, or approximately so, their prices could be easily adjusted. For instance, at 16 cts. a pound the prices of sections weighing 15, 16, and 17 ounces would be just that many cents respectively. But what should we do with all the between, and the great majority are of this kind? What price should we ask for a section weighing  $16\frac{1}{2}$  oz.? We have no smaller fractional currency than cents, so that the half-ounce value could not be affixed in exact change with the currency at our command. The only way would be for the dealer to charge the purchaser 17 cts., making him pay for half an ounce he does not get, or charge 16 cts. and throw in the half-ounce without getting his pay for the same. It would be as unjust for one as for the other to lose the half-ounce, and who should it be? To help us out, custom comes to our assistance and decides the matter.

It is customary, and has been ever since I can remember, that the dealer takes the advantage when the exact change can't be made. If the half-change of 25 cts. is to be made, the dealer retains 13 and gives 12 in return, and nobody finds fault about it. The same principle must be applied to sections and all articles that can not be equaled by even money value.

As I am regularly on the city market I take a stroll occasionally up and down the line of producers and dealers for the purpose of investigating; and I find that nearly all business is transacted by the piece system.

One of my neighbors has a load of cabbage. A partition crosswise the wagon-box separates them into two different grades, one kind averaging a little larger than the other. I ask the price, and he says, "These," pointing to the larger kind, "are three for ten cents, and the others are two for five." Now, his cabbage in either grade are by no means alike. They vary from the



largest to the smallest as much in proportion as our sections, but still the price is the same. The first caller, of course, takes his pick out of the lot; the next one does the same, and every one following is sure to take the best he can find, until the load is sold. Every one of the purchasers had his choice, every one paid the same money, and every one is satisfied.

Another neighbor has among other stuff a couple of crates of cauliflower. Like the cabbage, one crate runs a little larger than the other, and he sells them at 5 cts. apiece, while the smaller ones are sold at 3 cts. each. It is needless to say that they are in either crate no more alike than the other man's cabbage. Every buyer as he comes along follows up the same tactics of taking his choice of the kind he prefers, and no complaint is made. I could cite hundreds of similar instances all along the line if necessary; and why should honey in sections be exempt from this generally adopted practice?

The little conversation between Dr. Miller and the editor on the weight vs. piece subject, pages 1118, 1119, is highly amusing. Each one is trying to get ahead of the other. Dr. M. is generally pretty sound in his writings; but this time, if I understand him aright, his argument reminds me of the drowning man's straw. He says, "Now, what kind of talk is that? Haven't the scales been used in making up those ready-weighted packages?" To be sure, the scales, or some device to that effect, has been used, but not to weigh full weight. I have been connected with one of these manufacturing establishments, and I know just how these things are managed. If the expense of the package is about the same as the value of an equal weight of its contents, that much is deducted from the full weight; in other words, the ready-weighted package, when placed on the scales, balances at its nominal weight. But if the same weight of the contents does not pay for its enclosure, cans, boxes, wrappers, or whatever it may be, the full weight is reduced enough more, or the price of the goods raised sufficiently, to meet this expense.

When we take a view of the endless variety of fancy packages we find stacked up on the shelves of our grocery stores, common sense will teach us that some one has to pay for all this convenience and attractiveness. We know very well that it is not the manufacturer who bears this expense, nor the wholesale dealer, nor the retailer, but it all rests on the shoulders of the consumer, and, strange as it may seem, he is perfectly satisfied with this state of affairs. If you should tell any consumer among the long line, from the aristocracy down to the common day laborer, to bring along his former day's flour-bag and you would sell him 100 lbs. of flour in bulk at 25 per cent less than he has to pay at the store for the same quantity(?) in 10 or 25 lb. paper sacks, he would not even listen to you.

Another instance of fashionable extravagance we have in the line of baked goods.

When we order a pound of crackers, the grocer brings us a square oblong package, elaborately labeled, and done up in fancy style. The few crackers it contains are first wrapped up in a sheet of paraffine paper. This is enclosed by a pasteboard box with a handy adjustable lid, and this again is done up in a nice color-print wrapper. The whole package weighs 13 ounces with a net contents of 10 ounces, and the grocer charges 10 cts. for the package—just one cent an ounce, when crackers in bulk could be had for 8 or 9 cts., or about half the price of the other. I have tried, in a small way, to stem the tide of this unpardonable wastefulness by buying crackers in bulk, but without success. We hear expressions like this: "Yes, they are cheaper, but not nearly so nice. We'd rather have them in packages."

It is useless trying to swim against the stream. Convenience and style, no matter how expensive, are all the go. Then to claim in the face of all this indifference to economy that people will not buy honey in sections because they are a little short in weight, when their chance is equally good to get one of that much overweight the next time they buy, is all imagination.

Naples, N. Y.

To be continued.

#### BEE-KEEPING IN THE PHILIPPINES.

Bees Twice as Large as Italians; Wax Used as Money.

BY W. H. COONS.

The Christmas number of GLEANINGS has just come, and I have read with much pleasure the article on The Stingless Bee, by Mr. Green. In the last paragraph of the article he alludes to what seems to be the "missing link" in bee culture in regard to an apparently undiscovered species of larger bees than are at present known. He says: "Some hope to find a still larger bee than is now known, and there is no reason why such should not exist."

Now, Mr. Editor, I consider it a great privilege to be able to contribute a few lines to you. I can say that they do exist, and authentically state that this species of large bees is by no means a myth. I can vouch for their reality by the testimony of three of my five senses: I have seen them, and eaten their honey; and the sensory nerves of my skin tell me they are not stingless. I spent nearly two years in their native haunts, and "tracked them to their lair," which is the large forest wilderness that entirely covers the great mountainous island of Mindinao of the Philippine group.

I was engaged in trade with the natives in those islands, whose principal occupation is the collecting of wild honey, and whose currency and stock in trade is the wax produced by these bees. This account may not be of much scientific or practical value, but I presume it will be of interest to those who have looked forward to the day when the

common bee's proboscis could be stretched out long enough to sip the nectar from the red-clover blossoms, which has always excited the cupidity of the apiarist.

This bee is fully twice as large as the Italian, but a little blacker, with distinct light-colored bands around the abdomen. They make a large five-sided cell about  $2\frac{1}{2}$  inches deep, filled with a rather thin dark-colored honey gathered almost entirely from the blossoms of the forest trees. They do not seek a hollow tree or other enclosed place to build their nest, but suspend their comb from the under side of the limb of a tree, sometimes not more than twenty feet from the ground, though usually it is high up near the top of the tall trees. But they don't roost too high for the rapacious native. It sometimes takes him two days to scale the dizzy height to their castle, but he gets there just the same by tying rattan bands around the tree, one above another, thereby making a foot and hand hold, up which he climbs with a torch of smoking rattan wood.

Every business has its light and dark sides, so honey-gathering in the Philippines has its bitter as well as its sweet morsel. The man or men who go up the tree get severely stung sometimes; but it is soon forgotten after the spoils have been secured and they are gorging themselves on the honey and young white bees which are still in the comb. They save the wax, and, after softening it in the hot sun, make it into pots of about five to ten pounds. This is bartered and sold and exchanged, and passed through many hands, until it finally reaches the melting-pot of the "Mericano," as much battered and worn as a bad dollar.

There are at least two other varieties of bees in the islands. One is a little smaller than our Italians, and much darker in color, which seem to be the most numerous. There is also another species which is of no value. It is a tiny insect about the size of the little sweat bee that occasionally lights on one's hand in the summer season. It lives in small colonies of but a few hundred in number, in a hollow tree, high above the ground, and makes a comb similar in shape to the American bumble-bee.

Camden, Ohio, Dec. 21.

#### PROTECTION FOR COMB-HONEY SUPERS.

Does the Amount of Honey Produced Pay for the Extra Trouble?

BY E. F. ATWATER.

In Dec. 1st GLEANINGS you ask for reports on the value of protection for comb-honey supers. I have not had in use any supers double-walled all around, but always, while living in South Dakota, I kept a narrow rim with a chaff cushion on top of the supers on each hive, and was satisfied that the surplus was increased thereby, though in that locality, during our main flow, the nights usually varied from hot to insufferably hot.

After locating here I put in use the same arrangement, but finally discarded it, owing to the necessity of handling the two extra pieces (cushion and rim) to each colony. Without any absolute tests, weighing product of a large number of colonies in the same yard on both plans, I could see very little difference; but nevertheless I think that such tests would prove favorable to more thorough protection; but the only question in my mind is, how great a difference would there be in favor of protection? Mr. Danzenbaker seems to imply that protection on tops and all around will make an increase in the crop of about a half. Please show us the *proofs*, for, if true, I will, of course, adopt such an outer case.

Our new supers are double on the ends (ends of section holders  $\frac{1}{2}$  inch thick), while on one side is a follower, and on the other side a Pettit cleated divider *without the holes*, so that, if the force of bees is as strong as it should be, we have double walls on the side of our super also, but *full of bees*, rather than chaff or a dead-air space.

On the side of thorough protection of comb supers stand Vernon Burt, Danzenbaker, Doolittle, Massie, and quite a host of others; but, if I am not mistaken, the vast majority of big practical comb-honey men are on the other side. I want to *know* if M. A. Gill, R. L. Porter, James Heddon, R. L. Taylor, and Dr. Miller have really been losing from 30 to 50 per cent of their crops from a lack of protection for their supers for all these years.

Meridian, Idaho.

#### POULTRY VS. BEES.

A Case in Point of How Bees and Poultry can be Made to Pay.

BY H. B. STRATTON.

After a careful study of Mr. McGlade's article on page 1307 I fail to find "ocular proof" that there is no profit in poultry; and if Dr. Miller looks at poultry-raising in the same light he will also fail to find it. Mr. McGlade seems to place all the blame on the Plymouth Rocks. I place it on the man. Apparently he did not know *what* to feed nor *when* to feed it.

As Dr. Miller would like to "see the figures," but failed to find any given by Mr. McGlade relative to poultry, I should like to give our experience for the doctor's benefit and of other readers of GLEANINGS.

During the year 1905 we kept 140 hens — a mixed lot of Leghorn, Plymouth Rock, and Hamburg fowls. Here are the figures: We set 33 hens on 495 eggs, hatching 390 chickens, and 275 of these were raised.

#### NUMBER OF EGGS LAID.

|                 |                  |
|-----------------|------------------|
| January, 1524;  | July, 1500;      |
| February, 1665; | August, 1180;    |
| March, 2594;    | September, 1163; |
| April, 2755;    | October, 805;    |
| May, 1962;      | November, 282;   |
| June, 1783.     | December, 360.   |



Whole number of eggs laid, 1464 dozen; whole number of eggs sold, 1262 dozen, or \$335.55; fowls and chickens sold, \$76.31. Total amount taken in, \$411.86. Feed, etc., bought 14,614 lbs., costing \$188.16, leaving a net profit of \$223.70.

The above figures represent actual money taken in and paid out. No record has been kept of the grain that has been raised on the farm and fed to the hens, or of the chickens and eggs used by the family. The value of one is nearly balanced by the other.

Mr. McGlade's advice is to try bees alone. My advice is to try both poultry and bees in a small way, at first, if you live near a good market for eggs and honey; then if you can succeed at both you have a double income; but if you have the luck of Mr. McGlade you can drop one and still have the other to fall back upon.

My bees produced an average of 70 lbs. per colony last year, mostly from buckwheat and goldenrod. I use the plain sections and fence separators, and sell by the piece as J. E. Crane recommends. I have not been able to secure enough honey to supply the demand.

The Hoffman frame is here to stay. I have used it since keeping bees, and do not care to change.

South Fallsburg, N. Y., Jan. 8.

## THE VALUE OF BEE BOOKS AND JOURNALS.

### How to Read an Article.

BY J. G. BAUMGAERTNER.

Several of the bee journals have lately touched upon the question, "How many bee journals should a bee-keeper read?"

The same question should be asked regarding bee-books, for they are of no less importance than the journals. These questions are by no means insignificant, for bee literature is to-day playing such an important part in modern apiculture that it is something indispensable to any one who would keep abreast with the bee-keeping world, and take advantage of the best inventions and discoveries along apicultural lines. What has done more toward building up American bee-keeping to what it is to-day than the agency of bee literature? Without it the majority of us would still be plodding along as did our ancestors of the skep and box-hive age. With the information given by experienced men through the pages of bee journals and bee books the beginner can to-day set in where the veteran left off, without having to go over the same old ground once more. Thus progress is made. New ideas are now spread broadcast over the land in a few weeks, whereas without our journals they scarcely ever reach beyond the immediate neighborhood of the originator.

But, bearing in mind that bee books and papers are a necessity — yes, a blessing — to

our industry, the question confronts every bee-keeper, how many of the numerous books and papers on bees shall he read?

This question has been answered, at least regarding bee journals (and the same, undoubtedly, applies to books) several times, that a man should take at least two or three, as usually each journal has a distinctive feature of its own (and so have the books), and consequently an importance of its own. I consider this good advice; but I will add, however, do not take any more than you can do justice to. It is not so much the quantity as the quality of what we read that is of real value to us. Again, if we read too much we are unable to digest what we read, and are apt to be as much, if not more, harmed than benefited. How many journals and books a bee-keeper can read and derive the greatest benefit from his reading is, I think, a matter greatly depending on the mental abilities and the spare time of the individual.

I find that, in order to make my journals most profitable to me, I must not only read them but *study* them. Where new plans and ideas are set forth it pays to get down and study matters with closest attention to every detail of methods described. A lead-pencil and some paper are frequently found useful to note down this or that as I read along, or even outline certain methods while I read the description. It makes things plainer, and helps to impress details upon the mind; for it is of no small importance to be positive about the minutest detail of the description read, when out among the hives testing a new plan.

I am frank enough to say that I am of the opinion that, in regard to thoroughness, many, even more experienced bee-keepers are "found wanting." For instance, I have noticed many times when new ideas were advanced regarding some feature of apiculture that almost invariably some have reported that they failed in carrying it out successfully; and not seldom it finally appeared that some little but essential parts had been overlooked, or either a change had been made willfully. Here let me call attention to what Mr. E. W. Alexander says on page 1189: "Now a few words to all who try new methods which the writers for our bee journals recommend. Either carry out those methods to the letter or let them alone; don't mix up a lot of your own ideas with those of others, and then condemn the writer for not giving a practical method."

A short time ago I met an old bee-keeper. Our conversation turned upon bee books. He told me that beginners often consulted him as to what book they should get, and that his answer usually was, "Do not get any book. If you want to find out any thing about the management of bees, come here and spend half a day with me and see how bees are handled; for it is a known fact that farmers working according to books never raise any corn."

Now, while I esteem this gentleman very highly, and respect his advice as coming

from an experienced apiculturist; and while I most firmly agree with him that practical experience is worth more than theoretical knowledge, my own experience with books and journals leads me to disagree with him most decidedly when he advises beginners to let bee books alone.

Regarding the reason this man gave for the inadvisability of studying bee books, I will say it was of benefit to me, as it set me to thinking over the questions, why do farmers working according to book-instruction frequently fail? And why do bee-keepers often fail to be successful in carrying new methods advanced in bee-journals? Is it not because they are personally not adapted to the pursuit in the first place, and would better do something else, and, secondly, go about their work thoughtlessly and carelessly, leaving the trouble of thinking to other people. As in bee-keeping, so also in farming, locality and weather conditions are two important factors that need careful consideration.

Again, methods employed in the South will not apply in the North invariably, and *vice versa*. The soil in one locality will need a slightly different treatment from that in another locality, to yield the best results.

These and many other conditions, the farmer who follows written information must bear in mind. The same holds good with the bee-keeper. A Texas apiary must be managed differently from a Michigan one. In one locality the flow comes early, in another it comes late, etc.; consequently it requires careful thinking, comparing, and observing, besides reading good and instructive literature.

New Memphis, Ill., Dec. 29.

---

#### SOME COMMENTS AS TO HOW FAR MR. ALEXANDER'S METHODS ARE APPLICABLE TO OTHER LOCALITIES.

---

##### A Few Timely Suggestions to Beginners.

---

BY J. L. BYER.

---

Much as I have been impressed with the magnitude and success that Mr. Alexander has attained in the matter of keeping a large number of colonies in one place, I can not help thinking that a whole lot of his teachings through the columns of GLEANINGS are not adaptable to localities of the majority of bee-keepers. For instance, in how many localities would it be advisable to attempt to treble the number of colonies previous to the honey-flow? Certainly not in any place where clover is the main source of surplus. Perhaps Mr. Alexander classes all such locations as not being "fairly good," yet it is not uncommon for us to average 100 lbs. or more to the colony. But you may rest assured that nothing like that could be obtained if we broke up all colonies previous to the flow. On the contrary, every effort is made to keep all colonies intact, as in more than one instance this 100 lbs.

surplus was all gathered during the month of June. In Nov. 1st GLEANINGS, 1904, Mr. A. tells us that he seldom gets any honey previous to August; and that in nineteen years, in only four years have they received any surplus previous to that date. Easy to see that what would be practical in a locality like that, as regarding the matter of increase, would be ruinous to the crop of honey if attempted by a bee-keeper in the clover belt. I believe that the majority of bee-keepers so situated will agree with me that the slogan should rather be, "Keep all colonies together without division as long as possible."

Another item I should like to mention is to the writer, at least, a "stunner." I refer to Jan. 1st GLEANINGS, where Mr. Alexander speaks of the matter of winter stores for the bees. He says, "In order to avoid light colonies in the fall, let your bees fill up their hives with the first honey of the season, and see that they have plenty of it capped over before you put on your extracting-supers."

Why, Mr. Editor, don't you think that, granting such practice proves all right with Mr. A., yet it would spell "d-i-s-a-s-t-e-r" for most bee-keepers in most localities? Are we to drop all efforts at having the brood-nests filled with *brood*, and substitute honey in lieu thereof? But how does Mr. Alexander accomplish this? With us, while waiting for the brood-chamber to get plugged with honey, the bees would swarm or loaf; and if, perchance, some did not swarm, I wouldn't give much for a queen that would tolerate a lot of honey in a Langstroth hive with extracting-supers on during a good flow from clover.

Another strange thing is that, in a *buckwheat* locality, such precautions should be necessary. At one of my yards we occasionally have a little buckwheat surplus. When this happens the Carniolans and blacks are generally, and the Italians *always*, heavy enough for winter at the close of the flow. With all due respect for Mr. Alexander's opinions, I think it would be a great big mistake for bee-keepers in clover locations to follow his advice in this matter.

In an article written by Mr. A. some time ago he cautioned bee-keepers not to let the bees get ahead of them in the extracting season. In his own practice he extracted the honey when the bees were just ready to seal over the combs, claiming that, if left to be sealed over, much less honey would be gathered. Again, granting that Mr. Alexander can work this plan all right, do you think the advice sound in view of the needed campaign toward getting bee-keepers to produce a better quality of extracted honey? But by using two or more supers, I very much doubt if Mr. A.'s contention will prove true relative to securing much more honey by extracting before the combs are sealed. But, to return to the question:

In a footnote to Mr. Alexander's article in Jan. 1st GLEANINGS, in speaking of his



storage-tanks you say the honey "is very thick when it comes out of the combs." In view of Mr. Alexander's avowed statement that the most of his honey is extracted before the combs are sealed, the wonder to the writer is, how can his honey be *thick* when it is extracted? Clearly a question of locality again, as here with us buckwheat honey is *always thin* if extracted before the combs are sealed. Indeed, it is never as thick as clover or basswood honey, even if left on the hives till sealed.

Lest my motives in this writing be misconstrued, let me say that Mr. Alexander is in the eyes of the bee-keeping world at present, as Dec. 15th GLEANINGS aptly puts it, "Alexander the Great," and any thing coming from his pen is sure to be acted upon by thousands of bee-keepers (especially amateurs) another year. While his methods are, no doubt, sound for his own locality, which, by the way, is one in a thousand, yet, as before stated, for the great majority of localities I feel confident some of these same methods are not practical. In view of this, Mr. Editor, is it not wisdom to caution beginners about leaving the "beaten paths" too far, and following what may, in their localities, turn out after all to be a phantom?

Markham, Ont., Can.

[Notwithstanding I have stated that Mr. Alexander's locality is a peculiar one; that I did not believe the average locality would support anywhere near 750 colonies, and that I did not think the average bee-keeper would do well to extract before the bees capped their combs, and notwithstanding that Mr. Alexander has also himself put emphasis upon some of these things; yet I believe that many of our readers, especially those who have conditions considerably different, would do well to consider thoroughly all that Mr. Byer has to offer. In defense of Mr. Alexander I may add, however, that if Mr. Byer or any one else could see the situation as it exists in Delanson and vicinity, he would see how well Mr. Alexander *knows* his locality and how well he makes use of that knowledge.

As to the thickness of Mr. Alexander's honey, I repeat that what I saw in the tanks was of good body and quality. Some of the points suggested by Mr. Byer are covered by Mr. Alexander in this issue.—ED.]

### BANAT BEES.

#### A Description of a New Race.

BY L. A. LAWMASER.

I have tried most races of bees, including the Banats for three years. I consider them the best and gentlest bees in America today. I have the Caucasians and Banats, and I find the Banats the gentlest, while the Caucasians run around over the comb and crawl over my hand; but the Banats keep quiet on their combs, and do not run around over the combs. I have handled them with-

out smoke when gathering honey, and have taken off the surplus section without a bit of smoke, and have opened up the hive quite often and taken all the frames out and put them back without the use of any smoke. They are about the same color as the Carniolans, only a little lighter gray color. The drones are about the same as the Carniolans, only whiter on the body, and have more hair on the last segment. The queens are smaller and darker than the Carniolans, but just as prolific. They do not swarm as much as the Carniolans. I have kept them three years and haven't had a swarm yet. They have gathered a third more surplus honey than the best Carniolan bees have.

I will say in conclusion that they suit me the best of any bees I ever tried. They are hardy and industrious.

Upper Sandusky, O.

### HANDLING BEES AT COUNTY FAIRS.

#### No Cage Necessary.

BY I. HOPKINS.

I was highly amused on reading your editorial under the above heading in your issue for September 15, especially that part describing the elaborate preparations made for the demonstration, where you selected a colony of gentle bees, and got rid of the "flying bees" before putting it in a cage. I presume the reason for this preparation, and confining the bees and the man in a cage 6 × 5½ × 4 ft., was to prevent the onlookers getting stung. Now, I may tell you that it is nearly 25 years since I first commenced to give such demonstrations publicly, and for the last 12 years I have done it annually at agricultural shows; and all the protection the public had or needed was a few hurdles to make a ring so everybody could see.

My demonstration has been the transferring of bees and combs from boxes to frame hives without smoke, veil, or other protection—generally from three to four boxes, sometimes blacks, sometimes hybrids, just as they came along. The ring was formed of sheep-hurdles, about 60 ft. square. That was all. The man who knows his work can get the bees under control at once without smoke, and I have never known an onlooker to get stung.

I. HOPKINS.

Auckland, New Zealand.

[See editorial and article of the editor elsewhere in this issue. I am willing to subscribe to your statement, after a further trial of the plan of exhibiting bees at county fairs, that no special precaution need be taken to secure extra-gentle bees; but I would hardly advise handling them in the open, for the reason that horses driven near by might, with their switching tails, get stung; and this would cause a catastrophe in a crowd that would be serious, and it would bring down on the head of the bee-keeper the wrath of every one. At our county fair I scooped up some handfuls of bees, stepped out of the cage, and walked

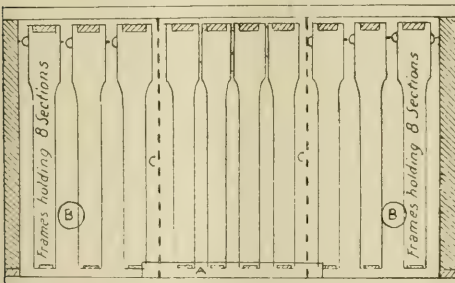
around in the crowd. I noticed that some bees took wing. While there was no disposition on their part to offer attack, yet some people in the crowd would strike at them, and, much to my consternation, a big powerful bay horse, full of life, went past us. One or two stray bees buzzed about his head. He began switching his tail vigorously, and shaking his head. I lost no time in getting back into the cage, and I was fearful every moment that the horse might with his tail get the bees to sting.

There is another advantage in a cage; and that is, that bees *confined* are more gentle than those that have the perfect freedom of the air. They seem to be demoralized by their constant handling; and when they try to take flight they discover they are prisoners. Then their entire thought is how to get out. As I have elsewhere acknowledged, the idea of handling bees in a cage at outdoor public gatherings came from England. — Ed.]

#### BROOD-FRAMES AND COMB-HONEY SECTIONS IN THE SAME BODY.

BY C. M. CHURCH.

I enclose a sketch of a hive for raising comb honey. I am only a beginner in bee culture; and as I experienced a great deal of trouble in getting my bees into the super I concluded to change the construction of the hive so as to let them fill sections by placing sections in the body of the hive. While this scheme was new to me I have since found that it is an old idea, invented by Mr. Langstroth in 1852, and used in a little different way. I am also informed that more honey can be obtained per colony in this way, but at a greater expense in labor.



My idea was to build a large 12 or 16 frame hive deep enough to take in two 4×5 sections standing up, and four sidewise, making 8 sections to the frame (see sketch of frame). Then put in as many frames as desired for the brood-nest; say four to six, with a queen-excluder each side of the brood-nest; then fill up the rest, each side of the brood-nest, outside the queen-excluder, with frames containing 4×5 plain sections, with fences between them (I mention 4×5 plain sections because they sell best in this locality). I would also have three separate openings to the hive—one to the brood nest and one to

each set of five frames, then the bees would not have to pass through the queen-excluders at all.

I expect to be able to breed up in the spring in this hive, to get the best results, and also overcome the desire to swarm to a great extent, by giving the queen plenty of room to do her best and not be crowded.

Arnold, Pa., Jan. 17.

[The plan you describe was used many years ago, but discarded. There are two objections to it. First, it makes an awkward odd-sized hive; second, comb honey stored next to brood-frames will be discolored by reason of the bees using wax from the brood-combs in building combs in sections. No, I do not think more honey can be produced by this plan—at least there are no data to show it. There is another incidental disadvantage; and that is, the outside frame, containing eight sections, would present a large surface to the side of the hive, and this would result in the surface of those combs being neglected or poorly filled. The same objection applies to the ordinary comb-honey super containing one tier of sections; but in this case only half the surface is presented to the wood; and even this objection is largely overcome by the use of slotted dividers, or fences, put next to the outside of the hive.]

If you would consult bee-keepers of large experience you would probably save a good deal of money, and in the end abandon all idea of a hive like the one shown in the diagram above. The whole field has been thrashed over and over by others, only to be abandoned; and as history is pretty apt to repeat itself, you will be almost sure to be a loser by the operation. — Ed.]

#### THE OIL-STOVE METHOD OF WARMING STORAGE TANKS; A CORRECTION.

BY A. J. BURNS.

*Mr. Root:*—When I sent you a description of my tank for heating a large body of honey I mentioned an oil-stove only as a means of heating, without giving any description of it. The cut on page 26 would indicate a *very much less* capacity than the stove I use, and I don't wonder you raised the question of capacity. The water is used over and over; and after it is heated it does not require so much heat to keep it going.

In my stove the oil flows into a shallow circular trench (fast or slow as may be desired), about five inches in diameter. In this trench stands a narrow asbestos wick, nearly four inches in diameter, to take up the oil. The opening on the top where any thing would stand to heat is nine inches in diameter. The flame can be made to blaze up very fiercely, and spread the full width of the opening on the top. Two of these burners, side by side, can be made to produce quite a heat. The top of the stove, in size and appearance, is just like any self-generating gasoline-stove on the market to-



day, and of equal capacity. I built the tank in the shape it is to fit the place I wanted it to stand in, and to economize room.

My stove is located further toward where the hot water enters the tank than is indicated in the cut, making less distance to flow before the heat is applied to the honey. The tank stands back close to the wall, so every thing had to be in front—honey-gate and all, so I raised the pipe to the level of A, Fig. 3, where it enters the tank, and thence down the three-cornered flue and well across to the opposite side before discharging the hot water.

A union at C, Fig. 1, and A, Fig. 3, enables me to remove the whole thing and use the tank as I would any ordinary tank if I wish. I use the stove about the honey-house or bee-yard for heating water or syrup, or for any other purpose for which an oil-stove can be used.

Lusardi, Cal., Jan. 10, 1906.

### STORING AND PREPARING HONEY FOR MARKET.

The Cheapest and Best Form to Have it.

BY G. BOHRER.

On carefully looking over my article and Mr. A. I. Root's criticism (page 813), I find that, aside from a little of my sarcasm about section honey, he has misapprehended what I was aiming at, which was, to set people to thinking about the cheapest and best form in which to have honey stored and prepared for market and for food. I know Mr. Root will not assume that honey can be produced in sections as cheaply as it can be produced in the extracted form; and, moreover, he will not, with his large amount of knowledge upon nearly all questions, hesitate to admit that beeswax is wholly indigestible, and that all we can say for it in the honey-comb is that it *looks* well when well filled with honey, but is of no value as food; and in many cases of stomach ailment it is a positive irritant. He does not question the correctness of my position as to the artificial-honey-comb falsehood having as one of its chief support the honey section. While extracted honey is often given the cold shoulder on account of being under the suspicion of being largely adulterated with glucose, in this particular both the section and extracted honey are very nearly on an equal footing. I have no idea of the people ever going back to the old glass-sided box for surplus honey, for it is no cheaper a method of producing honey, and has but one claim over the section—namely, in the box it was almost invariably sold by the pound or by actual weight, while the section is very largely sold by the piece, and is called a pound, but is not. This the people do not like, and in many cases do not buy honey on account of the cheat in paying pound prices for a part of a pound. Any measure that can be adopted to get honey into the hands of the consumer by actual weight instead of

an almost universal shortage under the name and price of full weight, will give the sale of honey a forward move.

Lyons, Kan.

### NOTES ON VARIOUS TOPICS.

Improving Comb Honey by Exposing it to Dry Hot Air.

BY GRANT STANLEY.

The editor invites the readers of this journal to a general discussion on the subject of exposing sections of honey to dry hot air after removing from the hives, page 1174. Now, if we would learn a lesson from the bees in this matter it would seem clear that we should by all means so arrange all section honey that a volume of dry hot air can constantly pass around them. We have been reading much about quality, and it is just this feature that secures it. Just how high a quality can be obtained I am unable to say; but it is the duty of all bee-keepers to place all the quality possible in their product. I believe the majority of bee-keepers will agree that, by exposing the sealed sections after removing them from the hives to a continuous supply of dry hot air, will greatly improve the quality, and consequently enhance the value of the product. Yes, Mr. Editor, if you want to improve the quality let the dry hot air pour over the sections, and, if necessary in order to keep out robbers, better place a self-closing apparatus on the door of the honey-house, which would insure its always being closed.

PACKING COLONIES FOR WINTER EASIER THAN CARRYING THEM INTO A CELLAR.

Don't you think that, as far north as 42, the difference in consumption of stores between cellar-wintered colonies and those wintered on summer stands would scarcely pay for the trouble of carrying them in and out of the cellar? The labor necessary to do this will prepare them for winter on summer stands, while those cellar-wintered must be furnished protection when brought out in spring. Another thing, in case the bees have unknowingly gathered an inferior quality of stores for winter from the late bloom, and an occasional day sufficiently warm for bees to fly, they have an opportunity for flight, while cellar-wintered colonies must remain inside, and quite likely become uneasy, owing to a rising temperature. I believe it is the practice of many bee-keepers wintering bees in cellars to allow a percentage of colonies to winter on summer stands; they also want little brood reared before the colonies are brought out of the cellar. I am of the opinion that, if bees are prepared for winter with plenty of good porous material (the more packing the better), the extra amount of stores consumed in wintering will more than balance in a lot of healthy young bees, and I have never failed to have the hives full in spring just when they were needed, page 1174.

Nisbet, Pa.

## HOW TO ADVERTISE AND SELL HONEY AT COUNTY FAIRS AND OTHER PUBLIC GATHERINGS.

Live-bee Demonstrations Inside of a Wire-cloth Cage.

BY E. R. ROOT.

In our issues for Sept. 15 and Oct. 15 I told something of our experience in selling honey and making live-bee demonstrations at the Medina Co. fair, and at the one in Akron, a city of about 60,000 inhabitants some twenty miles east of here. You will remember how at the Medina grounds, by

the crowds would pass by; and, presto! the sales jumped up more than double. Big crowds would surge around the cage in which was the apiarist, with bare hands, bare arms, and bare head, handling bees, scooping them up by the handfuls. When we once got the attention of the people it was easy to direct their attention to the glass observatory hives at our honey exhibit, where they could see the bees at close range. Once at the honey-stand it was not difficult to make sales of honey.

At the Akron fair we sold in three or four days nearly \$350 of honey in a territory where we had never sold honey before, and during these days we were constantly refut-



FIG. 1.—THE CAGE USED BY THE ROOT CO. FOR SHOWING THE HANDLING OF BEES AT COUNTY FAIRS AND ELSEWHERE.

reason of the live-bee demonstrations, we more than doubled the sales of any previous year without such demonstrations. The experiments proved to be so successful in the way of drawing a crowd that it was repeated at Akron. The first day or two our boys were compelled to put the cage with the live bees in the rear of the honey-sales stand, where very few people passed. In consequence of this, very few people saw the exhibit, and the sales were light. You may remember how we labored with an over-officious official until we succeeded in getting the cage out in front, and exhibiting where

ing the comb-honey lie as well as whetting the appetites of the people for good honey. Thousands and thousands of people saw the exhibit, and hundreds went away with a package of honey. The local grocers in Akron were compelled to put in a line of our honey because of the demand we had created. I have promised to give photos of the demonstrations given here and at Akron, and take pleasure in presenting them here.

Fig. 1 represents the cage elevated on a large table, just as it appeared on the day following the fair at Medina. It is  $5\frac{1}{2}$  feet high, 6 feet long, and 4 wide. These dimen-





FIG. 2.—THE WAY THE PEOPLE CROWDED AROUND THE DEMONSTRATING-CAGE AT THE MEDINA COUNTY FAIR.



FIG. 3.—THE ROOT CO.'S HONEY-SELLING WAGON AT THE MEDINA COUNTY FAIR.

sions were used in order to have the wire cloth cut to advantage. The cage was made collapsible by making each side and each end in the form of a big picture-frame with wire cloth tacked on. The top was a similar frame except that it was covered with plain white muslin to afford a shade. The several panels of the "picture-frames," if we may use the expression, were carried to the fair-ground in the flat. The table or platform was then prepared, when the four panels and the top were set in place, and secured by means of ordinary wood screws. Your humble servant stands by the side of the cage looking at the colony of bees which has been on exhibition during the two days of the fair preceding, while my son snaps the shutter of the camera.

I would call your attention to a little door on the side next to me, through which the apiarist can pass in and out. Loose straw was strewn on the floor of the cage to avoid crushing the bees when they dropped down.

Fig. 2 shows the same during one of the days of the fair, and represents the usual crowd that hovered around to see the wonderful stunts of handling live bees inside of a cage. There was generally a fair bunch of people present whenever the apiarist was inside.

Fig. 3 shows how we rigged up a light spring wagon, with a top and shelving for the sale of honey. For small fairs this does very well.

The three other views show the crowds

that hovered around our exhibit and bee-cage at the Akron fair.

Fig. 4 shows the stand at the moment when the crowds had stepped away just enough to allow the camera to get a general view of the exhibit as a whole.

Fig. 5 is the same exhibit just after the crowd was passing by before we could get the cage in front. But it by no means shows as large crowds after the cage was set out in front. Here the jam was so great that we often blocked the roadway.

Fig. 6 shows the same exhibit from the rear, with the demonstrating-cage as it was before it was moved forward; but, as previously explained, it was difficult to get the crowds back so the cage might be seen.

I am satisfied that this method of advertising and selling honey is one of the very best that has ever been proposed. While it is comparatively new in this country, it is one that has been used to a considerable extent in Europe; and I expect, during the late summer and early fall, to urge every subscriber, so far as possible, to make such a demonstration at his nearest county fair. I wish they would try it at least once. If they are then not able to sell a large part of their crop without sending it to a big city I shall be surprised. The operator in the cage should be the honey-producer himself. He should be prepared to tell the truth about honey, all about the queen, the bees, and the drones; something about bee diseases and the habits of the bees in gen-



FIG. 4.—THE ROOT CO.'S HONEY-SELLING STAND DURING A LULL IN TRADE.



eral. A little good talking and live-bee demonstration work will do a lot of permanent advert sing.

#### LIVE-BEE WORK IN A CHURCH OR PUBLIC HALL.

I have had an idea for some time that this same plan could be used in a lecture hall or church at night. At the request of the young people of our own church I tried the experiment by taking the cage shown in Fig. 1 and mounting it on the pulpit platform. The audience was first treated to the natural history of the bee, general facts about the honey business, and then was presented with a series of stereopticon slides followed by a moving-picture exhibition showing many of the familiar operations in a beeyard as they actually occur in every-day practice.

The evening's entertainment was then closed with an actual live-bee demonstration inside of the cage. A colony of bees right from their winter quarters outdoors had been put inside of the cage some hours before the evening's entertainment, to allow the cluster to warm up and expand over the combs. I felt some misgivings as to the success of the experiment, but nevertheless decided to take my chances, come what might. I took off my coat and vest, rolled up my sleeves, so the bees would not get up the sleeves, stepped into the cage, lighted my smoker, and opened up the hive just as I would do in the summer. Just how the

bees that had just come from a long sleep would behave, whether or not they would spot up every thing with their liquid faeces, was largely a matter of conjecture. However, I pulled out the combs, patted the bees on their backs, and, contrary to what you might expect, they were not affected by the artificial lights. Indeed, they behaved in every respect like bees that had been having flights every day in summer. There was no spot of any kind, and I had no difficulty whatever in shaking the bees into a big dishpan, and scooping them up by the handfuls before the audience. I then told them that any one could do that the same as I; and in proof of the assertion I asked a young man who had never had any experience with bees to step into the cage, with bare hands and arms, and do *exactly* as I told him. I cautioned him, of course, about making any quick motions, and explained how he must run his hand down gently under the mass of bees in the dishpan, which bees I had shaken up into a heap. He secured a good handful and held them up before the audience. I had previously picked out a man of good nerve who, I felt sure, would do as I told him, and he did. This stunt pleased the audience perhaps more than any work that I did. Then I told him how to disengage the bees from his hand by one quick shake. He stepped out, without having received a single sting, then I invited into the cage one of our regular apiarists, and we together



FIG. 5.—THE WAY THE PEOPLE CROWDED AROUND THE ROOT CO.'S HONEY-SELLING STAND AT THE AKRON FAIR.

did some more acts. But my companion did one thing before I could stop him, and which was not according to my program. He scooped up two handfuls of bees, then jarred them over the top of his head. He was literally covered. I was fearful of the consequences, as I thought he would be stung, and told him so, but he decided to take his medicine. He *was* stung, and so was I; but the audience did not know anything about it. For a few minutes we were busy scooping the bees off from each other, once in a while drawing a sting.

For inside demonstration work I would not advise shaking the bees into the hair; for if there is any thing that will invite stings it is wool or hair. However, we were not badly stung, and up to the time of this shaking of bees over the head not a sting had been received.

#### MAKING LIVE-BEE DEMONSTRATIONS IN A SHOW-WINDOW.

I have not tried it yet, but I expect to make a demonstration of this kind in one of the large show-windows in one of the principal stores in Cleveland. I shall have honey in its various forms; will take my place in the show-window inside of the cage, then go through with the principal operations of a bee-yard; then get my crowds to understand the value of honey as a food, and allow each one to sample, leaving the store people to make the sales. I am certain the plan will work.

I respectfully suggest that bee-keepers

try the experiment at their own local groceries. Take a hive of bees out of their winter quarters, preferably from outdoors; make your demonstrations; and if you do not make some good sales and do some permanent advertising I shall miss my guess.

#### A STONE BEE-CELLAR.

##### The Advantage of Having Two Rooms.

BY HARRY LATHROP.

We have built a new bee-cellar at the Bridgeport yard, and, of course, would like to talk with the bee-keepers about it, and have their opinions as to its probable wintering qualities.

I have said it is the best bee-cellar I ever saw; but then — perhaps I never saw many. However, I can say that, in my travels among bee-keepers, I never missed an opportunity to examine the wintering facilities of each, and through correspondence have investigated others as well as I could. As a result, some things have become clear to me — among them, the fact that artificial heat in or near the cellar has proved a help to perfect wintering. We have learned that it will not do to put the bees into a cold damp stuffy place where a human being would recoil at spending a single night. Bees want a comfortable place where the air is good, although they do not require to have the temperature as high as one of us would



FIG. 6.—CROWDS AROUND THE ROOT CO.'S DEMONSTRATING-CAGE AT THE AKRON FAIR,



want it. That is because the cluster has better means of preserving heat than has a single human body.

Fire in stoves or furnaces in rooms adjoining the bee-cellar seems in many instances to have had a good effect. Mr. Wm. Prisk, of Mineral Point, Wis., reports very successful wintering. His cellar is one of four rooms under his dwelling. It is the northeast room, and entirely under ground. One of the outer rooms is used as a shop, and has a stove in it to supply heat in winter. He winters without loss, and there are very few dead bees on the cellar floor at the close of winter. I do not think such results would have been possible without artificial heat in the adjoining room, which purified and dried the air. A man at Bloomington, Wis., not far from here, wintered 20 colonies perfectly last winter, shut in the hives with screen. They were placed in the cellar under his dwelling, in which there was a furnace for heating the upper rooms. I would not shut bees in the hives that way, but he reported very few dead bees in the hives.

In 1904 when our apiary here consisted of only 75 colonies I helped carry them down a steep hill and place them in the cellar un-

der the house. It was very hard work, and I promised myself it should never be repeated, but that a new cellar should be built before another winter, and built right in the yard among the hives. This was done, for we had to move several hives in order to dig the pit. I had the cellar all planned in my mind before a blow was struck; then the digging was done during the season when some one had to be in the apiary, so the expense of that part was small.

The room was designed to hold 100 to 150 colonies in eight-frame hives. It is located in the hillside, and we took out of the pit enough good limestone to build the walls, and had some left for wings to support the bank.

While we were digging there were some very heavy rains, but not a drop of water would stand in the pit — showing that the drainage through the limestone bottom is good, and, of course, there is no necessity of putting in any special drains.

If the bottom had been clay instead of limestone I think I should have made drains leading out from underneath the floor. In these I would have placed porous tile surrounded with broken stone.

The main room is 9×16 feet inside, and 7



HARRY LATHROP'S STONE BEE-CELLAR IN THE SIDE-HILL.

feet high in the clear, besides the space between the joists.

To protect the entrance there is an outer room 4×6 ft. Double doors open from the outside into the small room, and there is a single door between the two rooms. This outer room is built with thick walls well plastered, and is partly banked in. The main cellar is entirely in the ground, and the top is arranged to take one or two feet of dry packing. I expect to use forest leaves, but would use planer chips if they were handy. I think, though, that forest leaves make as good packing as any thing. Over all there is a good shingle roof with a box or wooden tube ventilator through the ceiling, reaching down to within two feet of the floor. All the joints of the upper part are laid in cement, and the place will be absolutely mouse-proof, as all bee-cellars should be.

The inner door that separates the two rooms has a small ventilator at the bottom and another at the top; an opening 3 by 12 inches.

My theory is that, by heating the outer room with a small stove, the hot air will be forced into the cellar at the top opening, and the cold heavy air drawn from the bottom, thus changing the air in the cellar, warming and drying it. There can be an intake for cold air to the outside from the small room if it is found necessary. I do not expect to use this heating arrangement if every thing goes well without it, but I would not build

a bee-cellar without having this provision for an occasional fire during the long cold spells of mid-winter.

This cellar cost about \$75.00; but such a repository, if it works right, will often pay for itself in a single winter. I now have 105 colonies to winter, with a good prospect for a white-clover year ahead, so it pays to have things about right. You will observe that I can go to this cellar at any time during the winter, and enter so quietly as not to disturb the bees in the least. The situation of the cellar is favorable; but if I were compelled to build where the ground is damp and flat I think I would build on top of the ground, either on the plan of that of Mr. Boardman, of Ohio (which I have examined and like), or by making thick dirt walls for protection.

My cellar, as described, is only a simple affair; but it has some good points, among which are the following: Natural stone floor with perfect drainage, heavy stone walls, mouse-proof joints throughout; warm substantial covering, entrance protected by an outer room in which there is an arrangement for artificial heat, if necessary, without disturbing the main cellar; entryway on a level with cellar floor.

Bridgeport, Wis., Oct. 23.

[In a later letter Mr. Lathrop reported that the bees in the cellar at that time (January) were very quiet, and seemed to be in first-class condition.—Ed.]



BEES LIVING ON COMBS BUILT IN THE OPEN AIR.



## BEES LIVING ON COMBS BUILT IN THE OPEN AIR.

BY DELE COLLINS.

A man living near here told me about some bees that had a nest in the open air, and I accordingly went out to see him. With a kindness characteristic of woodsmen he went with us to see the bee-tree. We drove half a mile through an old log road in the woods, when he suddenly pointed almost straight above his head and said, "There they are." And, sure enough, they were there, fully fifty feet above us, and out near the end of a long limb of a great hickory-tree. They had been there more than two months. I got out of the carriage, took off my coat and vest, and lighted my smoker.

After climbing up to the bees I whittled at the limb until it swung down beside the trunk of the tree. Then I trimmed out the small branches beyond where the bees were, cut off the limb close to the bees on the trunk side, and took it down. We got home all right, without one sting from the beginning of our operations to the end.

I sawed the limb the length of a brood-frame, notched the ends, and placed my bees in a Langstroth hive, where, with five well-filled frames from other colonies, I am hoping that they will stand the winter. There are four combs fastened to the limb, two

large ones in the center, and one small one on each side. Three show in the picture. Danville, Pa., Nov. 6.

## A BLIND BEE-KEEPER.

A Man who Hives Swarms Without the Use of His Eyes.

BY HENRY STEWART.

It may be of interest to the readers of GLEANINGS to know what a blind man can do with and for the bees. The accompanying photograph will introduce to you Mr. Steve Hill, of Hillsdale, Ill., a bee-keeper who is totally blind. In front of him will be seen a Daisy foundation-fastener, and he is in the act of fastening foundation in sections with it.

A few years ago Mr. Hill was known as a crack shot by those who handle a gun; and while hunting he was accidentally shot by a companion hunter, and thus deprived of his eyesight.

For several years he has kept a few colonies of bees. Originally he did everything, including securing and taking off the honey. I now look after the honey-producing, that is, the putting on and taking off of supers for him. He does the rest.

With saw and hammer he cuts up lumber and makes his own hives. The one under



A BLIND BEE-KEEPER USING A DAISY FOUNDATION-FASTENER.

his bench is one of them. The bench above is also his work. He hives his own swarms, places them on their stands, prepares them for winter, etc.

I have several yards of bees about Hillsdale, and the last two years he has been doing considerable shop work for me. The last season he prepared ready for the bees 5000 sections, putting a top and bottom starter in each of them, and arranged them in the supers ready for use. By the way, he has discovered a kink in this work that those with good eyes may well follow. You will notice a board projecting from the front of his chair. This is a foot-rest on which he places his foot and operates the spring of the Daisy with his knee, thus allowing him more free use of his hands for the other work. He has nailed up for me nearly 100 Langstroth hives, 500 shipping-cases, besides much other work.

As to the quantity and quality of his work, it will go without saying that a blind man can hardly be expected to excel in speed, but there are those who do less. He prepares ready for the bees from 50 to 60 sections an hour. As to quality, his work needs no inspection, and I never have work done better. He will saw a board straighter than the average man can see; and with a hammer there are very few nails that go amiss, and every thing is put together correct and square.

Some may wonder how it is possible for a blind man to hive bees; but it is a motto of Mr. Hill's that, where there is a will, there is also a way; and in his case, when he once sets out after it the way is usually found.

In front of his bees are some low bushes on which his swarms usually cluster. For his convenience he has prepared a light bench, having a chute in which the entrance of the hive just fits. He has always a hive ready; and when he detects the familiar hum of an issuing swarm he seeks the assistance of one who can see, usually his wife, who takes the empty hive while he carries the hiving-bench to a convenient position. The hive is placed in position on the bench, and he is directed to the position of the cluster. When found, his attendant seeks shelter while he does the rest. In this he is more than ordinarily successful, hardly ever losing a swarm or having me do his work the second time.

He owns a farm of 30 acres, and does most of the work of repairing and building fences, repairing buildings, hanging gates, doors, etc., himself. He saws and splits all his own wood, shaves himself and hones his own razor. While Mr. Hill is totally blind, it is difficult for passers-by who see him at work to believe that he can not see.

Prophetstown, Ill., Dec. 28.

[Any man who can overcome difficulties as he is doing, commands our sincerest admiration and respect. You tell him that the editors of GLEANINGS would like to give him a good hearty shake of the hand.—ED.]



#### WHY ALEXANDER DOES NOT SHADE HIS COLONIES.

In answer to Dr. Miller's third Straw, Jan. 15, I will say, no, doctor, we don't like any shade among our bees, and for these reasons: First, we find the colonies that stand in the shade do not commence work within an hour in the morning of as soon as the colony that gets the morning sun; neither do they work as late in the afternoon; and if the air is somewhat cool for bees to fly in the shade, as is frequently the case here during our buckwheat bloom, then we can see hundreds of them that have dropped on the grass in the shade around their hives that are heavily loaded with honey, and not able to rise and fly to the entrance. Many times a cold rain will catch thousands of them outside of their hives, where they will become chilled, and never fly again. This is the principal reason why we never get as much surplus from our colonies that are so handicapped as we do from the colonies out in the sun. We also lose a larger proportion of our young queens when they take their fly to mate, from hives which are under trees, than we do from those in the sun. Then another reason is, that invariably the colonies in the shade give us much thinner honey than the hives that have the sun all day. This, with us, is the principal reason why we dislike shade in the apiary; for we must have our honey just as thick as we can get it without putting our bees to the useless trouble and expense of capping it before it is extracted. I might give still more reasons for disliking a shade for bees, but I trust these will suffice.

Delanson, N. Y. E. W. ALEXANDER.

#### DOUBLE-WALLED HIVES BETTER FOR COMB-HONEY PRODUCTION IN THE NORTH.

Having just read the article by Mr. Simmins, pages 1238, 1239 respecting comb-building in single v. double walled hives, I herewith give you something of mine, as you in a footnote ask for the experiences of others along the same line. If you will turn to page 309 of the *American Bee Journal* you will find an article by me touching upon this same subject, though the matter of producing comb honey with and without separators was the more prominent thought. Please read the statement there made, and I think you will readily see why the double-walled hive is preferable for comb-honey production, especially in the North, where we are liable to have chilly nights even in June, when the work of comb-building is at its height. I have often secured a fair crop of honey in



what may be called a poor year, when my neighbors with more colonies have secured little or none at all in single-walled hives.

You will notice in that statement the *fact* of the bees often being clustered around the section case, inside of the space, surrounded by the outside case. Now, the bees are there for a purpose. It seems to me that it is not difficult to determine the reason if one will set himself to thinking a little.

WM. M. WHITNEY.

Lake Geneva, Wis., Dec. 4.

[Your experience is quite in line with ours. We shall be glad to have other reports, whether they agree with the position above stated or not. It is my opinion that the bee-keeper can well afford to pay for the protection around his supers. Winter cases will pay for themselves in the spring and fall and in many localities when producing comb honey. The thing that has an earning capacity the year round is usually a good investment. Now, if we are wrong in regard to the value of this protection, let us have facts to disprove it; but in any event let us not lose sight of the factor of locality.—ED.]

#### CAN BEES PASS THROUGH A LONG PASSAGE LEADING TO THE ENTRANCE OF AN OBSERVATORY HIVE?

Please tell me whether it would be feasible to use and locate a full-sized observatory bee-hive at a place in a building where the bees could enter only through a skylight and come down about 12 to 14 feet to where hive is standing. Could some sort of funnel or tube be used that distance to connect with hive, or would it be so much obstruction to the access to hive that they would do no good? I would set them in the middle of a room which has skylight immediately over the hive location, about 15 feet above the floor. There is a rotunda in the office building I occupy, and I have talked bees and sold my honey to so many of my friends in the building that they suggested I put such a hive out in the public rotunda, and I think it would pay me as an advertisement to help sell my honey. The office building has 100 rooms in it, occupied by high-grade people. N. M. JANES.

Paducah, Ky., Dec. 30.

[I never tried to make bees go through a long entrance such as you describe, and do not know of any one else who has; but I should doubt whether it could be made to work. Perhaps some of our readers, however, can tell if this plan has ever been tried, and, if so, whether the bees kept in that way ever worked to any extent. At two of our offices we have bees on shelves outside the window. Whenever we wish to show visitors our bees we raise the window, open the hive, and bring the combs inside where the visitors can see them. If any bees fly they will go to the light. It is a well-known fact that bees will not usually sting inside of a building; so that even the most timid can watch them on the comb, without fear of attack.—ED.]

#### LONG-TONGUED BEES AND SHORT-TUBED RED CLOVER.

We hear and read much about long-tongued bees and bees that can work on red clover. Now, for fear that some one will breed his bees with too much tongue, wouldn't it be a good idea, if, instead of breeding all tongue, we breed our clover so all the bees could work on it? It would be much better if the heads of clover could be grown smaller than to work too hard on the bee.

Now, who will be the first to put clover seed on the market that all honey-bees can work on? This is no joke, and I should be glad to hear from some one who is capable of writing on the subject. W. G. ROBERTS.

Panora, Iowa, Jan. 24.

[Several years ago, when this long-tongue discussion came up, there were several who proposed developing a short-tubed red clover, but nothing was ever done. That there are possibilities in this direction, as well as in that of lengthening bees' tongues, can scarcely be doubted, providing that time, money, and skill can be devoted to it.—ED.]

#### AN ADJUSTABLE STORM-DOOR.

I see on page 35 a storm-door over the entrances of bees wintered out of doors. I made some last fall for my bees for the first time, but not like those described. I took a board  $\frac{1}{2}$  inch thick, 10 inches wide, 14 long, and nailed  $1\frac{1}{2}$ -inch strips around it so as to give a good space outside the entrance. A screw in the upper left-hand corner fastened it to the winter case; and when there is a warm day, all I have to do is to turn it up, and the entrance is all clear. I am wintering 28 on their summer stands.

I have kept bees for twenty years.

Hamlet, N. Y., Jan. 8. J. RICHARD.

#### PORTLAND CEMENT AND OIL AS A PAINT FOR COVERS.

I saw in a newspaper that Portland cement and oil is an excellent paint for metal roofs. I had some leaky covers for hives that I wanted to make tight, so I thought I would experiment some. After fitting to the tops some cheap muslin I put on a coat of this paint, and nailed down the muslin with tacks, turning down the edge, and then applied two coats more over the muslin, and also a coat of white oil paint. It makes a light and durable cover.

Bellona, N. Y. W. W. HULL.

#### ARE STINGLESS BEES LIABLE TO BE A COMMERCIAL POSSIBILITY IN THIS COUNTRY?

I think the bee-keepers of the country should sound a note of warning against the general introduction of the stingless race of bees. I believe that the general introduction of such bees would demoralize or ruin the business of all bee-keepers who are in it to make all or a part of their living. I don't think the bee-keepers of this country want

the stingless bee at all, for they are not afraid of bee-stings, and wouldn't be in the business if they were fearing stings. If the stingless bees are brought to the notice of the public, every timid one who likes honey or thinks there is money in it would go into the business of bee-keeping in a small or extensive way without any previous knowledge of the same, and then where would we be? The general use of stingless bees might be a good thing for all timid persons, the manufacturers of bee-supplies, and those who like to rob bees while the owner is asleep, but not for scientific bee-keepers or for bee-keepers who wish to succeed.

Lemon Grove, Cal. F. P. WHITE.

[The conditions of climate in most places in the United States are such that it would not be possible for stingless bees to live for any length of time, at least not more than the summer season. We need have no fears that they will be introduced into any locality except the extreme Southern States; and even in these the climate will probably be too cold during the winter for them to propagate to any extent if at all. —ED.]

#### FEEDING FOR STIMULATING.

What kind of feeder should I use under the hives to stimulate early breeding? How should I place them under the hives?

I have extracted honey. How should I use it? Would it do to mix it with sugar and water?

Hoosick Falls, N. Y.

F. E. ROYS.

[The Boardman or Alexander feeder would answer your purpose excellently. The former is sold by nearly all supply-dealers. It is an entrance feeder in that two prongs are shoved in at the entrance, and the bees gain access to the food by passing out of the entrance into a wooden box through the top of which projects a can with a perforated top containing syrup.

Our usual rule is to mix sugar and water in equal proportions by weight or bulk. If you have some cheap honey you can feed this by diluting it by putting in about 25 per cent of water. But never feed honey without boiling it thoroughly. If foul brood exists in the vicinity, better boil the honey at least half an hour; let it stand for a day or two, and then boil again for half an hour. You can mix sugar syrup in honey if you choose. —ED.]

#### QUICKLIME AS AN ABSORBENT FOR KEEPING COLONIES DRY IN WINTER.

I should like to know whether any one has ever tried the following plan for keeping bees dry in winter: Place a tray filled with lumps of quicklime over the chaff cushions, or over pads of paper  $\frac{1}{2}$  to 1 inch thick where that is used instead of chaff cushions. This lime would take up the moisture, and also purify the air by taking up the carbon dioxide of the breath. This plan would allow the covers on the supers to be shut tight; in

fact, they should be kept perfectly tight to avoid the taking of moisture from the outside, thus making a dead-air space above the bees. Where paper is used I should not have it more than  $\frac{1}{4}$  to  $\frac{1}{2}$  inch in thickness, thus allowing the moisture to pass upward more readily.

I have never heard of this being used, but it can do no harm, and I should like others to try it with me this winter.

O. W. BRACKNEY.

Upland, Ind., Nov. 16.

[I would be a little slow about using quicklime as an absorbent in a bee-cellar. I am not enough of a chemist to give an intelligent opinion, and therefore would call on some of our readers to give us reliable information. —ED.]

#### FEEDING BACK UNFINISHED SECTIONS.

When bees are short of stores, why can not a frame be fixed up to hold four or more ordinary sections of honey, inserting this frame in the hive? Most bee keepers have some sections that are badly filled, or with mixed honey in them (that is, light and dark), or bulged, which they would just as soon the bees would clean out as not. What is your idea?

ALBERT ROBERSON.

Lake City, Minn.

[You can use the wide frame for holding sections. Indeed, such frames were sold years and years ago. Two such frames were put on each side of six frames of a ten-frame hive; but the plan that you contemplate would work very slowly—that is, it would take the bees a long time to empty the honey out of the sections if they would do it at all. The most satisfactory way is to set them outdoors and let the bees rob them out. But never do that in a yard that is close to the highway. —ED.]

#### SELLING HONEY; THE ADVANTAGE OF ADVERTISING WHEN A GOOD QUALITY OF HONEY IS PRODUCED.

My honey is nearly all sold to consumers direct, at 7 to 10 cts. for the white, and 6 to 9 for the dark. The latter was sold this year before it was off the hives. I extract only well-ripened honey, leaving it on the hives as long as possible. I never had one complaint, and my customers take it either way, candied or liquid. I never had a bit of trouble on that account. If the poor grades of honey were kept off the market, whether comb or extracted, there would not be enough good honey to equal the demand. Put only a good quality of honey on the market, and our product will not go begging. A lot of bee-keepers sell their crop for what they can get, while if they would work their home market their labors would be well rewarded.

I am sending you one of my circulars. You will find that I have taken some of the wording from labels contained in your label



catalog. It has helped me to sell nearly all my honey by sending it broadcast.

Augusta, Wis. E. H. HANSELMAN.

[The circular referred to is well gotten up, and not a cheap poorly written affair by any means. The arguments given, though brief, are interesting and convincing. A picture of an extractor is shown, with a few words explaining its use.

Surely, this method of advertising can be carried out by any man who has honey to sell; and if the honey is worth selling it is worth the time and trouble necessary to get a good price for it near home.—ED.]

#### ROACHES HARMLESS IN SOME LOCALITIES.

In reply to a question asked by Mary Wood, page 97, how to get rid of roaches, I will say that I live in the South, and that roaches are not so very plentiful about here; but I have had a good deal of acquaintance with them, and find them perfectly harmless, and, in fact, I like to have them about. They are a help to me in the apiary, and I don't see how I could get along without them.

MRS. J. M. ROACH.

Daisy, Ga., Jan. 26.

[So there are roaches and Roaches. Evidently the latter are not a rep-roach to the name.—ED.]

#### YELLOW SPIDER AN ENEMY OF BEES.

I mail you a spider, or at least I think it one, that is death to bees. It makes its home on what we call a wild sunflower, which is very yellow, and differing in size from one inch in diameter to three inches. We have thousands and thousands of acres of it here, and the bees work on it in August until frost kills it. The spider sits on the flower, and you can not see it unless it moves; and when a bee alights on the flower, and is in the act of bending its head in order to reach the nectar the insect grabs the bee behind the head, and it never moves nor struggles. It is just simply dead. I could not find any thing that looked like a web nor any trace of any thing of the kind. The insect is a very bright yellow.

MATT. S. SCHWER.

Peale, Pa., Nov. 10.

[We sent the spider to Dr. Phillips, at Washington, for examination. His reply is as follows:

Dear Mr. Root:—The spider referred to in the letter from Mr. M. S. Schwer is *Rimicina aleatoria*, Htz. I do not know to what extent this spider is to be considered as an enemy of the bee, but it is undoubtedly true that bees alighting on flowers are frequently killed by these and closely related spiders. These spiders do not spin a web; and their method of killing their prey, either bees or other insects, is as described by Mr. Schwer. Mr. Nathan Banks, of this Bureau, who has identified this specimen for me, says that they sometimes kill good-sized butterflies.

E. F. PHILLIPS,

Acting in Charge of Apiculture.

#### RAINS IN CALIFORNIA.

This part of California is now (Jan. 15) getting a good rain, and reports indicate that it is general over at least the western (coast) counties. At this date last season we had 16 inches. So far this season the downpour has been but 5 inches. There is plenty of time yet for rain, and a good honey season; but so far it has been colder than usual, and vegetation has been kept back.

TRANSIENT.

Watsonville, Cal.

#### FEEDING BEES BY SPRAYING LEAVES.

In a recent issue of GLEANINGS I see the suggestion made by a western brother, that we might feed bees by spraying the green leaves of trees or bushes with the food. I have successfully fed my bees by that means during the past fall.

I was at first very much interested and amused with the antics of the bees. They were not accustomed to finding food on green leaves; and wherever I placed colored leaves, bits of paper, or holly-berries they would alight in numbers. The yellow-jackets and hornets, however, were first to find the food on the green leaves, and after a time the bees lost no time in going directly to the sprayed leaves for their food. They found it, and took it better when a little honey was mixed with the sugar syrup. When the air was dry the liquid quickly evaporated, and became a mere varnish on the leaves; but this difficulty was overcome by respraying with tepid water. It was the most successful and satisfactory method of feeding I tried.

H. A. SURFACE.

State College, Pa.

[I believe your plan of outdoor feeding is all right. It will eliminate entirely the objection on the part of the bees struggling against each other and wearing themselves out. Indeed, it would approach more nearly the condition of a natural honey-flow than any other plan so far advocated. The only objection is that I should be afraid that some of the syrup would drop on the ground and be wasted. Sugar is rather expensive to throw away. With a heavily leafed tree and a spray not too large, this difficulty would not be very important. A spray-pump with a long piece of quarter-inch gas-pipe that would direct the spray clear up to the top of the tree, where it could fall down from leaf to leaf, would be the thing to use.

It just occurs to me that some one else has described something similar. Indeed, I recall that one correspondent spoke of spraying grass. But this surely would result in quite a large waste, as the thin syrup would soon find its way to the ground, and be absorbed. I should like to get reports from those who may have tried the same plan.—ED.]

#### BEES NOTICING COLOR; SMOKER FUEL.

That bees have a preference for colors I believe will be accepted by most bee-keepers. This fact has been brought out by various experiments conducted by Sir John Lub-

bock. The writer, while wearing a dark shirt with white oversleeves, had occasion to examine a colony of bees the past season; and while the arms were in continual motion no attention was paid to them; but the bees seemed to have an extreme hatred for any exposed spots of the dark shirt. I went through the colony a few days later with light-colored clothing without any trouble whatever. From this and similar experiences I have decided to wear white coat and pants while manipulating colonies in the future.

For the average bee-keeper I doubt if there is a smoker fuel that will supersede corncobs in any way. They are something that can be found around almost every home; and, when cut in two-inch lengths, and placed on live coals, will produce a volume of cool smoke and not go out. I have had a smoker full of this fuel run for six hours, and then go out only after every vestige of fuel has been consumed.

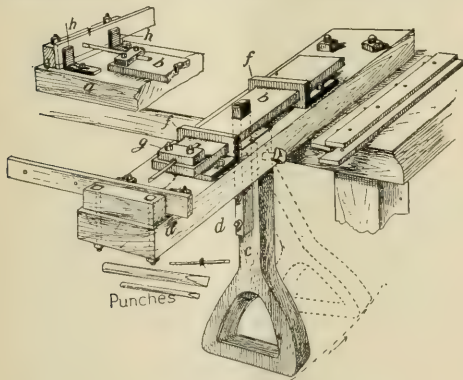
Nisbet, Penn.

GRANT STANLEY.

[I think it can scarcely be doubted that bees recognize color a great deal more than we suppose. There have been quite a number of reports showing that black is distasteful while white is not objectionable. The fact that nature variegates the entire floral kingdom with bright colors goes to show that it is done for a purpose—to attract bees. Corncobs make a very excellent fuel; but one will ordinarily have to ignite them by means of live coals or a little coal oil or some more ignitable fuel.—ED.]

#### A MACHINE FOR PUNCHING HOLES IN THE END-BARS OF FRAMES.

Here is a drawing of a machine—a frame-perforator. When the ordinary bee-keeper takes a first look at it he will be pretty sure to decide he can not make that—it is too complicated. The reason it appears compli-



cated is because he looks at the whole machine instead of each small piece by itself. I have had this machine several years, and it has given me a great deal of satisfaction—a satisfaction that can not be figured in dollars and cents. But if there were 800 frames to be drilled for foundation wires I

believe this machine could be constructed, and the frames punched, in less time than the work could be done by hand. The construction will be sufficiently clear from the illustration.

The punch should be shaped like a chisel edge, and inserted in the machine in such a way that it cuts squarely across the grain of the wood. For material in making this I cut up a sacking or broom needle, and file or grind it to the proper shape. It should be about  $\frac{3}{8}$  or  $\frac{1}{2}$  inch in diameter, and 2 inches in length. Most of these pieces of metal, if they can not be procured from the scrap-heap or old worn-out machinery to be found on nearly every farm, can be found in the odds and ends at almost any blacksmith shop. The drilling can be done by hand or by the blacksmith.

Chatsworth, Cal.

C. W. DAYTON.

[Where a tool is forced without any twisting or twirling motion right through the wood the hole might be somewhat ragged, but perhaps that will do no harm.—ED.]

#### TO WHAT EXTENT DO BEES HEAR?

In *Stray Straws*, page 1291, Dr. C. C. Miller makes this statement in reply to W. M. Whitney: "As I think you are a bee-keeper rather than a naturalist, friend Whitney, I venture the remark that it is not a question as to whether bees hear; it is pretty certain that they do hear, and that they hear sounds inaudible to the human ear; but the question is, whether those sounds have the slightest effect in making swarming bees cluster."

Will our experienced bee-keeper please state some facts from his experiences that lead him to think that bees hear, especially that they "hear sounds inaudible to the human ear"? Also will he kindly state the positive point of view—what does make a swarm of bees cluster? Is the queen the first to start the cluster? If not, where does she come in, and why?

Stamford, Ct.

EDWARD F. BIGELOW.

[Dr. Miller generally says, "I don't know" when asked to make a positive statement; but I am of the opinion it will be a little difficult for him to furnish the absolute proof that Prof. Bigelow calls for. Well, doctor, get up on the witness-stand and take your cross-questioning.—ED.]

#### MOLD AND MOISTURE ON COMBS OF COLONIES WINTERED IN A CELLAR.

I should like a little information regarding wintering. I put my bees in a dry cellar, but the combs will sometimes gather a green mold; moisture will form on them sometimes in drops, and the honey seems to sour. The bees in such hives will often die; but if the outside combs only are affected they come through all right, and these combs dry over or are cleaned up by the bees when set out. I have just looked over my bees in the cellar, and it is appearing again—in some quite badly. I thought it lack of ventilation, and



have left the covering off two inches from ends of frames, and raised the hives a little off the bottom-board in front. Is there any other remedy you can suggest?

Franklinville, N. Y. W. A. HILL.

[The mold described is like what many have observed on the combs of bees wintered both in and out of doors, except that what I have seen is of a bluish rather than of a greenish tint. It is generally believed that this does no harm, so I think you may look elsewhere for the cause of your bees dying. I would give plenty of ventilation in any case, and should naturally suppose that the mold was due to too much dampness rather than to a lack of ventilation. The mold is only an incident or a consequence of the dampness, and not the source of the trouble, I should say.—ED.]

#### GREAT SUPERIORITY OF ITALIANS OVER BLACKS.

This has been the worst year for bees that we have ever had. Nearly all the black bees will die this winter; but the Italians will be all right, as they made honey from red clover, white clover, and Spanish needle. Last fall I sent to Ohio and got four red-clover queens. I did not get them until Oct. 18. I introduced them to black colonies, and they are all right. One queen laid after I got them, and hatched some fine bees. What I want to ask is this: I have nine colonies of black bees. How can I keep them from mixing? Can I put queen or drone traps on all of the black colonies, and keep the drones from flying until I can requeen with Italian queens? Can I raise queens early enough in spring to requeen these hives in time for white clover, or would it be best to send and get tested queens?

Moran, Kan., Jan. 8. J. N. THOMPSON.

[Yes, you can put drone-guards or Alley traps over the entrances of all hives containing black bees; but I would advise killing the black queens first and introducing Italians. If this is done early enough in the spring you will not be troubled with drones, and there will be no need of your using the perforated metal.

You would not be able to raise queens early enough in the spring to requeen. These you would have to get of some queen-breeder in the South. If you buy of some established queen-breeder who has reared nothing but Italians for many years, there would be no very great advantage in buying tested, for the reason that practically few of the untested will prove to be impurely mated.—ED.]

#### DEAD BEES IN NOVEMBER.

Is it something natural to see dead bees lying on the bottom and in front of the hive in November? C. & E. TRACHSEL.

Helena, Mo., Dec. 4.

[I should say it is quite a normal condition to find dead bees on the bottom-board of a

hive and in front of the same early in November. The bees that have stood the brunt of the toil on a late fall flow or clover flow in July would begin to be giving out. We must remember that there is a constant depletion of old bees, and there should be a constant renewal of young bees so that the colony may retain its normal strength. You will notice that, immediately following a heavy honey-flow, the queen will stop laying to some extent, and for a while there will be a limited amount of brood hatching. You will note that, even during the summer, the colony as a consequence loses strength.—ED.]

#### WHAT RENT SHOULD BE PAID FOR UNUSED LAND?

What should I pay for the privilege of setting some of my bees on another man's land through the summer? I tend them myself, and the land they occupy is not in use. The bees would not inconvenience him in any way. WM. SENFF.

Bremen, Ind., Dec. 22.

[We pay at our yards at the rate of 10 cents per colony, with a minimum of \$5.00. Some pay as high as \$5.00 without reference to the size of the apiary.—ED.]

#### NUMBER OF COLONIES NEEDED TO POLLENIZE AN ORCHARD OF TEN ACRES.

The Central New York Farmers' Club is to take up the question, "How many colonies of bees does it require to pollinize an orchard of ten acres?" I have never seen anything in regard to this in any of the books on apiculture or in the bee journals. I shall esteem it a great favor if you will give me your opinion. B. W. WOOD.

Deerfield, N. Y., Jan. 8.

[This is a hard question to answer, as there are no data on which to base an estimate. Ten colonies might do the work, but probably fifty or a hundred would be much better.—ED.]

#### BEEWAY OVER THE FRAMES IN WINTER.

As I am much interested in your paper, I should like to ask you a question. Is it necessary to have a beeway between cushion and frames for winter?

Helena, Mo.

E. TRACHSEL.

[Yes, by all means there should be a pasageway over the tops of the frames.—ED.]

#### A CORRECTION.

I notice a typographical error in my description of a Cuban honey-house, page 93. The bee-escape strips and openings should be  $\frac{1}{8}$  instead of  $\frac{3}{16}$ . Some fellow might pitch into me about a  $\frac{3}{16}$  beeway.

C. F. HOCHSTEIN.

Punta Brava, Cuba.

## COMPARATIVE VALUE OF WAX AND HONEY.

On page 1177 you speak of the comparative value of wax and honey. As I am situated I want to produce the maximum of wax and the minimum of honey, and I shall be greatly obliged for any information as to your methods of producing wax or the best known method of producing the most wax possible.

Cibola, Ariz., Dec. 14. R. M. SWAIN.

[You will find an article on this subject by W. K. Morrison, on page 336 for April 15th, 1903, that covers the ground very exhaustively.—Ed.]



## CONTINUED FROM LAST ISSUE.

During the work Mr. Shumard said somebody told him, years ago, that taking measurement *on a stick* was much safer and quicker than using a square or rule, and that the idea had been worth a great deal to him in carpenter work. When I began to laugh he said:

"Why, sure enough, that was something you wrote in GLEANINGS years ago, was it not?"

The work of the past two weeks has brought to mind my father's teachings, of more than fifty years ago, so vividly it has almost seemed some days as if I could hear his voice. When I was only about sixteen I did most of the work on the frame house that replaced the log one in which I was born. Of course, I worked slowly, and I now realize that father was more anxious to have me learn correct principles in the carpenter's and joiner's business than to get along fast. He gave me the reasons for going slowly, and explained how time is lost in not cutting *exactly* to a mark made with a "sharp knife," having the work square and every thing level, having the tools always in the best of order, etc.

The Phantom was delayed by bad weather, and all hands were waiting anxiously for "our ship to come in," for almost a week. Every morning I would say:

"Now, friends, are you sure all your tools are in tiptop order? Have you good sharp cut-off and rip saws? Are the hatchets, chisels, etc., all sharp? Have we plenty of good hammers? Are there any tools loose on the handle?"

As the boat didn't come I went over the tools again next day, and every time I found something that could be bettered. Some tools had been borrowed and not returned. Hammer-handles broke, and no timber was ready to make another one quickly. When I offered to pay for time of getting tools in

readiness, I was kindly reminded of my old father again. He used to say, "A carpenter who comes on a new job and begins to grind up his tools on his employer's time is usually 'docked,' as he certainly ought to be."

By all means go and pick out your lumber. Get exactly what you want, even if you pay extra for it, and see that culls are not sprinkled in, when you pay for No. 1. This will take time, but it is time well invested.

Be sure your *foundation* is good as well as your roof. Doors that stick are apt to be wrenched out of shape or pulled to pieces; and sticky doors are the result of a building that settles out of shape. Of course, a carpenter can plane them off; but it is so often neglected that "prevention is much better than cure." Be sure every thing is thoroughly nailed. A few more nails will often enable a building to resist a severe wind-storm.

Furniture is very expensive down here because of freights from the distant factories in the North, and the danger of damage in transit. The \$150 mentioned included over a day's work in making "home-made" furniture. I bought at the near-by store four drygoods-boxes at five cents each. The store-keeper wanted them out of the way. One of them made a "kitchen table" in this way: The top was removed, the box turned on its side, and some legs nailed on so as to raise the table to the proper height. Then the boards taken from the top were put in half way down, on cleats so as to make a shelf, and there you have a very handy table with top, and *two* shelves underneath, and a place under all to put things out of the way. The rough boards can be covered with newspapers, to be replaced when soiled.

Another box, with shelf in as above, makes a handy safe in the back shed. Things can be set in while standing in the back door, for it is so high up, fastened against the wall, that one can walk under it. It is also too high for cats and dogs to be likely to trouble it if the wood-shed door is left open. Our dining-table top is made of bits of flooring that was left, with legs of inch lumber, tapered, and two pieces nailed together eave-trough fashion. The stand on which I am writing these notes was made this afternoon of bits of board and the drygoods-boxes. I think it quite pretty, and it cost even less than you could buy it of Montgomery Ward, and no freight to pay. Eave-spouting here costs 10 cts. per foot, and the salt spray rusts it so quickly that almost everybody uses wooden ones made of strips put together with paint. Ours are nicely put up, and ready for rain.

## HEALTH HINTS—EXTREME SIMPLICITY IN DIET.

During all the fall months, and until I came to Florida, I kept up my fashion of eating apples regularly about 7 P. M. As my system became accustomed to this regular evening fruit meal I felt lost without it; and after the few apples were gone that we brought here with us I began to use oranges instead; and now after using them right along for nearly



two months I not only find them conducive to excellent health, but I think I never enjoyed any fruit more than I do my oranges and grape fruit every evening. We get oranges here, with some little blemish on them, for from 50 to 75 cts. per hundred, and these are just as good for present use as those packed and shipped. You know how much I have said about a simple breakfast costing only a few cents, saving the good wife a lot of work, etc.; well, T. B. Terry, in the *Practical Farmer*, has lately got on to the same line with a vengeance. I clip the following from the issue of Jan. 6. The stars indicate where I have skipped, and I have changed one sentence to italics.

The experiences of those who were living on raw food were so decidedly in favor of that plan that I felt there must be something in it more than a mere fad. \* \* \* and good health is far from being a general condition now. Look at the vast number of doctors and drug-stores. \* It is an interesting study to try to find to what extent the eating of cooked food, and the hundreds of mixtures that have resulted, has caused the ill health of the people and brought death practically always before it resulted naturally from old age. \* \* \*

The change was made very gradually and carefully. It took much less time to get used to the change in my own case than I at first expected. Now I will tell you just what I do eat. For breakfast, after about one and one-half hours of light exercise, two ounces of rolled wheat, dry and uncooked, with butter and olive oil, and then what raw fruit I care for. We eat only twice a day. For supper I have about two ounces of raw nut meats, and raw fruit. For a month at a time I have eaten nothing else whatever. At other times I have taken a little plain cooked food, so my stomach would remain somewhat used to it, as I must be away from home occasionally. But practically I have lived on the raw foods named. \* \* \* I never got more enjoyment out of eating. I have never once been hungry between meals. But remember there is long chewing, and I eat all the fruit I like. It seems as if I never had such perfect health before, and I have waited to report until the newness has long since passed away. The cost of rolled wheat is one cent a day. I use Pettijohn's breakfast food, which is nice and clean. The nuts cost, at wholesale, about four cents a day. We have various kinds, but I do not seem to care for any change. Walnuts have been eaten mainly, because I like them, and they are easy to crack and pick out. I eat apples freely in the winter season, with dried fruits, bananas, etc., mixed in. We have had, of course, strawberries, raspberries, blackberries, peaches, pears, melons, grapes, etc., in their season, with dried fruits always on hand to fall back on, or eat with the fresh. The dried fruit is soaked, not cooked. I never eat a meal at home without fruit. Sometimes I get tired of one kind of fruit, showing that my system has enough of that particular acid. Then I let it rest. We have a variety always. The rolled wheat tastes delicious to me. As a rule I take a little choice butter on a spoon and then fill the spoon with dry wheat and put in my mouth, and chew a long time. I prefer it to the best bread. A tablespoonful of olive oil is eaten for breakfast, with a little lemon juice mixed in it, along with the wheat. \* \* \* All the trouble I have had with the system so far is that it makes one an odd sheep. After they get used to the change, both stomach and bowel digestion become practically perfect, with no possibility of any constipation. I tell you it is a great big matter to have perfect digestion and assimilation. \* \* \* Notice the extremely small amount of food eaten, deducting the water in fruit, always less than a pound a day, actually. And still I have held my own quite steadily in weight; fully plump enough; no surplus fat anywhere; 5 ft. 10, and weigh 176; perfectly nourished, beyond question. I used to eat three times the substance and do no more work. \* \* \* I tell you it was fine during the hot weather to put some wheat or nuts and fruit on the table and have the meal ready. It is a wonderful saving in work.

\*Some might criticise the simple ways of living here in Florida; but our neighbors, the Shumards, have raised a family of eight children, and haven't employed a doctor in eight years. Some people would think a doctor is needed about every eight days with such a family.—A. I. R.

Terry says when he is obliged to be away at hotels he always feels glad to get back to his simple home life; and Mrs. Root and I, after paying \$14.00 a week at a hotel, were happy to get back to our home fashion, with just a few simple things that cost little money and little work, but were just exactly what we wanted, and *nothing else*. Of course, we are not yet ready to go with Terry and dispense with cooking entirely. Mrs. Root is anxious to know if Mrs. Terry also lives on uncooked "grains, fruits, and nuts."



Is not this the carpenter?—MARK 6:3.

#### THE BEE-KEEPER'S WORKSHOP.

The average honey-producer must have a workshop of some kind; and in California, and sometimes in Florida, I have found just a workbench in the open air; but here, where rains are frequent at almost every season of the year, at least a roof overhead of some kind is needed. I have told you that ours was only 10 feet square, and open under the eaves, on the west, and also on the south. I soon found, however, this did not suit my notions. A big rain storm not only wet my stuff, but the spray blew over on my bright new saws hung up on the north wall. Another thing, neighbor Shumard's 150 Buff Leghorns decided my neat little shop was just the place for nests; they tipped over and mixed my cans of small nails, came near tipping over my high-priced paint, and I finally decided both weather and chickens must be fenced out. I thought of cloth and building paper, but they are likely to get "punctured," and look untidy any way, so I bought some more planed lumber (dressed on both sides and edges) at \$24.00 per 1000, and did it up right. I have visited beekeepers' shops and extracting-rooms all over the United States, and, while I have seen a few very pleasant and tidy ones, I have seen more that—seemed to require an apology from the owner.

If you want a nice pleasant shop, where you will always like to go in bad weather, I would not think of having honey, wax, and the extractor in the same room. Have a honey-house somewhere else, or divided off from the shop. There are many obvious reasons. One is that we want both *light* and *outdoor air* when we are at work. Whenever the weather will possibly admit, "outdoors" is the place to work. With this in view, our workbench is 16 feet long, so that 8 feet of it is always outdoors, and on this outdoor part most of my work is

done. A door that extends to the roof comes down on top of the bench; and when this is swung up out of the way the whole top of the bench is clear. Another door from the ground up is right beside the bench. A third door or, rather, shutter, that extends from the top of the bench up under the eaves can be dropped down so as to get daylight and air from the west. This shutter is 10 feet long horizontally, and  $3\frac{1}{2}$  feet wide. With these three doors our workbench is all outdoors when the weather will permit; but in a twinkling we can have every thing safely housed at night or when a storm comes up.

In order to have all tools and materials nicely put away I copied Mrs. Root's cupboards made of drygoods-boxes. These are nailed against the wall and in corners, at a convenient height. In this way all my materials for nucleus hives are neatly stacked up, convenient to hand, without the necessity of stooping over to pick up the different parts. Our friends who are over 60 will appreciate this idea, even if the younger ones do not. Elderly people ought to learn the importance of having every tool *constantly in place*. Suppose you were holding something in a cramped place until it could be nailed fast, and all at once the hammer disappears. You twist your neck, and kick around in the rubbish, "Where in the world can that hammer have gone to?" Well, Mrs. Root fixed two nails so the hammer would just hang between them, right by the door that leads from shop to kitchen, and we both agreed the hammer should be hung up in place when not actually in use; and I have found by experience it is cheaper to take a step or two to put it *in place* than to be annoyed by "hunting for the hammer." Just so with hatchet, saws, and a lot of other tools.

#### A GOOD PLACE TO NAIL UP WORK.

An ideal workbench would be one with a planed cast iron top. In the factory at home we have planed iron slabs that can be carried about, on which small work is to be placed when nailed. I have seen a bench-top made of  $3 \times 4$  maple studding, bolted together so as to make a four-inch plank. A two-inch hardwood plank, bolted or railed so it can not warp, makes a fair bench-top. Do the best you can to get something solid, but don't think of trying to drive nails on a springy inch board, with every thing rattling and bouncing up and down at every blow of the hammer. One of the nicest nailing-places is a slice of a log so as to make a block 2 or  $2\frac{1}{2}$  feet high. If you have never tried such a block, just see how nice it is for nailing, or for using an ax or hatchet.

Have a good assortment of all sizes and all kinds of nails. Keep each kind in a tin can and don't have them mixed all sizes. You'd better throw away mixed nails and buy new ones if your time is worth any thing.

You may have the nicest lumber, the best cutting tools, and do a first class job, and then spoil it all by bad nailing, because you have not the proper nails or a good solid

place to rest your work. When my work finishes up complete just as I had planned it (or better still), I feel like singing Gospel Hymns; but when the boards split, the nails double up and go the wrong way, and I get my fingers pounded in trying in vain to remedy matters, I don't think (or feel like) Hymns at all.

Learn to cut boards square as machinery does it; and if your stuff is small, say boards six inches or less wide, use a well-made miter-box. It saves time, for you do not need a square or try-square, and every cut is exactly right. Another thing, if you use a miter-box, all odds and ends of lumber, all remnants, can be classified and stored overhead, or under the workbench; and when such a piece is needed, it is thoroughly seasoned. The pieces left in building our cottage, when assorted and put away, have helped us to make a lot of "household conveniences." As an illustration:

My correspondence was getting all in a heap; letters answered and unanswered were all mixed up. I told Mrs. Root I must have some sort of desk or secretary. She said I could make something that would do for the short time we had to stay, etc. Well, I put up a wide shelf in one corner of our best room. On this shelf I placed some empty "twin mating-boxes" (see p. 18, Jan. 1), laid down on their sides, and I have the nicest kind of pigeonholes for letters, etc. By leaving off the bottoms you have a very neat and convenient "sectional book-case" on a small scale. Each little hive has two compartments for letters, and the feeder-slots make two more. For instance, put your answered letters in the left-hand lower shelf; right-hand, unanswered; postal cards in lower feeding-slot; stamped envelopes in the left-hand upper shelf; postal cards, right-hand; stamps, upper slot; mail ready for office, on top. Eight places in each box. Another box will hold all your stationery in an orderly manner. If your shop has a stove it will be a nice quiet place to attend to your correspondence.

Last, but not least, if you are as old as I am you will need a comfortable seat of just the right height for your nailing-block; and when you are tired of sitting down, stand up and work at the workbench.

Now, friends, I hope you may find as much happiness and real enjoyment in *your* workshop as I have found in mine; and I am sure it will save you money that might otherwise go to a carpenter or to buy expensive furniture. May God bless these suggestions in regard to a humbler adjunct to "Our Homes;" and while you are learning (even in your old age) to be an expert carpenter, keep in mind it was the occupation our Lord and Savior followed in his early manhood, while here in this world of ours.

"Tin cans are very good nail-boxes, but small shallow tin pans are better because they can be nested and occupy less space, using a very small size for the smallest nails, and larger pans for the large sizes. Two if not three sizes of hammers are needed, according to the sizes of the nails to do the best work."



### Regarding Our Advertisers.

¶ The St. Louis Seed Co., St. Louis, Mo., claim to have originated a tomato seed from which the largest tomatoes known are grown. This company will send a sample packet of seed and their illustrated catalog free to our readers. This offer is made in their "ad't" on p. 247.

The Wood Co., Medina, Ohio, whose advertisement appears on page 247, are starting a mail order department for their seed trade. They carry all the leading varieties of clover and timothy seed, and will gladly send samples and prices upon application. The editors of GLEANINGS do not hesitate to recommend this company as a reliable firm.

The Bee and Honey Co., Beeville, Texas, wish to announce to their friends that they have purchased the Atchley steam bee-hive factory, and have moved the same on the railroad track in that city, and it will be their aim to give the bee-keepers an up-to-date bee-supply house, with better accommodations than ever before.

Any one who is planning to plant a garden this season should begin to select the varieties of vegetables and flowers he will use. The Storrs & Harrison Company's catalog will be found a very helpful guide in making such selections. This company is located at Painesville, Ohio, and will send their catalog free upon request.

The 74 page catalog which is sent free to applicants by the American Incubator Co., Freeport, Ill., is as complete and instructive an incubator and general poultry book as we have seen. The illustrations of the twenty-six varieties of poultry which this company handle are exceedingly good. Their Incubator advertisement appears on page 248.

¶ Burpee's Farm Annual for 1909 has just reached us. We do not believe that we have ever seen a finer example of color work in connection with seed advertising than is shown in this catalog. There are more than 150 pages filled with illustrations, descriptions, and matters of interest to people who have gardens for pleasure or profit. See the Burpee ad. on page 248. They will send their Annual free.

The Cyphers Incubator Co., of Buffalo, N. Y., claim eighteen distinct points of improvement in the 1906 model of their incubator. So many improvements in an incubator, already considered almost perfect, must be one which will give exceedingly good results. In the Cyphers advertisement on page 241, they offer to send their catalog of 228 pages entitled "Poultry Raising Made Easy and Profitable," without charge.

The Hart Pioneer Nursery Co., Fort Scott, Kansas, whose ad't appears on page 248, is one of the oldest nursery companies in the United States. At their modern nursery and packing grounds they have installed every convenience which will facilitate prompt and careful shipping. If you are in need of any thing in this line, either wholesale or retail, send for the Hart catalog and get them to quote you on your wants. This company has a very high commercial rating, and guarantees absolutely square business dealings.

Mr. G. M. Clark, president of the Cutaway Harrow Company, Higganum, Conn., is an authority on grass culture. We have received a booklet on this subject which is a copy of an address made by Mr. Clark. It is very interesting and instructive to any one interested in the subject of raising grass for profit. Mr. Clark says that intense cultivation is the main spoke in this work. Send for a catalog which is prepared for distribution, and ask for a copy of Mr. Clark's lecture. You will be well paid by doing so.

Mr. Lawrence J. Farmer, the strawberry man of Pulaski, N. Y., says that he began fruit-growing and gardening when he was thirteen years old. Surely a man who has been selling strawberry-plants for as long a time as Mr. Farmer must give an exceptionally good quality of plants, and have square business methods if he has retained the confidence and custom of his patrons as has Mr. Farmer. Mr. Farmer's advertisement appears on page 247. If you are thinking of planting strawberries this year you will act wisely in writing to him for information.

# Try It at My Expense

----not Yours

IF YOU are not a reader of MUNSEY'S MAGAZINE I want you to become one. I want you to know what it is like, and *to know at my expense*, if the magazine does not suit you. If it does suit you, and the price is right, you will naturally wish to pay for it. There isn't much in the theory of getting something for nothing. MUNSEY'S Magazine is worth your knowing. It was MUNSEY'S Magazine that led off a dozen years ago in the low price for magazines—ten cents a copy and one dollar by the year. It was the fight we had with a giant News Company monopoly that made MUNSEY'S Magazine possible, and that blazed the way for all other publishers whose magazines are issued at the price of MUNSEY'S. But this is too big and too graphic a story to be told in this advertisement.



# MUNSEY'S MAGAZINE!

has the biggest circulation of any standard magazine in the world—much the biggest. And it has made it and held it solely on its merits. In a dozen years we have not spent a dozen cents in advertising. We have no agents in the field—not an agent anywhere—we have given no premiums, have clubbed with no other publications, and have offered no inducements of any kind whatsoever. We have made a magazine for the people, giving them what they want, and giving it to them at a right price—that's all. And the people have bought it because they like it and because they could buy it at a right price. Our object in advertising now is to reach a few hundred thousand new readers—people who are not now taking MUNSEY'S MAGAZINE.

## **A Ten Thousand Dollar Magazine For Ten Cents**

Though there are a good many three dollar and four dollar magazines in America, there is none better than MUNSEY'S, whatever the price—not one. There is no higher grade magazine, there is none better printed or printed on better paper, and there is none better or more carefully edited—none better written, and few, if any, so interesting. It costs in round numbers about *ten thousand dollars a number* to go to press on MUNSEY'S MAGAZINE. That is to say, if only one copy were printed it would cost ten thousand dollars, but spreading this cost over our entire edition of *750,000 copies*, the amount gets down very thin on each individual copy.

When I first made this price, a dozen years ago, everybody said it was impossible—said we couldn't live—said we were bound to fail. We did live, however, and today are publishing *a thousand tons* of magazines a month, which is fifty car loads. This is more than three times as many magazines as were issued by all the publishers combined of the entire country when I came into the business.

It is because I am so sure of the merits of MUNSEY'S MAGAZINE, and so sure it will please you, that I am now offering to send it to you without any money in advance, and without any money at all if it does not please you. I can afford to take this chance, which, as I see it, is a very small chance, because I believe thoroughly in the rugged honesty of the people. The percentage of dishonesty among the citizens of America is far too small for consideration in a business proposition of this kind.

There is no trick in this offer—no hidden scheme of any kind whatever. It is a simple, straightforward, business proposition which will cost you nothing unless you wish it to.

## **The All-story Magazine also Free**

I will not only send you MUNSEY'S MAGAZINE, as stated above, but will send you three months free, in addition, THE ALL-STORY MAGAZINE, which is another of our publications. I add this other magazine for two reasons. First, that you may have the choice of two magazines, and second with the thought that you may want both.

If this proposition interests you, and I hardly see how it could be made more to your interest, kindly fill out the coupon in this advertisement and mail it to me, and you will get the magazines as stated herein.

### **FRANK A. MUNSEY, New York**

You may enter my name for one year's subscription to Munsey's Magazine, for which I agree to pay you one dollar (\$1.00) at the end of three months, providing I find the magazine to be what I want.

In the event that I do not care for the magazine, I will so notify you at the end of the three months, in which case I shall owe you nothing.

It is further agreed that in connection with this subscription you are to send me The All-Story Magazine free for three months, and that I am to have the option of changing my subscription, if I so desire, from Munsey's Magazine to The All-Story Magazine for the balance of the year.

Name \_\_\_\_\_

City \_\_\_\_\_

Date \_\_\_\_\_ 1906. State \_\_\_\_\_

**FRANK A. MUNSEY, 175 Fifth Av., NEW YORK**



# Let Me Tell You the Special Price On This Genuine 1906 Chatham Incubator

**Y**OU see we make more incubators than any other concern in the world.

We have two big factories equipped with every up-to-date labor-saving appliance.

We buy lumber in immense quantities. And turn out from six to seven hundred Incubators a day.

This means high grade machines at low cost.

Now we are after the trade with an Incubator of up-stairs quality at a down-stairs price. And to prove to you that Chatham Incubators are the best made, we are willing to let you try one 84 days **FREE**.

You can take off four hatches, and, if the machine isn't exactly as represented send it back at our expense. Could we make a fairer offer?

But we go further even than this and guarantee every Incubator we sell for five years—a direct iron-clad guarantee. Send for our **FREE** Catalog today.

Your name and address on a post card mailed at once gets the whole story by return mail.

**The Manson Campbell Co., Ltd.**  
216 Wesson Avenue, Detroit, Mich.



## Hatch and Brood

**AT SAME TIME**

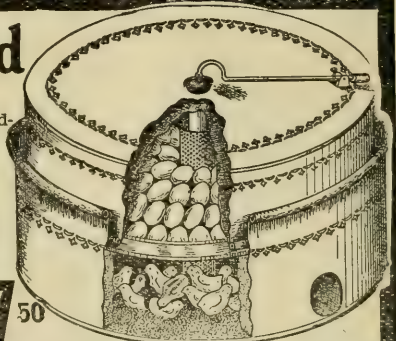
Here's a new thing—a complete hatcher and brooder, one machine that performs both of these operations at the same time and does both well. The

### METAL MOTHER Brooder-Hatcher

is a long step ahead of all others—the most remarkable invention in the poultry world. With it 2 qts. of oil hatches 50 eggs and broods the chicks—brood one batch while you make another hatch. Our nest system enables you to do this. A time-saving, labor-saving, oil-saving machine complete for \$7.50. Free catalog—tells how it works. Regular Cycle Hatchers and Brooders at \$5 each are great favorites. Write today.

**CYCLE HATCHER CO., BOX 223, SALEM, NEW YORK**

**\$7.50**



## INVESTIGATE THE POULTRY BUSINESS

Write for a free copy of my  
book describing

**Profitable  
Combinations  
of Egg, Broiler  
and Roaster  
Farms**



It gives the prices paid for eggs and poultry week by week for the past three years. It tells how and when a hatch taken off each week in the year could be most profitably marketed. It shows how you can make \$2.00 on a large winter roaster. It tells what profits can be made with each of the popular breeds, and the costs of production.

I have helped thousands to make money with poultry. My Model Incubators and Brooders are used on the money-making farms. It is my business to teach those who use them to do so profitably. Whether your needs are small or large, I will furnish without charge, estimates and plans for a complete equipment that will insure success without your spending a dollar uselessly.

Send for my complete literature.

**CHAS. A. CYPHERS**

**3927 Henry St.**

**Buffalo, N. Y.**



We pay  
freight.

### 60 DAYS FREE TRIAL

That's the way we sell the *Success Incubator*. We give you an opportunity of taking off two hatches and thoroughly trying machine. Send it back if not satisfactory. Send for free, illustrated catalog.

**AMERICAN BROODER CO.**  
Box 94 Racine, Wis.

## BANTA Incubators & Brooders

Backed by 14 Years of Successful Use by poultrymen all over the world. No guesswork. They are automatic in regulation and ventilation. Fully guaranteed to give YOU satisfaction. Send for free book. **BANTA - BENDER MFG. CO., Dept. 23, Ligonier, Ind.**



We have a proposition to make, if you intend to buy an Incubator or Brooder. Our 80 page Catalogue is free. **Write today.**

**World Stock & Poultry Supply Co.**  
M. BURG & SONS, PROPS.

50 Raymond Ave., St. Paul, Minn.

**Farm and Stock** is an illustrated monthly magazine in the interest of CORN BREEDING, Cultivation and Live Stock. Price \$1 a year, but for a short time will be sent a year on trial for 10c and names of ten farmers who grow corn. **Farm & Stock, 251 Charles, St. Joseph, Mo.**

## A Free Book About Incubators

For your own sake don't buy an incubator until you read our book. It is written by the man who knows most about incubating—a man who devoted 24 years to the problem. It tells vital facts that you must know to buy wisely—facts you would not think of. It tells of Racine Incubators and Brooders, of course, but whether you buy ours or another, the facts are important. The man who writes the book made the Racine Incubator. When you learn what he knows you will want his machine, we think. The book is free—write today for it. Remember, We Pay the Freight. Address

Racine Hatcher Co., Box 114, Racine, Wis.  
Warehouses: Buffalo, Kansas City, St. Paul.



### The Fresh Air Incubator

Fresh Air applied to Artificial Incubation in a new and effective way, making possible higher per cent hatches, brighter, healthier stronger chicks.

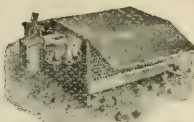
### 5 FREE BOOKLETS ON ARTIFICIAL POULTRY PRODUCTION

1st—The Standard Incubator. 2nd—An Incubator for Beginners. 3rd—Universal Hatcher and Colony Brooder. 4th—Feeding

Chicks. 5th—What Users are Doing.

### A PIANO BOX WILL DO

Put the Universal Hatcher into it and make your own brooder. The Universal Hatcher may be attached to any size or form of Colony house, mushroom house, small portable building or piano box and make about as good a brooder as money can buy. Write for catalog and the five books FREE. Others to follow, you'll get them all if your name is on our mail list.



Prairie State Incubator Co., 414 Main St., Homer City, Pa.

You can't tell a good incubator or a good brooder by looking at them. The only true test is in the Hatching and Raising of Chicks. The machines that Prove Best by that test are the

## IDEAL

Incubators and Brooders.

Made by the man who knows and backed by the J. W. Miller Cos.' guarantee to give you satisfactory results or your money back after 30, 60 or 90 days Free Trial. If you are discouraged try the Ideal—if you don't want to be discouraged try the Ideal. Send for the book "Poultry for Profit"—Free. 128 pages, illustrates and describes everything needed to raise poultry.

Address J. W. MILLER CO.,  
Box 48 Freeport, Illinois.



## SEE THE 1906 RELIABLE

before you buy. Perfectly practical for poultrymen or beginners. Double heating system gives bigger hatches—saves one-third the oil. Sold on a money back guarantee. Write for free catalog, Reliable Farm Pure-Bred Birds and Eggs. Get prices, Reliable Incubator and Brooder Co., Box B-49 Quincy, Illinois, U. S. A.



## PRONOUNCED— PRACTICALLY PERFECT

Leading poultry experts say the many improvements in the new

1906 Pattern

### Standard Cyphers Incubator

make it worthy the name "The Perfect Hatcher." Sold on 90 days trial, to prove that in convenience of operation; in economy of oil; in certainty of results; in large hatches and especially in strong and healthy chicks, it has never been equalled. Our new catalogue tells why. A poultry guide, 228 pages, (8x11) seven practical chapters, 500 illustrations, free if you mention this paper and send addresses of two persons interested in poultry.

Address nearest office.

Cyphers Incubator Co., Buffalo, N. Y.  
Chicago, Boston, New York, Kansas City or San Francisco.

## Take Your Own Time. Old Trusty Incubator

40, 60 or 90 Days Trial.

We want to send you the 'Old Trusty' Book. You ought to read it before buying an incubator, because it has more every-day "chicken sense" in it than any catalog you have ever seen. 300 good pictures. It tells why "Old Trusty" does such good work—why it hatches so many and so good chicks—why it is so easy to operate—why it is so economical. It's sold on 40, 60 or 90 days trial, freight prepaid. Write to us.

M. M. Johnson Co.,  
Clay Center, Neb.

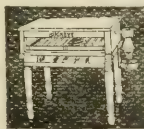
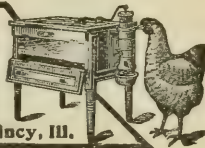


We Pay  
the  
Freight.

## \$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

GEO. H. STAHL, Quincy, Ill.



## \$1. PER MONTH

to \$2. per month rents any incubator. Rent pays for it. We Pay the Freight. 40 Days Trial at same prices. Buy plans and parts and build one. Prices, ready to use: 50 egg \$5.00; 100 egg \$9; 200 egg \$12.75. Brooders, \$3.50 up. Guaranteed. Catalog free.

BUCKEYE INCUBATOR CO., Box 64, Springfield, O.

## GEM INCUBATORS AND BROODERS

Time tested and proven success: thousands in use, sold direct to you at wholesale prices. You get the maker's guarantee and save the middleman's profits. The Removable Chick Tray and Nursery—a feature no other has—explained in catalogue. It's free. Write for it today.

Gem Incubator Co., Box 53, Trotwood, O.



\$4.88  
up

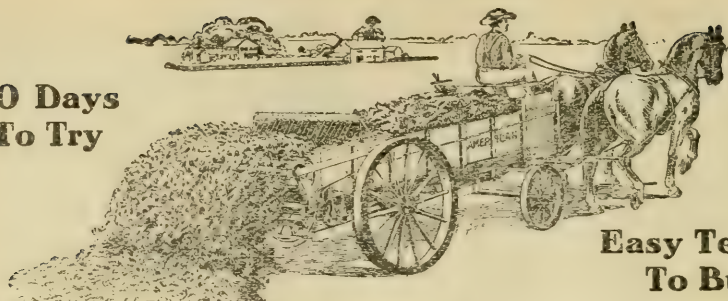
## EGGS FROM BONE

Green cut bone doubles egg yield. More fertile eggs, vigorous chicks, early broilers, heavy fowls. **MANN'S LATEST MODEL BONE CUTTER** 10 days free trial. No money in advance. Send it back at our expense if you don't like it. Cat'g free. F. W. MANN CO., Box 37, Milford, Mass.





**30 Days  
To Try**



**Easy Terms  
To Buy**

## **Why We Will Let You Use an American Manure Spreader Free**

It's just like this.

You need an American Manure Spreader.

It will double the value of every bit of manure you put on your land.

It will pulverize and break it up, so it will mix with the soil easily.

And it will distribute evenly, so every square foot of land will get its share.

The other reasons you will find out yourself just as soon as you try the Spreader.

And we will let you try it for 30 days at our expense.

We send you the Spreader and prepay the freight. You use it a month. Before the 30 days are up, you will wonder how you ever got on without it.

The Spreader will practically earn its own cost before you send us a cent.

We give you a liberal allowance of time in which to pay for it.

And if you shouldn't find it exactly as represented, you send it back at our expense, and the trial costs you not a shilling.

We can afford to make you this offer because we know that our American Spreaders are well made, on correct principles, and that they will stand the Test.

They represent twenty-five years study and experience. Their good points are the result of our knowledge of field needs. We have developed them along practical lines.

American Spreaders are carefully and sensibly constructed, and they show it.

We own and operate the largest Manure Spreader plant in the World. We turn out more machines every year than any other

manufacturer. Our ample capital enables us to sell our Spreaders on long time.

We sell direct to you because we want to keep in close touch with users of our Spreaders.

This way we get a chance to tell you how to use them to best advantage and why our way will give best results.

We will tell you all about Manure Spreaders, and how to spread manure, so that you will be able to select a size best suited to your needs—and you have our 5 sizes and 9 styles to select from.

When you buy from us you get just the kind you should have to do your work best.

We don't belong to any trust.

We are an independent concern.

Write today for our **FREE** catalog.

Tell us how much land you own, how many horses you keep and how many head of cattle, sheep and hogs you have, and we will give you the Government statistics as to the annual value of your manure crop.

We will also send you a little booklet telling all about "Our New Selling Plan."

It will interest you and save you money.

Ask at once. You will be glad if you do.

### **WHAT MR. HILL SAYS:**

NANTICOKE, PA., Dec. 12, 1905

AMERICAN HARROW CO., Detroit, Mich.

Dear Sirs:—Enclosed you will find notes, duly signed, for spreader.

I am very pleased with the construction of the American Spreader, all its parts seem to be made for long service. The work it performs in three minutes is better than I have been able to do with the fork in 25 to 30 minutes and I anticipate its results to be far ahead of anything I have had in the past, especially on the hay-fields, as it rines the manure into such small particles as rot to smother the smallest tuft of grass. Your course of treatment and prompt shipment of machine leaves nothing to be desired and I have no hesitation in saying I am a well satisfied customer.

WILLIAM J. HILL, Nanticoke, Pa.

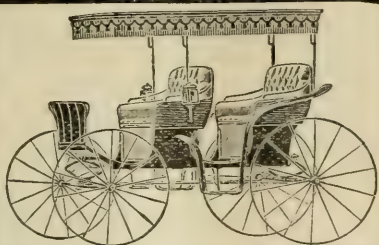
**American Harrow Co., 4628 Hastings St., Detroit, Mich.**

## **WE WANT NAMES!**

We want YOU to send us the names and addresses of from ten to twenty-five farmers living in the United States each one having five cows or more. You can send us the names from any number of different postoffices. If you will send us these names we will send you **FOUR BEAUTIFUL PICTURES FREE**. These pictures are reproductions from the most celebrated paintings in the world, and they are of high quality, and we know that you will be pleased and delighted with them. No pictures will be given for a list of less than ten farmers.

We want to send a sample copy of the special dairy issue of the **RURAL HOME** to a lot of farmers who are not now taking our paper, and that is the reason we want these names.

Send us immediately a list of ten farmers and we will send you, **ABSOLUTELY FREE, FOUR REPRODUCTIONS OF THE WORLD'S FAMOUS PICTURES**. Address The Rural Home, 20 North William St., New York.

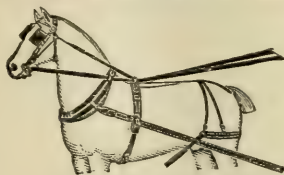


No. 331. Canopy Top Surrier. Price complete, \$65.50. As good as sells for \$25.00 more.

## 33 Years Selling Direct

Our vehicles and harness have been sold direct from our factory to user for a third of a century. We ship for examination and approval and guarantee safe delivery. You are out nothing if not satisfied as to style, quality and price. **We are the largest manufacturers in the world** selling to the consumer exclusively. We make 200 styles of Vehicles, 65 styles of Harness. Send for large free catalog.

ELKHART CARRIAGE & HARNESS MFG. CO., ELKHART, IND.



No. 10. Single Collar and Hame Harness. Price complete, \$11.60. As good as sells from \$5.00 to \$8.00 more.

## SAVE HALF

the price. You can't beat our buggy jobs at any price. Here's the reason: You're dealing with the factory.

### 30 Days Free Trial, Two Years Guarantee.

Remember we make what we sell. We're not a mail order house. That's why we can give such a guarantee. Direct sales, direct guarantee, a price unequalled and 30 days to make up your mind. Write for our vehicle catalog and complete selling plan. The Progressive Vehicle Mfg. Co., Dept. O, Ft. Wayne, Ind.



# 100

### SPLIT HICKORY

1906 catalog free. Tell us what style vehicle you want. The Ohio Carriage Mfg. Co., H.C. Phelps, Pres., Station 33, Cincinnati, Ohio.

## NEW

30 Days Free Trial 2 Year Guarantee

## styles



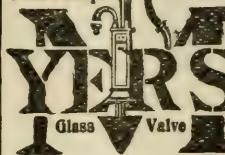
**6 TONS OF WELL DRIED ALFALFA, RED TOP OR TIMOTHY HAY** to the acre. If you wish to learn how, send a 2-cent stamp to **GEORGE M. CLARK, HIGGANUM, CONN., U. S. A.**

## SPRAY PUMPS

The Pump That Pumps

SPRAY PUMPS

Double-acting, Lift, Tank and Spray



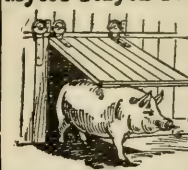
PUMPS

Store Ladders, Etc.

HAY TOOLS

of all kinds. Write for Circulars and Prices.

### Myers Stayon Flexible Door Hangers



with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—“Stayon.” Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & BRO. Ashland, Ohio.

## COILED SPRING

# FENCE



Closely Woven. Can not Sag. Every wire and every twist is a brace to all other wires and twists full height of the fence. Horse-high, Bull-strong, Pig-tight. Every rod guaranteed.

### 30 DAYS FREE TRIAL

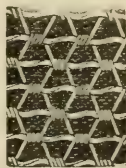
and sold direct to farmer, freight prepaid, at lowest factory price. Our Catalogue tells how Wire is made—how it is galvanized—why some is good and some is bad. Its brimful of fence facts. You should have this information. Write for it today. Its Free.

KITSELMAN BROS., Box 21 MUNCIE, INDIANA

## BROWN PAYS THE FREIGHT

### HEAVIEST FENCE MADE

All No. 9 Steel Wire. Well Galvanized. Weighs  $\frac{1}{2}$  more than most fences. 16 to 25¢ per rod delivered. We sell all kinds of fence wire at wholesale prices. Write for fence book showing 110 styles. The Brown Fence and Wire Co., Cleveland, Ohio.



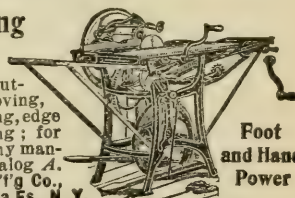
## FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today.

COILED SPRING FENCE CO. Box 101 WINCHESTER, INDIANA.

## Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog A. The Seneca Falls M'g Co., 44 Water St., Seneca Falls, N. Y.



Foot and Hand Power

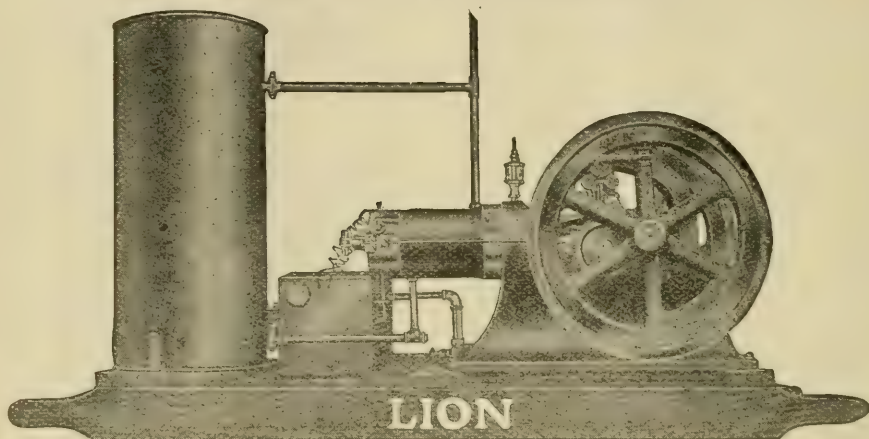


# YES! WE ARE SELLING GAS AND GASOLINE ENGINES.

**DIRECT FROM FACTORY TO USER.**

The secret of our success in this field, hitherto unoccupied, is the extraordinary pains we take in teaching the purchasers of "Lion" engines how to operate them intelligently.

**THIS ENGINE IS NO EXPERIMENT.**



The "Lion" Gas and Gasoline Engines are simplicity simplified; they are used for all purposes where power is required, and will be found the most economical in operation.

**WRITE US A LETTER LIKE THIS TODAY.**

LYONS ENGINE COMPANY, Lyons, Mich.

Gentlemen: I am about to purchase a gas or gasoline engine for.....  
purposes, and wish you to send me full particulars about your approval offer as ad-  
vertised in "Gleanings in Bee Culture." Yours very truly,  
Name.....Town.....  
State.....Street No. or P. O. Box.....  
R. F. D.....

When writing, please state definitely for what purpose you wish to use this engine, and whether gas or gasoline for fuel. This information is very important to us.

Send for descriptive catalog and further information in regard to our special "installment plan" of purchase. If you are thinking of buying a gas or gasoline engine, it will be worth your while to see how cheaply we can sell you a high-grade engine.

**LYON ENGINE COMPANY, Lyons, Michigan**

PLEASE REMEMBER WE SEND THE ENGINE, NOT THE ENGINE AGENT.

# I Am the Paint Man

**2 Full Gallons Free to Try  
6 Months Time to Pay**

**You pay no freight to try my paint**



**O.K. Chase**  
St. Louis, Mo.

**I** AM the paint man.

I have a new way of manufacturing and selling paints. It's unique—it's better.

Before my plan was invented paint was sold in two ways—either ready-mixed or the ingredients were bought and mixed by the painter.

Ready-mixed paint settles on the shelves, forming a sediment at the bottom of the can. The mineral in ready-mixed paint, when standing in oil, eats the life out of the oil. The oil is the very life of all paints.

Paint made by the painter cannot be properly made on account of lack of the heavy mixing machine.

My paint is *unlike* any other paint in the world. It is ready to use, but not ready-mixed.

My paint is made to order after each order is received, packed in hermetically sealed cans with the very day it is made stamped on each can by my factory inspector.

I ship my pigment—which is white lead, zinc, drier and coloring matter freshly ground, after order is received—in separate cans, and in an-

other can I ship my Oil, which is pure old process linseed oil, the kind that you used to buy years ago before the paint manufacturers, to cheapen the cost of paint, worked in adulterations.

I sell my paint direct from my factory to user at my very low factory price; you pay no dealer or middleman profits.

*I pay the freight on six gallons or over.*

My paint is so good that I make this wonderfully fair test offer:

When you receive your shipment of paint, you can use *two full gallons*—that will cover over 600 square feet of wall—two coats.

If, after you have used that much of my paint, you are not perfectly satisfied with it in every detail, you can return the remainder of your order and the two gallons will not cost you one penny.

No other paint manufacturer ever made such a liberal offer.

It is because I manufacture the finest paint, put up in the best way, that I can make this offer.

I go even further. I sell all of my paint on *six months' time*, if desired.

This gives you an opportunity to paint your buildings when they need it, and pay for the paint at your convenience.

**Back of my paint stands  
my Eight Year, officially  
signed iron-clad Guarantee.**

**NOTE—8-year Guarantee  
backed by \$50,000 bond**



This is the longest and most liberal guarantee ever put on a paint.

For further particulars regarding my plan of selling, and complete color card of all colors, send a postal to O. L. Chase, St. Louis, Mo.

I will send my paint book—the most complete book of its kind ever published—absolutely free. Also my instruction book entitled "This Little Book Tells How to Paint" and copy of my 8 year guarantee.

**O.K. Chase** The Paint Man.

715 G Olive Street,  
St. Louis, Mo.

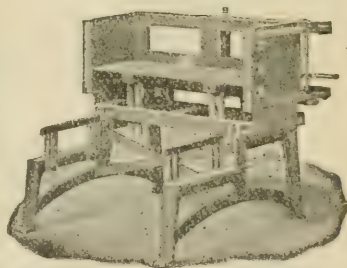


makes from 25 to 35 blocks. Write for descriptive circular and list.

**Medina Concrete Company**  
Medina, Ohio

## These Blocks

were made on one of our \$50 concrete building-block machines. Prices range from \$50 upwards. Every machine complete with all parts ready to go to work, and guaranteed to give satisfaction. Two men make from 100 to 150 of these blocks per day. One barrel of Portland cement



### LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address COILED SPRING FENCE CO., Box 448 Winchester, Ind.



### FRUIT BOOKS FREE

Send your name and address at once and you will receive by return mail sample copies of the BEST FRUIT PAPER and full particulars about the "Bro. Jonathan Fruit Books," which may be secured free. **FRUIT-GROWER COMPANY** 216 SOUTH 7TH STREET, ST. JOSEPH, MO.



## A Savings Account

Thousands of people are now doing their banking by mail with perfect safety. The U. S. mail, with its free city and rural delivery, brings the strong, liberal savings bank to the very door of every person no matter where they are. You can open an account with this safe bank by simply sending to us

## One Dollar or More,

then add other dollars as you can spare them. Deposits can be sent by Postoffice or Express Money Orders, Check on Local Bank, New York Draft, or Currency by Express or Registered Mail. Your money will earn

## 4 PER CENT Interest,

compounded semi-annually, and will be secured semi-annually by assets of over . . . . .

### ONE HALF MILLION

and the management of prudent and successful business men. . . . . Write for particulars.

### The SAVINGS DEPOSIT BANK COMPANY, Medina, Ohio.

A. T. SPITZER, Pres.

A. I. ROOT, Vice-pres.

E. B. SPITZER, Cashier.

## PAROID

Before you buy roofing for any building, from a small poultry house to the largest mill or factory, it will pay you to get samples and complete proofs of quality from the oldest makers of ready roofing in America. (We originated the roll of roofing ready to lay with fixtures packed in the center.) Our concern was

### Founded in 1817

We can show you why "Paroid" is the best of them all—lasts longer and saves most in repairs. Drop us a postal to-day.

F. W. BIRD & SON,  
East Walpole, Mass.

New York, Washington, Chicago,  
Hamilton, Ont.

## ROOFING

## TELEPHONE FACTS

We publish a finely illustrated book that is full of telephone facts. It tells all about telephones for farms, the kind to use, how to organize a farm telephone company, how to build the lines and where to buy the best telephones. Free if you ask for Book 36-F.

Stromberg-Carlson Tel. Mfg. Co., Chicago, Rochester, N. Y.

## STEVENS TAKE DOWN SHOTGUN FREE TO BOYS!

Write us today sending your name and address and we will hold one of these fine guns for you and tell you how you can get one FREE! Don't delay! Send no money!

We have bought a number of these guns and are giving them away. We guarantee you can earn one in a day easily. Many have earned one in an hour. No cheap pictures or jewelry to sell. Our plan does all the work. Simply say you want a gun and you will be surprised how simple our offer is and how easy it is to get the gun. Do not delay or somebody will get ahead of you. Write today. We refer you to any bank in Des Moines. We are a responsible firm and do as we agree. Never will you have another chance so don't delay. Write at once.

**DESCRIPTION.**—Single barrel, take-down pattern; choke-bored, insuring superior shooting qualities; automatic shell ejector; case hardened frame, top snap action, rebounding lock, walnut stock, hard rubber butt, reinforced breech, 12-gauge, 28 or 30 in. barrel. Will shoot any shell made, Winchester, U. M. C., etc. Every detail perfect. Can be taken down instantly into two pieces. Write for book telling what dozens of men and boys say of this gun. Write today.

**Successful Farming,** 94 TENTH STREET, DES MOINES, IOWA

Shell Ejecting Choke-bore  
Take Down Shotgun.

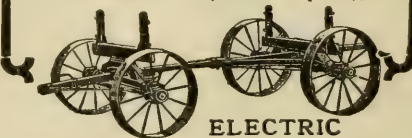
## Let Us Send You Our Book.

about good wheels and good wagons that will save you a lot of work and make you a lot of money—the

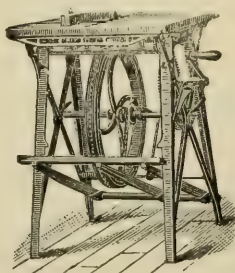
### ELECTRIC STEEL WHEELS —and the— ELECTRIC HANDY WAGON.

By every test, they are the best. More than one and a quarter millions sold. Spokes united to the hub. Can't work loose. A set of our wheels will make your old wagon new. Catalogue free.

ELECTRIC WHEEL CO., Box 95 Quincy, Ills.



ELECTRIC



### BARNES' HAND and FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

#### MACHINES ON TRIAL

Send for illustrated catalog and prices. Address  
W. F. & J. NO. BARNES CO.  
545 Ruby Street,  
ROCKFORD, ILLINOIS.

# A MILLION DOLLAR CONTEST TO INCREASE GRAIN GROWERS' PROFITS!

FOR PARTICULARS, SEE OUR CATALOGUE, PAGES 2 AND 3.

Special Premiums also for Vegetable and Flower Seed customers this year. Genuine gifts to our patrons to introduce varieties of rare merit obtainable only of us. Ladies, especially, read page 4 of our big free catalogue. **FREE**

No matter whether you are a small or large user of seeds, or whether you buy *Field Seeds, Vegetable or Flower Seeds*, get Northrup, King & Co.'s *Free Catalogue* and read all about these wonderful offers. Write for this 1906 Seed Encyclopædia *before you make any plans* for buying your 1906 supply of seeds for the farm, garden or lawn.

**Northrup, King & Co's Interesting Seed Catalogue is FREE!**

"The Million Dollar Contest to Increase Grain Growers' Profits" is the most colossal undertaking of the kind ever conceived. It puts a fortune in the way of thousands of seed users. It is too great to attempt to describe here. Read about it in our free book.

It will be money in your pocket to see this Catalogue first!

It is not only an illustrated Encyclopædia of Seeds, but a veritable gold mine of Liberal Inducements and Big Premium Offers.

Never in the history of the Seed business was a Catalogue published containing, in one volume, so much of interest and value to all classes of seed buyers.

For twenty-two years Northrup, King & Co. have been developing new and improved varieties, and the 1906 Catalogue offers a wide range of exclusive specialties.

Our "Sterling Brand" on a package of seed means an absolute *guarantee* that they must prove of satisfactory purity and germination TO YOU, or they may be returned *at our expense*, and money will be refunded without "IF OR ANDS."

**Every Vegetable and Flower Seed** we sell warranted for quality and germination.

"PEEP-'O-DAY", the Sensational Early New Sweet Corn, from ten days to two weeks earlier than any other sort, and the sweetest of all Sweet Corn is meeting with a phenomenal sale. "PEEP-'O-DAY" is wonderfully productive, giving *almost double the yield per acre* of any other variety, and so tender, juicy, sweet and delicious that no other Sweet Corn compares with it. Try it this Season!

Among our numerous other garden specialties is the new Mammoth Podded Pea—"Teddy Roosevelt." Our catalogue will be found of fascinating interest to anyone wishing to excel every garden in the neighborhood.

**Farm and Field Seeds, Grasses, etc.** We sell the finest in the World—Sterling Grass and Clover Seeds, Seed Wheat, Seed Oats, Seed Corn, Hog Pasture Mixture, Rape Seed, Alfalfa Seed, etc. Our Sterling Lawn Seed analyzed as to purity and tested as to germination, insures beautiful lawns of lasting green.

Get this catalogue. The most *valuable* of all. A postal or a letter should be sent today addressed *just like this*:

Northrup, King & Co., 261 Northrup-King Bldg., Minneapolis, Minn.

## BURPEE'S Farm Annual for 1906

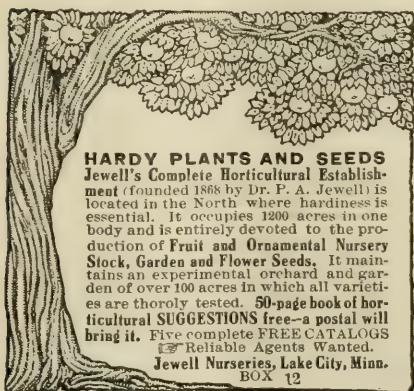
"The Leading American Seed Catalogue."

Mailed **FREE** to all who want the **BEST SEEDS** that Grow!

This *Thirtieth Anniversary Edition* is a bright book of 163 pages and tells the *plain truth*. With Cover and Colored Plates it shows, *painted from nature*, Seven Superb Specialties in Vegetables of unequal merit and Six Novelties in Flowers, including LUTHER BURBANK'S *New Floral Wonder*.

**WRITE TO-DAY!**—the very day you read this advertisement. Mention this paper and address

**W. ATLEE BURPEE & CO., Seed Growers, PHILADELPHIA, PA.**



**HARDY PLANTS AND SEEDS**  
Jewell's Complete Horticultural Establishment (founded 1886 by Dr. P. A. Jewell) is located in the North where hardiness is essential. It occupies 1200 acres in one body and is entirely devoted to the production of **Fruit and Ornamental Nursery Stock, Garden and Flower Seeds**. It maintains an experimental orchard and garden of over 100 acres in which all varieties are thoroughly tested. **50-page book of horticultural SUGGESTIONS free**—a postal will bring it. Five complete **FREE CATALOGS** Reliable Agents Wanted.  
Jewell Nurseries, Lake City, Minn.  
BOX 12



**GOOD SEEDS CHEAP**  
BEST EVER GROWN

A wonderful big catalog **FREE** Full of engravings of every variety, with prices lower than other dealers. The book is worth a dollar to any one who plants seeds.

**Big Lot of Extra Packages Free to Every Customer.**  
Send yours and neighbors address.  
**R. H. Shumway, Rockford, Illinois.**



# Mr. Green says

Every Gleanings subscriber should have my seed Catalog.

I am sure you will be pleased with it. It's simple and clear--a great relief after reading those crowded, exaggerated, poorly illustrated and printed kind that are so common.

The plain truth is what I try to tell, and only the best seeds go to my trade. Before you forget, drop us a postal and one of my catalogs will be sent you

**E. C. Green & Son**  
Seedsmen,  
Medina, Ohio, U. S. A.

## EARLIEST POTATOES

If you wish to be first in market, gain two to three weeks and get **TOP PRICES** by using



Northern Grown Seed. The fastest growing potato is **Our Extra Early Petoskey**, and we send a big sample potato for only 25c (stamps or silver.) Catalog of Hardy Northern Grown Seeds FREE. Write today.

**DARLING & BEHAN, 74 Michigan St., Petoskey, Mich.**



**GOLDEN YELLOW CALLA LILY, 5 Bulbs.**

**50 KINDS FLOWER SEEDS 10c.**

Asters, Balsam, Canna, Calliopis, Nasturtium, Morning Glory, Pansy, Larkspur, Jobs Tears, Poppy, Golden Glow, Snapdragons, Cosmos, Pink, Zinnia, Verbena, Monkey Plant, Sweet Rocket, Primrose, Ice Plant, Petunia, Castor Oil Beans, Portulaca, Candytuff, Sweet Peas.

**5 CHAMPION BULBS.**

The Summer Hyacinth, Golden Lily, Humming Bird, Gladiolus, Giant Tuberose, Baby Breath (Oxalis), all this beautiful collection of seeds and bulbs only 10c. in silver or 52-c. stamps to pay the cost for packing and postage. Order quick and be sure of this grand offer--only 10 cents.

**CHARLESTOWN NURSERY, - CHARLESTOWN, MASS.**

## FRUITFUL TREES

Small Fruits and Evergreens. Russian Mulberry and Black Locust, \$1.00 per 1000. Carefully dug and packed. Freight prepaid on \$10.00 orders. Catalogue free. Fine trees guaranteed.

Gage County Nurseries, Box 647, Beatrice, Neb.

## MILLIONS OF FRUIT AND FOREST TREES

# Clover and Timothy Seeds

We have this year decided to start a mail-order department. We offer three reasons for soliciting your trade.

First--The best seed that we can produce, thoroughly cleaned and free from foul seeds.

Second--An earnest desire to serve you well.

Third--Over thirty years' experience in wholesale business.

Send a postal for samples and prices.

**The Wood Company**  
Medina, Ohio, U. S. A.

## Long Island Cabbage Seed

Cauliflower and other choice Vegetable Seeds for gardeners. Catalog and samples free.

Francis Brill, Grower, Hempstead, New York.

## Seeds, Plants, Roses,

Bulbs, Vines, Shrubs, Fruit and Ornamental Trees

The best by 52 years test, 1200 acres, 40 in hardy roses, none better grown, 41 greenhouses of Palms, Ferns, Ficus, Geraniums, Everblooming Roses and other things too numerous to mention. Seeds, Plants, Roses, Etc. by mail postpaid, safe arrival and satisfaction guaranteed, larger by express or freight. You will be interested in our extraordinary cheap offers of over half a hundred choice collections in Seeds, Plants, Roses, Trees, Etc. Elegant 168-page Catalogue FREE. Send for it today and see what values we give for a little money.

**THE STOKES & HARRISON CO.,**  
Box 188, PAINESVILLE, OHIO.

## Trees, Plants & Seeds

**THAT GROW**

Best quality. Good bearers. Low prices. Apple 4c; Plum and Cherry 12c; Peach 4c; all budded; Concord Grapes 2c; Forest Tree Seed-lings \$1 a 1000 up.

**GERMAN NURSERIES**  
Carl Sonderegger, Prop.

Tested seeds very cheap. Freight paid on trees. Catalogue, English or German, free. Write for it today. Address **GERMAN NURSERIES, Beatrice, Neb.** Box 33

# APPLE TREES 7c



All  
The Best  
Hardy Varieties

Two Years  
Old  
7c to 15c Each

## POPLAR TREES AND ROSE BUSHES, TEN CENTS EACH

**ASPARAGUS**, the most popular vegetable, yields at the rate of \$400 per acre, two year plants 75 cents per 100; \$4.50 per 1,000. Grape vines and fruit plants at low prices. **POPLAR TREES** for driveways, shade and lawns. The most rapid growing trees, 10c to 17 cents each. **ROSES**. A large collection of hardy varieties, also our Live-for-Ever Pink Rose, 10c to 20c each.

## BUY DIRECT FROM GROWER — SAVE 35 PER CENT

Let us price your list of wants. Green's 1906 Catalogue, also copy of Green's Big Fruit Magazine free. Send postal card for them today. **GREEN'S NURSERY COMPANY, 41 WALL ST., ROCHESTER, N. Y.**



### PIONEER GUARANTEED NURSERY STOCK AT WHOLESALE PRICES

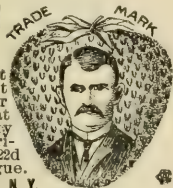
All stock guaranteed disease free and true to name.  
Hart Pioneer Stock is pure bred and produces heavy crops.  
Value received for every dollar sent us. No Agent's Commission

WRITE FOR COMPLETE PRICE LIST. WE WILL SAVE YOU MONEY

**HART PIONEER NURSERIES, Est. 1867 Fort Scott, Kan.**

## STRAWBERRY PLANTS

The Senator Dunlap is the best grower, best producer, best shipper, best seller. I offer over 1,000,000 of these plants at surprisingly low prices; fifty other varieties. Large variety fruit plants, roses, etc. 2nd year. Send for free catalogue. **L. J. FARMER, BOX 608 PULASKI, N. Y.**



## Strawberry Plants

Virginia and Chesapeake, winners of \$100 GOLD PRIZE offers; also Cardinal, Commonwealth, North Shore, Oaks Early, New York, Glen Mary, Stevens Champion, and 90 others; best list, good stock, fair prices. Dewberries: Lucretia and Austins.

**Seeds** Full line best new and standard old varieties GARDEN, FIELD and FLOWER SEEDS. **Now 60 Page Catalogue Free.** It tells about good plants and seeds and where to get them. Send now to **W. F. ALLEN, Dept. 20, SALISBURY, MD.**



**1906  
BOOK  
FREE**

Worth  
its weight in  
GOLD.

The Book that beats them all because it tells how big crops of big fancy strawberries can be grown every year and how to pick and pack them for big prices. It keeps Experienced Growers posted on new discoveries in plant breeding and latest cultural methods. It takes beginners through a complete course of instruction; tells just when and how to do everything to get **Big Results**, and how to start a Profitable Berry Farm with little capital. Beautifully illustrated with photo-engravings. Don't order your plants until you read this book. It is free.

**R. M. KELLOGG CO., BOX 400 THREE RIVERS, MICH**

## SCARFF'S RASPBERRIES

**S** I grow millions of raspberry plants that yield luscious fruits. All true to name—full of life. They're money-coinsers that will yield **\$300 PROFIT PER ACRE**. My handsome, new catalog of small fruits, fruit and ornamental trees, farm and garden seeds and general nursery stock sent free. Get it—write today. **W. N. Scarff, New Carlisle, O.**



## Strawberry - Plants that Grow!

Best Standard Varieties

Also Raspberry, Blackberry, Currant, Grape Plants, Asparagus Roots, and Seed Potatoes in assortment. All stock warranted high grade and true to name. Forty-page catalog with cultural instructions Free. . . . .

C. E. Whitten, Box 22, Bridgman, Michigan

## "The THREE W"

Strawberry; the best for market or home; bears abundantly five weeks; kept at World's Fair ten days; perfect blossoms; large glossy berry; sweetest of all.

W. A. Mason, College St., Clinton, Ky.

A beautiful colored plate of our

**New Eaton  
Red Raspberry**

and our strawberry catalog of valuable information about varieties with instructions for beginners. Free to all.

THE FLANSBURGH & POTTER CO.,  
Leslie, Michigan.




## EVERGREENS AND FOREST TREES

**That  
are  
Sure  
to  
Satisfy**

I have been growing evergreens and forest trees for 31 years, always with one idea—trees that satisfy. When you buy Hill's trees, you get honest value—highest quality. My catalogue is my salesman; it's free. Contains 48 pages illustrated with beautiful pictures; describes all kinds of nursery stock for all purposes—hedges, windbreaks and ornament. Also fruit trees, shrubs and vines. 50 Best Bargains ever offered—\$1.00 to \$10.00 per 100 Prepaid. Everything first-class, guaranteed exactly as represented. Write for catalog today.

**D. HILL, Evergreen Specialist**  
Dundee, Ill.



## HARDY EVERGREENS

**12  
FREE**

We grow them by the million. To prove they are healthy and vigorous we offer 12 Spruces and Pines 2 years old FREE to property owners. Mailing expense 5c, which send or not. A postal will bring them. Catalog with 43 colored plates of Hardy Plants etc., free. Write today.

**The Gardner  
Nursery Company, Box 748, Osage, Ia.**

## Deming's Sprayers

are the ideals for many thousand fruit growers. Get the best. Something for every purpose. **Knapsack, Hand, Bucket, Barrel, Etc. Also Power Outfits.** Every approved device for right working. Agitators, superior nozzles, etc. Send for free catalog.

**The Deming Co., 230 Depot St., Salem, O.**  
Henion & Hubbell, Western Arts., Chicago.

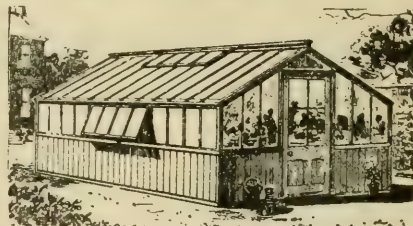



## HOW TO GROW CACTI

is fully explained in the new book just issued, "Cactus Culture for Amateurs," 80 pages, finely illustrated, describes 500 varieties. Tells where found, treatment to produce bloom, soil, how to graft, how to grow from seed, and where to get all rare Cacti and Succulents, price 25c. 40-page catalogue of Cacti, and nice sample Cactus (named) 10c. E. Texensis (like cut) 25c. Old Man (genuine) 50c. 10 nice Cacti, all different, \$1.00. Circulars free. **The Callander Cactus Co., Dept. 43, Springfield, Ohio.**

## PLEASURE AND PROFIT

A Premier Greenhouse will keep you supplied with flowers, fruits, and vegetables all the year round. Saves its cost in a season; gives tone to your residence, and creates a pleasant and profitable hobby.



The illustration shows a Premier Greenhouse—length, 12 feet; width, 8 feet; height, 8 feet. It has double walls, double-strength glass, plant-tables, etc., fitted complete; built in sections, and can be erected in two hours. The price is \$63.00.

George B. Clementson, Esq., Lancaster, Wis., writes: "The Premier Greenhouse is the most attractive proposition for the plant-lover I have ever seen."

Catalog and price list on application. Greenhouses from \$20.00. Conservatories, Garden Frames, Summer Cottages, Auto-houses, Poultry-houses, and Portable Buildings of every description.

**Charles H. Manley,**  
Dept. B C, Premier Manufacturing Works, St. Johns, Mich.

## Poultry Magazine,



Monthly, 50 to 100 pages, its writers are the most successful Poultrymen and women in the United States. It is

**The POULTRY TRIBUNE,**

nicely illustrated, brimful each month of information on How to Care for Fowls and Make the Most Money with them. In fact so good you can't afford

to be without it. Price 50 cents per year. Send at once for free sample and **SPECIAL OFFER TO YOU.**

**R. R. FISHER, Pub., Box 85, Freeport, Ill.**

**Fruit Trees.**—\$6.00 per 100 and up. Fine assortment of trees, shrubbery, vines, plants, etc. Our ideal soil and climate produce best trees. Well packed; guaranteed against damage in transit. Catalog free.

CHATTANOOGA NURSERIES, Chattanooga, Tenn.

## Do You Produce Comb Honey?

If so, let me book your order for Carniolan queens, mated to Golden Italian drones, 75c each, six for \$4.00, or \$7.50 per dozen; or 60c each for all cash orders received before March 1. M. O. office, Arifton, Alabama.

**W. S. McKnight - Newtopia, Ala.**

# The Big Two of the Poultry Press

go every week to thousands of exclusive readers who buy liberally in the desire to beautify their Rural Homes.

## The Feather

The most conservative and instructive of all monthly journals devoted exclusively to the advancement of poultry culture in all its branches.

## The American Fancier

The great weekly journal devoted to the interest of the business in all its branches, goes continually on Saturday to those most interested in standard-bred poultry.

THE ADVERTISER looking for profitable returns can not afford to neglect the advantages to be gained from the use of the advertising pages of *These Two Journals*.

## Begin Now, the Harvest is at Hand

For special rates send to publishers of this journal or to the home office of the two publications.

**The Howard Publishing Co.**  
714 12th St. N. W., Washington, D. C.



**"The Whole Thing in a Nut Shell."**

## 200 Eggs a Year Per Hen

**HOW TO GET THEM**

The fifth edition of the book, "200 Eggs a Year Per Hen" is now ready. Revised, enlarged, and in part rewritten. 96 pages. Contains among other things the method of feeding by which Mr. S. D. Fox, of Wolfboro, N. H., won the prize of \$100 in gold, offered by the manufacturers of a well-known condition-powder for the best egg-record during the winter months. Simple as a, b, c—and yet we guarantee it to start hens to laying earlier and to induce them to lay more eggs than any other method under the sun. The book also contains recipe for egg-food and tonic used by Mr. Fox, which brought him in one winter day 68 eggs from 72 hens; and for five days in succession from the same flock, 64 eggs a day. Mr. E. F. Chamberlain, of Wolfboro, N. H., says: "By following the methods outlined in your book, I obtained 1,496 eggs from 91 E. I. Reds in the month of January, 1902." From 14 pullets, picked at random out of a farmer's flock, the author got 2,999 eggs in one year—an average of over 214 eggs apiece. It has been my ambition in writing "200 Eggs a Year Per Hen" to make it the standard book on egg production and profits in poultry. Tells all there is to know, and tells it in a plain, common-sense way.

Price 50c; or with a year's subscription to the *American Poultry Advocate*, 60c; or given as a premium for four yearly subscriptions at 25c each.

Our Paper is handsomely illustrated, 44 to 80 pages, 25c per year. Four months' trial, 10c. Sample Free. CATALOG of poultry books free.

**AMERICAN POULTRY ADVOCATE,**  
71 Hogan Block, Syracuse, N. Y.



## Greider's Fine Catalog

of Prize-Winning Poultry for 1906. This book is printed in **several Beautiful Colors** and is larger than ever. Contains a **Fine Chromo** of lifelike fowls. It illustrates and describes 60 varieties of poultry, ducks, geese, pigeons, etc. It shows best equipped poultry yards and houses—how to build houses; cure for diseases; **Best Lice Destroyer** how to make hens lay; poultry supplies and all kinds of information indispensable to poultry-keepers. Prices of eggs and stock within reach of all. Send 10 cents for this noted book.

**B. H. GREIDER, RHEEMS, PA.**



## FREE! FREE!

Send for a copy of the **INLAND POULTRY JOURNAL**, and receive a fine color picture free. Cost us \$400 costs you nothing. Our paper has the admiration of every poultry man. Have you seen it? Well do not miss it. Address **Inland Poultry Journal Co., 50 Cord Bldg., Indianapolis, Ind.**

## POULTRY PAYS

if you get the right start, the right eggs or fowls and the right materials to work with. Our complete poultry guide pictures and describes all breeds, gives incubating, brooding and feeding directions. It lists **Thoroughbred Fowls and Eggs**, incubators, brooders, poultry rations and everything needed for profit. **All at lowest prices** and all guaranteed satisfactory or your money back. **Send for Free Book** for 10 cents postage. **American Incubator Co., Box 115, Freeport, Ill.**



## BOOK ON POULTRY DISEASES FREE

Conkey's book on Poultry Diseases sells for 25cts. Full of information on housing, feeding, sickness, and how to care for the flock. Will help you to make money. Send 4 cents to pay postage and the names of two other poultry raisers, and we will send you a copy of this illustrated book of valuable information free.

**G. E. Conkey & Co., No. 80, Ottawa Bldg., Cleveland, O.**

## DO YOU RAISE CHICKENS?

If so, you will find The Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cts. a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

## 100 SPECIAL PRIZES

Besides our regular premiums of Post Cards, Books, Eggs for Hatching, Cash Commissions, etc., for getting subscribers. Write at once for sample copy, blanks, etc. Also souvenir bee post cards.

**Poultry Item : : Fricks, Pa.**



----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.



# BEE-KEEPERS' SUPPLIES.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

**Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,**

**EVERYTHING USED BY BEE-KEEPERS.**

**Headquarters for the Danzenbaker Hive.**

**Over Two Tons** of New Weed-Process Foundation on hand. I secured this while the weather was warm, on the advice of The Root Company. I am glad I took their advice, for there is not a cracked sheet in the lot. It is two to three cents lower than it was last year, but it might advance again in May. Wouldn't you like to secure yours right now?

**480,000 Sections** here ready for immediate shipment. I had not thought that they could be made better, but I really believe they are just a little nicer than they have ever been.

**Hives Galore!** Any kind—eight-frame, ten-frame, or Danzenbaker. My catalog describes every thing required in the bee-yard. My new stock of smokers have the latest improvements. It would be a pleasure to mail you my new catalog, and it is free for the asking.

**If you send** in your order before March first you may deduct 4 per cent for early-order discount. In March the discount will be 2 per cent.

## BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight; always sure to attach your name to package.

# WALTER S. POUDER,

513--515 Massachusetts Ave.,

INDIANAPOLIS, IND.

# PAGE & LYON

## NEW LONDON, WISCONSIN

✿ Manufacturers of and Dealers in ✿

## BEE-KEEPERS'

## SUPPLIES

4 per cent Discount during February on all Orders Accompanied by Cash

**Send for Our FREE  
New Illustrated Catalog and Price List**

## Dittmer makes a Specialty of Working Beeswax into Comb Foundation

Write for our price list, samples, and early-order Discount.  
We would like to send them to you at our expense.  
Our warehouse is full of bee-supplies.  
Jobbing - Wholesale - Retail.  
Beeswax always wanted.

CUS DITTMER,

--

AUGUSTA, WIS.



H. M. ARND, MANAGER

## YORK HONEY AND BEE CO.

Not  
Inc.

141 ONTARIO STREET : CHICAGO, ILLINOIS

CARRY A FULL LINE OF

### Lewis Bee-supplies and Cornell Incubators and Brooders

and poultry-supplies at factory prices. Write for the 1906 catalog of either or both. Honey for sale. Beeswax wanted; 27 cts. cash, or 29 cts. when taking bee-supplies in exchange.

Early-order discount, four per cent for February.



# HIVES - HIVES



Now is the time to place your order for the hives you will need this year. By getting them now you will save the discount, and can have them nailed and ready for your bees in the spring. . . . We should like to quote you prices in any quantity on the following:

**The Root Chaff Hive**  
The best chaff hive made

**The Danzenbaker Hive**  
The comb-honey hive

**The Root Dovetailed Hive**  
Standard size and extra quality



Send for Catalog

## M. H. HUNT & SON, BELL BRANCH, MICH.

We Sell Root's Goods in Michigan



## Michigan Distributors

—FOR—

**G. B. Lewis Co.'s Beeware,  
Dadant's Foundation.**

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service. Regular discounts allowed.

**SPECIAL.** A quantity of Dovetail and Wisconsin hives, slightly damaged by water, in packages of five at \$1.25 per hive for 1½ story 8 frame; 10-frame, \$1.40 per hive. Satisfaction guaranteed.

**ADVANCED BEE-VEIL.** Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

**A. G. Woodman Co.,**  
Beeswax Wanted. **Grand Rapids, Mich.**

### If You Want the Bee-book

that "covers the whole apicultural field more completely than any other published," send \$1.20 to :: ::

**Prof. A. J. Cook, Claremont, Calif.**

—FOR HIS—

### "Bee-Keepers' Guide"

Liberal Discount to the Trade.

### BIG DISCOUNT till April 1 ON ALL SUPPLIES

Dovetailed hives, eight-frame, 1½-story, \$1.30; 10-frame, \$1.45. No. 1 sections, \$3.75; No. 2, \$3.25. Foundation, smokers, etc., reduced. Berry boxes, crates, boxes, etc., kept in stock. Honey wanted. Twenty-four page list free.

**W. D. Soper, Rt. 3, Jackson, Mich.**

# BEE-KEEPERS ATTENTION

You work for me and I work  
for you for Mutual Benefit.

I wish to sell a large amount of  
goods during

## MARCH

—not later. I made you the lowest  
prices you have been able to secure  
in years, viz.:

The 8-frame Dovetailed hive, 1½-  
story, at \$1.25 each, any frame, any  
cover, etc.; 10-frame, \$1.35.

No. 1 white basswood standard-  
size sections, at \$3.50 per 1000; No. 2,  
\$3.25 per 1000.

I will take you, Mr. Bee-keeper,  
into partnership. There are two  
conditions, viz., 1st—Cash to reach  
me not later than March 30, 1906.  
2d—You subscribe for Rural Bee-  
keeper one year, \$1.00.

No catalog. Prompt shipment.  
Money refunded in case all are sold.  
No risk.

W. H. Putnam, River Falls, Wis.

## Bee-keepers, Co-operate!

We are Bee-keepers--Organized in  
the Interest of Fellow Bee-keepers  
(No Matter where They Live)

Membership dues, \$1.00 per year.

Present membership—about 200 bee-keepers.

Our 1906 price list of bee-supplies, and a leaflet  
containing valuable information, are now ready to mail.

If you wish to assist in co-operation among bee-  
keepers write us now and send the names and address-  
es of all your neighbor bee keepers.

The St. Croix Valley Honey-producers' Association

Headquarters Until June 1, 1906  
Glenwood, Wisconsin

## Something New in Honey-jars...

Cook's Square Jar combines a new fea-  
ture that improves the package and  
reduces the cost, and is the best and  
cheapest 1-pound glass package made.  
Send for circular and full catalog of  
hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and  
only Reliable goods sold. 10 cents brings  
sample jar by mail.

## The Best Fruit Paper

is The Fruit-Grower, published monthly at St. Joseph,  
Mo. The regular subscription price is a dollar a year  
but if you will write for free sample copy and mention  
this paper, you will receive a proposition whereby you  
may secure it one year WITHOUT COST. Every one  
who has a few fruit trees or a garden, should read

### THE FRUIT-GROWER ST. JOSEPH, MISSOURI

Every issue is handsomely illustrated and from 32 to 64  
pages a month are filled with interesting matter per-  
taining to fruit-growing and garden-  
ing. The first four issues of 1906 will be  
handsome special numbers devoted to  
the following subjects:—January, The  
Horticultural Societies; February,  
Spraying; March, Gardening; April,  
Small Fruits. Any one of these num-  
bers will be worth a dollar to you. We  
publish the "Brother Jonathan Series"  
of fruit books. Send your name and  
BRO. JONATHAN learn how to secure these books free.



TRADE MARK  
BRO. JONATHAN

Fruit-Grower Co. 152 S. 7th, St. Joseph, Mo.

## BEE - SUPPLIES

Distributing-house for Lewis' Goods,  
Dadant's Comb Foundation, etc., at  
Factory Prices.

Every thing the bee-keepers need. No order too large  
for us, nor none too small. Cash orders before February,  
6 per cent discount.

### FINE EXTRACTED HONEY

The best the world can produce. Sample sent, 8 cents.  
How much can you use? We always buy beeswax.  
Catalog and "Special" free.

C. M. SCOTT & CO.

1004 E. Washington St.  
Indianapolis : Indiana

## Southern Bee-keepers!

If you want bee-keepers' supplies of best quality and for the least money possible, you should buy  
them from the WHITE MANUFACTURING COMPANY. Situated, as we are, right near the great pine  
belt of North Texas, Louisiana, Arkansas, and Indian Territory, we can secure the best material possible  
at least cost, thus enabling us to give entire satisfaction. Catalog and price list free.

White Manufacturing Co. - Blossom, Lamar Co., Texas



# Bee-supplies



We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

**Kretchmer Mfg. Co., Council Bluffs, Iowa**

## BINGHAM

Original  
Direct Draft  
CLEAN  
BeeSmokers



Pat'd 1878, '82, '92 & 1903

## Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name. We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and *last*; don't *spit fire*; don't go out; don't *daub* themselves all over. We are the most extensive *exclusively* bee-smoker makers in the world.

**T. F. Bingham - Farwell, Mich.**

Chico, California, October 28th, 1905.

Dear Mr. Bingham: Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.  
J. M. RANKIN.

# A Prosperous

Season is yours.....

if you take time by the forelock, and be prepared for the season when it comes. **DON'T** put off ordering your supplies until you need them. Order now, and get the discounts.

I have a full line of Root's Goods, and sell them at factory prices and discounts. Send me a bill of what you want and let me tell you what I will deliver them at your depot for. Send for my 36-page catalog—it will be sent free—also a full description of the Hilton Chaff Hive and Supers, with a comparison made by the Michigan State Agricultural College between the single and double walled hives. All free for the asking. Cash or goods in exchange for wax.

**Geo. E. Hilton, Fremont, Mich.**

## WISCONSIN - BASSWOOD

FOR SECTIONS

We make them and the very best of **Dove-tailed Hives, Shipping-cases**, and a full line of Bee-keepers' Supplies always on hand. We make very prompt shipments. Let us hear from you.

**Marshfield Manufacturing Company**  
Marshfield, Wisconsin

FOR 14 YEARS

# I. J. STRINGHAM

OF 105 PARK PLACE

# NEW YORK

has been furnishing bees and apiarian supplies of every desired kind to bee-keepers of the East. A very liberal discount is now allowed early orders. Apiaries, Glen Cove, L. I. - - Catalog free.



## Everything for the Bee Keeper

will be found in our Illustrated Catalogue No. 40. It contains a full line of Hives, Supers, Followers, Sections, Section Holders, Frames, Extractors, Smokers, etc. All these and many other essentials are manufactured by us. Everything is guaranteed to be right and of best quality. Our prices are so reasonable that any bee keeper may afford the best supplies. We cannot tell you here of all the good things in this book.

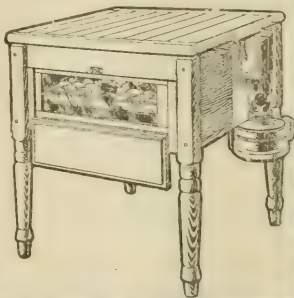
Better send for a copy today. We mail it free, together with a copy of the **Progressive Bee Keeper**, a splendid monthly publication devoted to bee interests. It will help you start right and keep you right after you are started. It is invaluable as an aid to every bee keeper. Ask for the paper and the book.

### We Sell the Best Incubators and Brooders.

Delivered at your station, prices the lowest. Write us at once and save money. Address

**LEAHY MFG. CO., 15 Talmage St., Higginsville, Mo.**

Branches at Omaha, Neb. and East St. Louis, Ill.



A. H. REEVES

DISTRIBUTOR OF ROOT'S GOODS FOR

## NORTHERN NEW YORK

Perch River, Jefferson Co., N. Y.

**PLEASE TAKE NOTICE** that we have purchased the Atchley steam bee-hive factory, and are now putting in up-to-date machinery for making Dovetailed bee-hives and supplies. We earnestly solicit a share of your patronage. We quote prices on two hives for comparison: One two-story eight-frame hive in the flat for extracted honey, complete and ready to nail, \$1.25; one story and a half hive in the flat with sections, complete ready for comb honey, \$1.25; self-spacing Hoffman frames in the flat, \$15.00 per 1000. Remember these are standard goods and Dovetailed hives. Get prices on large lots. Dittmer's foundation at Dittmer's prices. We are headquarters in the South for bees and queens—untested, \$1.00 each; \$9.00 per dozen; tested, \$1.50. Full colonies nuclei and queens in large lots our specialty. Send for catalog. **THE BEE AND HONEY CO.,** Will Atchley, Prop., Beeville, Bee Co., Texas.

### H. C. Simpson, Catawba, S. C.

Dealer in

### BEE - KEEPERS' SUPPLIES!

Breeder of Italian bees and queens.

Root's Goods a specialty.

### MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, \$1.00; six, \$5.00; twelve, \$9.00. Tested, \$1.50; six, \$8.00. Best breeders, \$3.50. Safe arrival guaranteed.

**W. H. Rails, - - - Orange, Calif.**

**PURE ITALIAN QUEENS.**—From red-clover and five-banded breeders. Untested, 75c; select untested, \$1.00; tested queens, \$1.50; select tested, \$2.50. Safe arrival guaranteed.

H. M. PARKER, JR., James Island, S. C.

## 850,000 GRAPE VINES

66 Varieties. Also Small Fruits, Trees, &c. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. **LEWIS ROESCH, FREDONIA, N. Y.**

## PROFITABLE POULTRY



Send 3c for our 64-page book, nicely illustrated, that tells how to make money raising poultry. Others are doing it; why not you! This book gives full information on breeding, feeding, rearing and hatching. Illustrates and tells why Berry's "Biddy" incubators and brooders hatch and raise the largest per cent of chicks—the kind to buy. Contains cuts of our fine pure-bred poultry with prices of birds and eggs for hatching.

Berry's Golden Rule Poultry Farm, Box 53 Clarinda, Ia.

## You Need It. . . . .

If you have only a few chickens;  
If you are at all interested in poultry;  
If you are breeding for fancy points;  
If you cater to the market trade;  
If you are in the business on large scale, you need

## Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. a year, but we offer it **AT HALF PRICE** for a short time to introduce it to readers of Gleanings. Send only 25 cts. and get it a year; or, if you send us \$1 for a year's subscription to Gleanings in Bee Culture, we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.

## Kimball's Dairy Farmer

**THREE MONTHS for 10c**

Jam full of sensible cow talk—short, boiled-down, practical stuff for you men who own the cows. Semi-monthly. The most widely quoted agricultural paper of the day.

**E. R. Shoemaker, Editor and Manager**  
Box 193, Waterloo, Iowa



## Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—Full colonies of bees. M. C. HOUGH,  
180 Washington St., Providence, R. I.

**WANTED.**—To exchange job-printing for queens.  
YOUNG BROTHERS, Rt. 2, Girard, Pa.

**WANTED.**—To exchange stock of groceries for bees or small homestead.  
A. E. SHAW, Boscobel, Wis.

**WANTED.**—About 100 colonies of bees from Maryland or Carolina, located near the water.  
I. J. STRINGHAM, 105 Park Place, New York.

**WANTED.**—Honey, wax, slumgum, or supplies, in exchange for standard-bred White Wyandottes.  
H. E. CROWTHER, No. Kingsville, Ohio.

**WANTED.**—To exchange incubator and bicycles for queens or offers.  
S. G. MOGAN, Blooming Prairie, Minn.

**WANTED.**—To exchange 38-cal. Colt's revolver for bees.  
WM. RUSSELL,  
4810 38th Ave., South Minneapolis, Minn.

**WANTED.**—Raw furs of all kinds. The highest cash prices paid. Prices on application. Goods held separate if you wish. O. H. MORLEY, Hector, N. Y.

**WANTED.**—By a young man, bees in Northern Michigan to handle on shares; can furnish references.  
R. RASMUSSEN, 191 Dale Ave., Grand Rapids, Mich.

**WANTED.**—To correspond with parties having bees to sell in carload lots for May delivery. Quote prices and give particulars.  
H. & W. J. MANLEY, Sandusky, Mich.

**WANTED.**—Refuse from the wax-extractor, or slumgum. State quantity and price.  
OREL L. HERSHISER,  
301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—200 to 400 colonies of bees within shipping distance. Give lowest cash price with all details in first letter. DR. GEO. D. MITCHELL & Co.,  
340 Fourth St., Ogden Utah.

**WANTED.**—To correspond with any one that has, or can get me, a pair of black foxes alive. Will pay a big price for a pair.  
JOHN R. BROWN, Route 2, Fall Creek, Wis.

**WANTED.**—Twelve copies second edition "Increase." Will exchange new edition for old. Also want bees in colonies, swarms, or shakes.  
E. L. PRATT, Swarthmore, Pa.

**WANTED.**—Old books on bee culture, especially from foreign countries. Please state titles, authors, year of publication, edition, binding, condition, number of pages, and price wanted.  
A. L. BOYDEN, Medina, Ohio.

**WANTED.**—Small place in or near town suitable for bee-keeping, in Delaware, Sullivan, or Greene Counties, New York. Give full particulars of what you have to offer, with price, etc.  
Box S. T. 510, care of Gleanings.

**WANTED.**—Every bee-keeper who takes GLEANINGS to send in the subscription of one or more friends. For three new subscriptions at \$1.00 each we will give a copy of the 1905 edition of A B C of Bee Culture. Sample copies to show your friends will be sent upon request.  
THE A. I. ROOT Co., Medina, Ohio.

**WANTED.**—To exchange house and three lots in Basalt, Colo., for apiary in sage regions of California.  
J. W. KALFUS, San Luis Obispo, Cal.

## Help Wanted.

**WANTED.**—A young man who understands bee-keeping wishes a position in the Western States.  
F. W., care of GLEANINGS, Medina, Ohio.

**WANTED.**—A temperate and industrious young man to work on farm and help in bee-yards when necessary. State age, and wages desired.  
W. J. MANLEY, Sandusky, Mich.

**WANTED.**—Young man to work on farm where bees are kept, celery grown, and market-gardening followed. Give references, wages expected, and experience had.  
MILAN STILL, Winona, Wash.

**WANTED.**—An up-to-date man (with family preferred) to assist me in the bee-business, and run it for all it is worth. Will sell a part or half share if desired; splendid location.  
R. M. McMURDO, Cauto, Cuba.

**WANTED.**—Energetic young man to work on farm and assist in bee-yard for seven or eight months. State experience, and wages desired.  
ERWIN BARTON, Delanson, N. Y.

**WANTED.**—Two young men to work in apiary and on farm of 80 acres. I am one of the largest producers of honey in this state. Will give my experience and fair wages. For particulars address  
HERBERT MANLEY, Route 3, Sandusky, Mich.

**WANTED.**—Young man who wishes to learn the bee-business as assistant four to six months. State age, experience, wages desired, and give reference—all in first letter; no tobacco, etc.  
THE E. F. ATWATER Co., Box 37, Meridian, Idaho.

**WANTED.**—Competent bee-keeper to work 200 to 300 colonies of bees on shares; good location; two crops of honey in a season. Would hire a good man by the month. Give references, wages expected, and experience, in first letter. W. E. FORBES, Plainwell, Mich.

**WANTED.**—A competent, active, up-to-date bee-keeper—single man, one familiar with artificial increase, queen-rearing, etc. Must be able to accomplish results, both in shop and apiary, or one anxious to learn. State age, experience, wages, etc.  
HENRY STEWART, Prophetstown, Ill.

**WANTED.**—Last year my students helped to secure a harvest of 60,000 lbs. of honey from 296 colonies, spring count. I can take one or two young men, able-bodied, using neither tobacco nor liquor and of good habits (none other need apply). They must be willing to work right along. I will give board and washing; and if student does well and I do well, will give something more.  
R. F. HOLTERMANN, Brantford, Ont., Can.

## Wanted, Situations.

**WANTED.**—Position as apiarist for season 1906. Best references. M. W. SHEPHERD, Wakeman, O.

**WANTED.**—Position in apiary, May to September. Have some experience and want to learn more.  
L. E. REES, Marlboro, Mich.

**WANTED.**—Situation by an expert colored bee-keeper; thorough knowledge of tropical bee-keeping; ten years' experience; good references; desire situation in Southern States; employment the year round; age 30. Address F. O. R., care Gleanings in Bee Culture.

## For Sale.

**FOR SALE.**—Leaming corn, White Wyandottes, Barred Rocks, Queens. Circular.  
J. F. MICHAEL, Winchester, Ind.

FOR SALE.—650 colonies bees; 1905 crop, 345 lbs. per colony spring count. W. J. PECK, Manzanita, Cal.

FOR SALE.—Eight acres on foothills, 'twixt orange and sage; 105 stands bees, three stories; good bee-hive, etc. J. C. HALL Co., 29 Nordinia, Redlands, Calif.

FOR SALE.—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog. F. R. DANIELS, 117 Florence St., Springfield, Mass.

FOR SALE.—Rosecomb Buff Leghorn eggs, \$2.50 for 15, \$10.00 per 100; largest breeder and finest flock in the world; largest and best layers of all Leghorns. Gold Dust (original). F. BOOMHOWER, Gallupville, N. Y.

FOR SALE.—Root's bee-supplies at factory prices; full colonies Italian bees; queens in season (catalog free); Plymouth Rock chickens and eggs; incubators, brooders, poultry food, etc. H. S. DUBY, St. Anne, Ill.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to FRANK S. STEPHENS, (Root's Goods.) Faden City, W. Va.

FOR SALE.—100 colonies of pure Italian bees in eight or ten frame new Dovetailed hives with Hoffman frames; tested queen in each colony. Price \$6.00 each. In lots of ten, \$5.00 each.

F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Chaff bee-hives; outside painted tin, and inside half-inch lumber; cheap, serviceable, and light weight for handling. Also 1500 4x5 Root's brand-new sections, never opened. F. W. MORGAN, DeLand, Ill.

FOR SALE.—Trees by mail; one-year-old peach and apple trees, 10c each; \$1.00 per dozen. Guaranteed true to name and free from disease.

G. A. HAPER, Batchtown, Ill.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season. W. N. CANNON, Greenville, Ala.

FOR SALE.—Weed-process foundation business; a rare chance to buy a foundation business with good growing established trade; price \$300.

H. F. HAGEN, Denver, Colo.,

Or The A. I. Root Company, Medina, Ohio.

FOR SALE.—150 colonies of bees, 30 in Danz, and balance in Root eight-frame Dovetailed hives, at \$3.50 per colony complete, in excellent condition for winter; heavy stores; a great bargain for the price. If interested, write for further particulars.

W. M. BAILEY & Co., Spartanburg, S. C.

FOR SALE.—Three untested Italian queens for \$1.00 after July 1, if ordered now; warranted pure mated, 10 cts. extra. Satisfaction, or money back. Only 300 at this rate. All you want as long as they last. Orders filled in rotation. Particulars free.

S. F. TREGO, Swedona, Ill.

FOR SALE.—Five hundred two-story double-walled hives for comb honey; use Langstroth frame, thick top-bars, 3½x5 or 4x5 sections; almost as light as single-walled hives, at a less price; crated and sold only in lots of five or multiples of five. Will also furnish you with the finest of Carniolan queens; had 20 years' experience; nothing but the best sold. Send orders now—\$1.00 each, two for \$1.75, six for \$4.50 for queens mailed in May and June.

W. W. CRIM, Pekin, Indiana.

### Convention Notices.

The California State Bee-keepers' Association will hold its sixteenth annual convention in the Chamber of Commerce Building, Los Angeles, February 20, 21, 1906. Meeting called to order at 1:30 P.M., February 20. Any one interested is invited to attend.

Ventura, Cal., Feb. 3.

J. F. MCINTYRE, Sec.



### PLAIN SECTIONS 25c PER 1000 LESS.

A curious error occurred in the first edition of our bee-supply catalog for 1906. If you happen to have a copy of this edition you will note on page 18 that the price of plain sections reads five cents less per 1000 than price named in tables. In electrotyping, the figure 2 of the 25 cents slipped down the column and was not noticed. If you have ordered plain sections at five cents less per 1000 we will make matters right with you,

### FRENCH GLEANINGS.

Under the title of "L'Apiculture," our agent for continental Europe, Mr. Emile Bondonneau, 142 Faubourg St. Denis, Paris, began January 1st the publication of a new bee journal. This new periodical consists largely of translations made from current numbers of GLEANINGS, and illustrated by the same excellent half-tones. We receive large numbers of this paper, and can mail them monthly for \$1.50 per year. Mr. Bondonneau also translated the A B C, which we are selling at \$2.00 per volume. We can also furnish in French, "Facts About Bees" and "Modern Queen-rearing" at 25 cts. per copy. Tell your French friends about our publication in this language.

### SWEET-CLOVER SEED WANTED.

We are now in the market for most any quantity of sweet-clover seed. If you have any hulled or unhulled first-class seed send us samples, telling how much you have to sell, and we will make you the best offer possible.

### SWEET CLOVER.

Now is the time to order sweet clover. We have a splendid stock on hand, and can ship promptly. Ask for our sweet-clover pamphlet if you desire further information regarding this great honey-forage and soil-improving plant.

### PRICES.

|               | By mail,<br>per lb. | By fgt. or<br>ex. per lb. | 10 lbs. by fgt. or ex.<br>per lb. |
|---------------|---------------------|---------------------------|-----------------------------------|
| White, hulled | 30c                 | 20c                       | 18c                               |
| " unhulled    | 20c                 | 10c                       | 8c                                |
| Yellow, "     | 27c                 | 17c                       | 15c                               |

Prices subject to change without notice. Bags free. F. o. b. Medina or Chicago.

## Superior Stock

I make a specialty of long-tongue  
Italian, Carniolan, and Caucasian,

Rearing only from best stock obtainable. My Italian queens are unexcelled; my Carniolans and Caucasians from best imported queens. All races bred in separate yards to insure purity. A postal will bring my price list for 1906.

**CHARLES KOEPPEN**

Fredericksburg, Va.



## Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws apiaries, and double your crop of honey.

### I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season. I also offer another car of bees the coming season.

**PRICES:** Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

**W. H. LAWS, BEEVILLE, BEE CO., TEXAS.**

## Caucasian-and-Italian-Queens from California

Prices: CAUCASIAN—One tested, \$3.00; one best breeding, \$6.00; one imported from Caucasus, \$7.00. ITALIAN—One untested, \$1.00, six for \$5.50, 12 for \$10.00; one tested, \$1.50; one best breeding, \$5.00. Caucasians bred from the best imported breeding queens. Italians bred from breeding queens we procure from principal breeders of this country who have the best honey-gatherers. Nuclei and full colonies of bees. Send for particulars, and see our adv. in GLEANINGS, February 1st.

**A. E. Titoff, Ioamosa, San Bernardino Co., California**

### All the year round.

We are prepared to supply queens any month in the year. We have secured the services of one of the best breeders, and use select imported stock. Prices as follows:

|                         |        |
|-------------------------|--------|
| Untested Italians ..... | 66     |
| Tested .....            | \$1.00 |
| Select tested .....     | 1 50   |
| Extra select .....      | 2 50   |

We do not guarantee impossibilities, such as sending queens to cold climates in winter, but for any reasonable distance and time we guarantee safe arrival. Write for further particulars.

**A. COMES CASSERES,**  
15 Orange St., Kingston, Jamaica.

## Extra Honey Queens

I am offering to the honey-producers this year some of the best Italian stock in Southern California. These bees are not only extraordinary honey-gatherers, but are also gentle, and build very little brace or burr comb. They will bring in sage honey long after other stock has stopped working on sage and gone to work on sumac. They are, in fact, a good bee, and one which I unreservedly guarantee. I sell only one grade—select untested—as I do not sell any queen which is not select.

### Prices

|                |                 |                 |
|----------------|-----------------|-----------------|
| One.....\$1.00 | Six .....\$5.00 | Twelve ..\$9.00 |
|----------------|-----------------|-----------------|

**Francis J. Colahan**  
Bernardo, San Diego Co., Calif.

## CAUCASIAN QUEENS!

Caucasian bees are the gentlest of the PROFITABLE HONEY-PRODUCERS. A trial will convince you. Have your queens, both Caucasians and Italians, bred and mated to order, and then you will have what you want. Address

**Robert B. McCain, Yorkville, Ills. R. F. D.**

## Rose Lawn Queens

Leather-colored and golden Italians or Carniolans. Unsurpassed for beauty, gentleness, and honey-gathering. Our location insures absolute hardiness and prompt shipment to any portion of the country. Our apiary is stocked with breeders from the choicest strains in America. Select queens, \$1.00; six, \$5.00. Tested, \$1.50; six, \$8.00. Few choice breeders, 1 yr. old, at \$3.00. Caucasians from imported breeders after June 1st.

**Rose Lawn Apiary, Lincoln, Nebraska**  
Frank G. Odell, Proprietor

## Queens by Return Mail

I moved from Ozan, Ark., to Beeville, Tex., to be able to fill all orders for my famous strains of three and five banded bees and queens. Am now ready to fill or book your orders. Untested queens, either race, 75 cts. each or \$8.00 per dozen. Tested, \$1.25 each, \$12.00 per dozen. Select tested, \$1.50 each. Breeders, the very best that money can buy, \$3.00 to \$5.00. Caucasian queens, \$1.00 each. Send all your orders to

**J. W. Taylor, Beeville, Texas**

## Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

**The JENNIE ATCHLEY CO.,**  
Box 18, Beeville, Bee Co., Tex.

## ITALIAN QUEENS AND GLEANINGS.

For \$1.10 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

**W. T. CRAWFORD, Hineston, La.**

**14 SUCCESSIVE SEASONS** we have bred bees in high mountain altitudes to get wing and lung power, while sage demands great tongue reach. Send for descriptive list of queens. **C. W. Dayton, Chatsworth, Cal.**

## TO THE BEE-KEEPERS OF CANADA

WE ARE pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we are not able to offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers. Moreover, what we do list we propose to keep in large quantities, and will be able to ship promptly.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

### E. GRAINGER & COMPANY

Deer Park

Toronto - Ontario - Canada

CANADIAN AGENTS FOR  
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

## Model Incubators and Brooders.

Manufactured by Chas. A. Cyphers.

We are sole agents for Toledo and vicinity, and sell all goods at factory prices. Do not be humbugged and buy a cheap machine. The best is none too good.

THE LARGEST STOCK OF

## Root's Bee-supplies

always on hand. We sell at Root's prices, and give you the Root quality.

### We can Start You in the Poultry or Bee Business.

Several hundred fowls on hand, and over 300 colonies of bees. Write us your wants. Our new illustrated catalog will be out soon. Sent free to any address for the asking. Ask for it.

GRIGGS BROTHERS,

523 Monroe St.,

TOLEDO, OHIO.

## Bee-Supplies

For Southern

Bee-Keepers

I have been over 20 years in the bee-supply business, manufacturing hives and fixtures, and raising bees and queens. With all this experience and the excellent facilities I have, I am able to fill your orders promptly, and give absolute satisfaction. Though I make my own hives I carry a complete stock of The A. I. Root Company's manufacture. Just specify "Root's Goods" and you will get them.

### Bees and Queens

I breed with scientific, intelligent methods, from the best Imported and Long tongued stock. Cheap queens may be had elsewhere. My stock is worth every cent of the price. You will be pleased with it. I GUARANTEE IT.

### 64-page Catalog

of Supplies and Bees sent free. Tell me you saw my ad. in GLEANINGS.

J. M. JENKINS

WETUMPKA : ALABAMA

## CENTRAL PENNSYLVANIA

I am in an unexcelled position to furnish bee-keepers within a hundred miles of Williamsport with Root's bee-keepers' supplies. We have four railroads and three express companies — Adams, American, and the United States. Can deliver goods with great promptness, and save you freight charges. Wholesale or retail. Also can supply you with pure-bred Italian and Caucasian bees in season. Write for our price lists.

E. E. PRESSLER

WILLIAMSPORT, PENN.



# SUPREME EXCELLENCE

is only another name for OUR Make of

## BEE-KEEPERS' SUPPLIES

---

Have you ever used them? If not, give us a trial order this spring. We will do our best to please you. Our prices are as low as any; and if our goods aren't as we claim you'll not have to pay for them.

### We Allow Usual Discount for Early Orders

February, 4 per cent; in March, 2 per cent. Our large illustrated price list and copy American Bee-keeper free.

**The W. T. Falconer Manufacturing Co.**  
Jamestown, New York

 The *American Bee-keeper* for January contains excellent photographic illustrations of Artificial Honey-Comb made over 30 years ago in New England, together with illustrations of the implements used in making, and a portrait of the inventor.

Dadant's

## Foundation

It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!  
No sagging; no loss.  
Twenty-eighth Year.  
We Guarantee Satisfaction.  
Wax Worked into Foundation.

~~~~~  
Bee-supplies of All Kinds

~~~~~  
Beeswax wanted at all times.  
Send for Our 1906 Catalog.

~~~~~  
Dadant & Sons, Hamilton, Ill.

New Goods-Big Stock

New Warehouse, Root's Goods,
Prompt Shipment, Low Freight.

Everything for the Bee-keeper at Savannah, Ga.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory.

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog sent free. Correspondence solicited. .

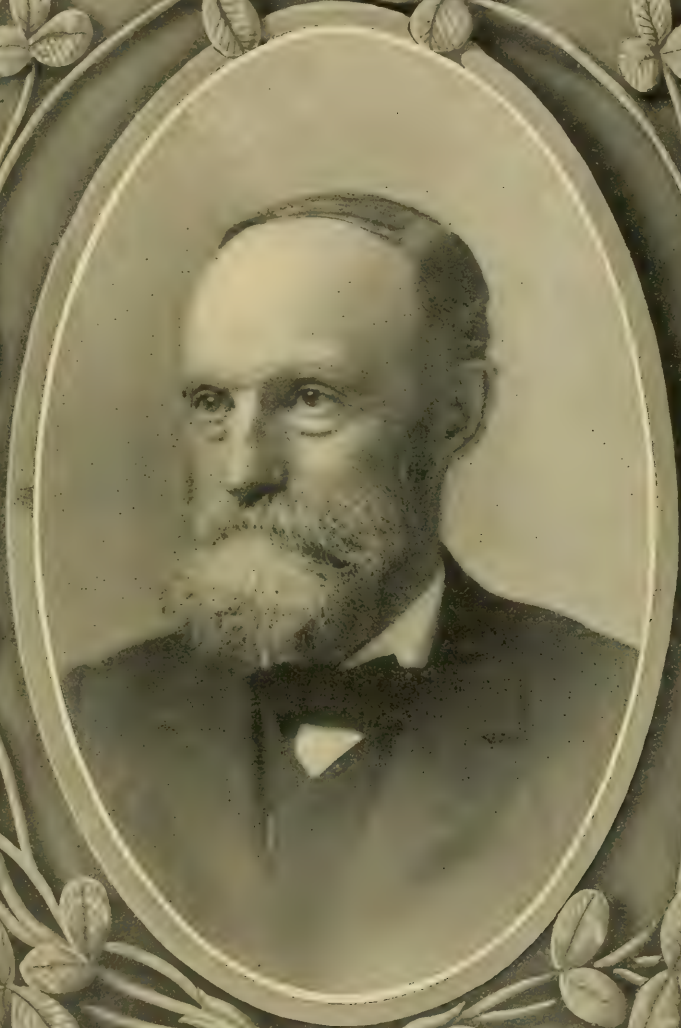
HOWKINS & RUSH

124 West Liberty Street

SAVANNAH - - GEORGIA

GLEANINGS

IN BEE CULTURE



THE A. I. ROOT CO.,
MEDINA, OHIO.

Eastern Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

IN BOSTON

✿ ✿ I have purchased the bee-supply business of Mr. F. H. Farmer, and am now located at the address given below.

✿ ✿ Old customers of Mr. Farmer will find that I can give them the same prompt shipments and service, and that I handle exclusively the best line of supplies—Root's Goods. Boston is the best shipping-point in the New England States. Bees and queens in season.

✿ ✿ There is money in bees. Learn how to handle them correctly. I will gladly send you my catalog, and answer any questions. :: :: :: :: ::

H. H. Jepson, Boston, Mass.
182 Friend Street

Root's Bee-supplies at Root's Prices

But f. o. b. Baltimore instead of Medina. Write for catalog I.

Rawlings Implement Co.
Baltimore : : Maryland

NORTHEASTERN & NEW ENGLAND BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine
MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

MISSISSIPPI

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders.



Bees and Queens
from Select Stock

Correspondence Solicited.
GEO. A. HUMMER,
BRAZELIA, - MISSISSIPPI
Shipping-point, Macon

PENNSYLVANIA

Now is the time to send in your orders. Deduct 2 per cent from prices during March. Send name for catalog of : : : : :

ROOT'S GOODS AT ROOT'S PRICES

I am jobber of these excellent supplies in Pennsylvania; carry large stock and ship promptly. . . .

Frank W. Prothero
Successor to Prothero & Arnold
Dubois, Clearfield Co., Pennsylvania

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusively,
at Root's Factory Prices.

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

Two Per Cent Discount For Cash Orders Received in March.

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

TOLEDO.—The market on comb honey has been better for the past two weeks than it has any time during the last season. Prices are firm on account of the scarcity. We are getting 15 and 16 for fancy white clover; 14 and 15 for No. 1, and 13 and 14 for amber; buckwheat, 13. Extracted honey is in good demand at the following prices: White clover in barrels, $6\frac{1}{2}$ to 7; amber, $5\frac{1}{4}$ to $5\frac{1}{2}$. Cans, every grade, from 1 to $1\frac{1}{2}$ ct. higher. Beeswax is firm, and in good demand at 28 and 30. The above are our selling prices, not what we pay.

GRIGGS BROTHERS.

521 Monroe St. Toledo, Ohio

Feb. 19.

PHILADELPHIA.—The condition of the honey market is much more firm than it was a year ago at this time, with much less on the market. Usually at this time of the year bee-men wake up to realize that they may carry their honey over and send it to the market to be sold at any price rather than hold it. At the present time, the market is fairly well cleaned up. We quote: Fancy white comb honey, 16 to 17; amber, 13 to 14; extracted white clover, 7 to 8; amber, 6 to 7; beeswax firm, 28. We are producers of honey, and do not handle on commission.

WM. A. SELSER,

10 Vine St., Phila., Pa.

Feb. 19.

CINCINNATI.—At the present time the demand for honey is quiet; however, we fully believe the near future will bring better reports, since all indications point to a prosperous season. Continue to quote amber extracted honey in barrels at $5\frac{1}{4}$ to 6; fancy white extracted, at $7\frac{1}{4}$ to $8\frac{1}{2}$, in crates of two 60-lb. cans. Comb honey is moving slowly at $13\frac{1}{2}$ to 15, according to the quality. The above are our selling prices of honey, not what we are paying. Beeswax, choice bright yellow grade, is wanted at 30 cts. delivered here.

THE FRED W. MUTH CO.,

51 Walnut St., Cincinnati, O.

Feb. 19.

ATLANTA.—Honey market is at a standstill with us, and there will be very little doing till the new crop begins to move. We quote: fancy white, $12\frac{1}{2}$ to 14; No. 1, 10 to 11. Beeswax firm at 30 for No. 1 stock.

JUDSON HEARD & Co.,
Atlanta, Ga.

Feb. 19.

CHICAGO.—There is not much doing in our line of business, the volume not being equal to this season in recent years; yet there is not much change in prices, and we therefore refer to last report as representing present market.

R. A. BURNETT & Co.,

199 South Water St., Chicago, Ill.

Feb. 19.

BOSTON.—The demand is very good for new honey, fully equal to the supply, and prices are firm at 16 for fancy, down to 15 for No. 1 stock with practically no No. 2 to offer. Old honey with good supply is almost at a standstill, nominal prices. Strained honey, fancy white, 8; light amber, 6 to 7.

BLAKE, SCOTT & LEE,

31-33 Commercial St., Boston, Mass.

Feb. 19.

ST. LOUIS.—Since our last our honey market has not undergone any change. The demand for comb and extracted honey is very limited. We quote as follows: Fancy white comb honey, 13 to 14; No. 1, 12 to 13; amber, 11 to 12; extracted, California light amber, 6 to $6\frac{1}{2}$; Spanish needle, $6\frac{1}{2}$ to 7. Southern, in barrels, $4\frac{1}{4}$ to $4\frac{1}{2}$; in cans, 5 to $5\frac{1}{2}$. Beeswax, 29.

R. HARTMANN & Co.,

14 So. Second St., St. Louis, Mo.

Feb. 19.

SCHENECTADY.—There is but little comb honey remaining in our market; and as there is always more or less demand during the Lenten season we would advise producers who may still have some stock on hand to forward the same without delay. We quote fancy white, 14 to 15; No. 1, 14; No. 2, 12 to 13; buckwheat, 11 to 12; extracted light, $6\frac{1}{2}$ to 7; dark, 6 to $6\frac{1}{2}$.

Feb. 20. CHAS. McCULLOCH, Schenectady, N. Y.

FOR SALE.—Fine alfalfa honey in 60-lb. cans. Send for sample and prices.

DADANT & SONS, Hamilton, Ills.

FOR SALE.—125 lbs. buckwheat at 11 cts. This is the last of our comb. Water-white extracted, $8\frac{1}{2}$ cts.; amber, 7 cts. QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—378 bbls. Mexican honey; 98 bbls. Cuban honey; 67 bbls. Southern honey. Special prices and samples sent upon request.

STROMEYER & METZEL, Philadelphia, Pa.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.

O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

THE FRED. W. MUTH CO.,

51 WALNUT ST.,

CINCINNATI, OHIO.

FOR SALE.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.

HILDBRETH & SEGELKEN, 82 Murray St., N. Y. City.

WANTED.—Fancy clover extracted honey. Send sample and quote lowest price.

J. E. CRANE & SON, Middlebury, Vt.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.

R. A. BURNETT,
199 South Water St., Chicago, Ill.

WANTED.—Fancy, white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.

GRIGGS BROS., Toledo, Ohio.

WANTED.—Clover and basswood extracted honey; also No. 1 amber honey. Send sample, and state quantity and price, delivered at Preston.

M. V. FACEY, Preston, Fillmore Co., Minn.

WANTED.—Comb and extracted honey. State quality, quantity, and price.

JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDBRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.

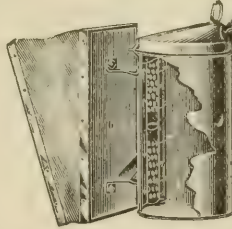
EVANS & TURNER, Columbus, Ohio.

WANTED.—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.

THE A. I. ROOT CO., Medina, Ohio.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair
St. Louis, 1904



**UP-TO-DATE.
STRONGEST,
COOLEST,
CLEANEST,**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool adding to its durability. It has no valves to get out of order or snout to clog with soot.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Platteville, Wis.

SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker." Grant Stanley, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

F. DANZENBAKER, MIAMI, FLORIDA

Chas. Israel & Brothers
436-490 Canal St., New York.

Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments Solicited. Established 1875.



Your Spring Help

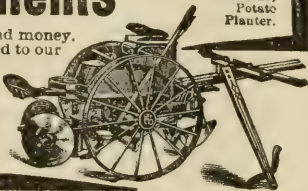
What kind of help will you have this spring. Will you do your work the old way with many men and much expense, or employ the time-saving, laborlessening and money-making

IRON AGE Implements

These famous tools double each man's capacity—saving time and money. Our new No. 25 Fertilizer Distributor attachment may be applied to our famous No. 6 combined tool, or to our No. 1 Double Wheel Hoe as is the case with the Seed Drill attachments. This labor-saving implement and the Iron Age (Improved Robbins) Potato Planter are fully described in "Iron Age" a book which should be in the hands of every gardener and farmer who would be more successful. Sent free.

BATEMAN MFG. CO., Box 120, Grenloch, N. J.

Iron Age
(Improved
Robbins)
Potato
Planter.



Western Seeds for Western Planters

Corn, English Blue Grass, Oklahoma Dwarf Broom Corn, Hungarian Brome Grass and full line Garden, Flower and Field Seeds. Write NOW for our 1906 Catalog. Free by mail. Address **Kansas Seed House, Lawrence, Kansas, or Colorado Seed House, Denver, Colo., or Oklahoma Seed House, Oklahoma City, Okla.**

Seeds for Farm and Garden. Alfalfa, Macaroni Wheat, Russian Speltz, Millet, Kaifir

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

E. R. ROOT
Editor

A. I. ROOT
Editor Home Departments

H. H. ROOT
Asst. Editor

Department Editors:
DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE,
LOUIS H. SCHOLL, G. M. DOOLITTLE, W. P. ROOT.

J. T. CALVERT, Business Manager

A. L. BOYDEN, Advertising Manager

Circulation 30,000. Reaches every State and 60 foreign countries.
Established in 1873. Sixty-four pages. Semi-monthly.
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

Terms---\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.

Postage is Prepaid by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS., 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 6/.*
Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publisher.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY.....STATE.....

DATE.....If you want Gleanings discontinued at expiration, check here ()

Spring Management

of the right kind lays the foundation for a crop of honey, and **ADVANCED BEE CULTURE** covers that feature of bee-keeping most completely. It begins with taking the bees from the cellar, showing how to avoid the "mixing" that comes from improper management; then how to protect them thoroughly at the small cost of only **FIVE CENTS** a hive for both material and labor.

This protection not only enables the bees to rear more brood, but saves it from destruction in any cold

snap that may follow, thus greatly increasing the number of workers that will be ready when harvest comes.

If you have never tried spring protection, just try it on a few hives this year and note the results. Remember, too, that this is only one point—there are hundreds in the book that are equally helpful.

Price, \$1.20 postpaid; or the Review one year and the book for only \$2.00.

W. Z. Hutchinson, Flint, Mich.

P. S.—Each new subscriber for 1906 will receive, free of charge, any back numbers of 1905 that may still be on hand. At present I can send a complete set excepting the January, February, and April issues. March is getting pretty low. As long as they last, however, any numbers that are left will be sent free.

HERE'S YOUR CHANCE

to win a prize by doing a little work in
obtaining subscriptions for *Gleanings*
in our Second Subscription Contest.

Last contest **EVERY** contestant that sent in more than **ONE** subscription obtained a prize. It will doubtless be so in this contest, so that besides the regular commission you will receive a prize that will more than pay any effort made.

Twenty-five Prizes!

(Variety of queen to be winner's selection)

First Prize \$10.00 queen
Second Prize 7.50 queen
Third Prize 5.00 queen

Fourth Prize 3.00 queen
Fifth Prize 2.00 queen
6th to 15th Prize One cloth-bound **A B C**
16th to 25th Prize One Junior **Cornell smoker**

Conditions!

FIRST.—That subscriptions to be entered in this contest are to be obtained as results of work between February 15 and July 1, 1906.

SECOND.—To be eligible to any one of the first fifteen prizes, contestant must have at least five yearly subscriptions, or their equivalents, to his credit.

THIRD.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

FOURTH.—That subscriptions can be sent in any time, but must be plainly marked "For Second Subscription Contest."

CUT HERE

Gleanings in Bee Culture

Subscription Contest Department.

Date

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Please send agents' terms and enter my name as contestant in Second Subscription Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions and agree to them.

Name

P. O.

I can use sample copies of *Gleanings*. State

CONTENTS OF THIS NUMBER.

MARKET QUOTATIONS	266	Chambers' Cell-starting Device.....	293
STRAY STRAWS	275	Poultry.....	295
EDITORIAL	277	Bee-hunting.....	296
Thickness v. Length and Breadth of Sections.....	277	HEADS OF GRAIN	297
A. I. Root: the Man and His Work.....	278	Early v. Late Putting of Bees in the Cellar.....	297
Betsinger and His wire-cloth Separator.....	278	How to Prevent Bees Crawling up Trousers Legs.....	297
Danger of Starvation this Spring.....	279	Questions Concerning Buying of Nuclei.....	298
Methods of Carrying Bees into and out of Cellars.....	279	Apiary Under Apple Blossoms.....	298
PICKINGS FROM OUR NEIGHBORS' FIELDS	281	Preventing Swarming—One Colony over Another.....	299
GLEANINGS FROM THE PACIFIC COAST	281	Successful Bee-keeping on a City Lot.....	299
CONVERSATIONS WITH DOOLITTLE	283	Breaking the Record on Honey-eating.....	299
FANCIES AND FALLACIES	285	Wintering Colonies between Sawdust Walls.....	300
GENERAL CORRESPONDENCE	286	Pollen-gathering in January.....	300
Taking Our Bees from the Cellar in the Spring.....	286	Why the Honey Candles.....	300
When to Set the Bees out in the Spring.....	287	A Question.....	301
How Can We Secure more Honey of Best Quality.....	288	Starters for Wired Frames.....	301
If I were to Start Anew in Bee-keeping.....	288	HIGH-PRESSURE GARDENING	301
Work in the Apiary.....	229	SPECIAL NOTICES	327

INDEX TO ADVERTISEMENTS.

Banking by Mail.		Comb Foundation		Publishers, Agricultural-paper.	
Savings Dep. Bank Co.....	314	Dadant & Son.....	Back Cover	Southern Fruit Grower.....	273
Bee Books.		Gus Dittmer.....	321	Publishers, Bee-Journal	
A. J. Cook.....	328	Fences.		W. Z. Hutchinson.....	269
W. Z. Hutchinson.....	269	Brown Fence & Wire Co.....	313	Modern Farmer & Busy Bee.....	313
Bee Smokers.		Coiled Spring Fence Co.....	308-313	The A. I. Root Co.....	268-269
T. F. Bingham.....	323	Kitselman Bros.....	313	Geo. W. York & Co.....	273
F. Danzenbaker.....	267	Page Woven Wire Fence Co.....	313	Publishers Magazines.	
Bee Supplies.		Honey-buyers.		Frank Munsey.....	271
Bee & Honey Co.....	325	See page.....	270-271	Publishers, Poultry-paper.	
J. H. M. Cook.....	328	Household Specialties.		R. R. Fisher.....	319
W. T. Falconer Mfg. Co. Back Cover		Co-operative Society.....	310	The Howard Pub. Co.....	314
Geo. E. Hilton.....	323	The D. Co.....	273	Inland Poultry Journal.....	319
M. H. Hunt & Son.....	272	Home Instructor.....	273	Ohio Poultry Journal.....	319
Kretschmer Mfg. Co.....	323	Joseph Horne Co.....	305	The Poultry Gazette.....	319
Leahy Mfg. Co.....	328	J. W. Quilling.....	310	Poultry Item.....	319
G. B. Lewis Co.....	274	A. L. Rice.....	309	Seeds and Trees.	
Marshfield Mfg. Co.....	323	Stromberg-Carlson Tel. Mfg. Co.....	309	W. F. Allen.....	317
Fred W. Muth Co.....	266	Incubators		Miss Ella V. Baines.....	317
Walter S. Powder.....	320	American Incubator Co.....	319	Buckeye Brill.....	319
Page & Lyon.....	321	Banta-Bender Mfg. Co.....	307	W. Atlee Burpee & Co.....	315
A. H. Reeves.....	325	Buckeye Incubator Co.....	308	Callander Cactus Co.....	315
St. Croix Valley Hon. P. Ass'n.....	328	Cycle Hatcher Co.....	307	Chattanooga Nurseries.....	318
The Root Co., Syracuse, N. Y.....	272	Chas. A. Cyphers.....	307	M. Crawford Co.....	318
The Root Co., St. Paul, Minn.....	322	Cyphers Incubator Co.....	308	Darling & Beahan.....	315
C. M. Scott & Co.....	322	M. M. Johnson Co.....	308	L. J. Farmer.....	318
W. D. Soper.....	322	Leahy Mfg. Co.....	328	Flansburgh & Potter Co.....	318
I. J. Stringham.....	325	Manson Campbell Co., Ltd.....	307	J. Roscoe Fuller & Co.....	318
White Mfg. Co.....	322	J. W. Miller Co.....	308	Gage County Nurseries.....	318
C. H. W. Weber.....	265	Prairie State Inc. Co.....	307	Gardner Nursery Co.....	317
A. G. Woodman Co.....	322	Racine Hatcher Co.....	307	German Nurseries.....	315
York Honey & Bee Supply Co.....	321	Reliable Incubator Co.....	307	E. C. Green & Son.....	316
Bees and Queens.		Geo. H. Stahl.....	308	Green Nursery Co.....	316
George W. Barnes.....	325	Machinery.		Hart Pioneer Nurseries.....	317
Rev. J. G. Baumgaertner.....	325	The Deming Co.....	308	D. Hill.....	316
F. J. Colahan.....	325	Bateman Mfg. Co.....	267	R. M. Kellogg Co.....	316
A. Gomes Casseres.....	324	Electric Wheel Co.....	313	Tewel Nurseries.....	315
Etablissement d'Apiculture.....	325	Lyons Engine Co.....	312	Miss C. H. Lippincott.....	318
Chas. Koepfen.....	324	Manson Campbell Co.....	309	J. T. Lovett.....	316
H. M. Parker, Jr.....	325	Medina Concrete Co.....	313	McAdams Seed Co.....	318
Robert B. McCain.....	324	F. E. Myers & Bros.....	309	L. H. Mahan.....	318
W. H. Laws.....	324	Rochester Spray Pump Co.....	308	W. A. Mason.....	318
W. T. Crawford.....	324	Seneca Falls Mfg. Co.....	310	L. L. May.....	315
The Jennie Atchley Co.....	324	Wilson Bros.....	308	National Plant Co.....	317
A. E. Tifoff.....	324	Miscellaneous.		Geo. W. Park.....	319
W. H. Rails.....	325	H. H. Aultfather.....	273	Louis Roesch.....	318
Roselawn Apiary.....	324	F. W. Bird & Son.....	314	W. N. Scarff.....	317
H. C. Simpson.....	325	Co-operative Society.....	310	Schider Bros.....	318
J. W. Taylor.....	324	Hardware Specialty Co.....	313	Sheerin's Wholesale Nurseries.....	318
Henry Shaffer.....	325	Chas. H. Manley.....	328	R. H. Shumway.....	315
Victor-Knolle Apiary Co.....	325	Seaboard Air Line R. R.....	273	Storrs & Harrison Co.....	317
Daniel Wurth.....	324	Poultry Supplies.		Wood Co.....	319
Buggies.		G. E. Conkey & Co.....	319	Yenn Bros.....	318
Anderson Mfg. Co.....	310	B. H. Greider.....	319	Wants and Exchanges.	
Elkhart Carriage Co.....	311	Willett's Preserver Co.....	308	See page.....	226-227
Ohio Carriage Mfg. Co.....	311				
Progressive Vehicle Mfg. Co.....	310				
Union Buggy Co.....	310				

TRY IT AT MY EXPENSE --- NOT YOURS!

If you are not a reader of MUNSEY'S MAGAZINE I want you to become one. I want you to know what it is like, and to know at my expense, if the magazine does not suit you. If it does suit you, and the price is right, you will naturally wish to pay for it. There isn't much in the theory of getting something for nothing.

MUNSEY'S MAGAZINE is worth your knowing. It was MUNSEY'S MAGAZINE that led off a dozen years ago in the low price for magazines—ten cents a copy and one dollar by the year. It was the fight we had with a giant News Company monopoly that made MUNSEY'S MAGAZINE possible, and that blazed the way for all other publishers whose magazines are issued at the price of MUNSEY'S. But this is too big and too graphic a story to be told in this advertisement.

MUNSEY'S MAGAZINE

Has the biggest circulation of any standard magazine in the world—much the biggest. And it has made it and held it solely on its merits. In a dozen years we have not spent a dozen cents in advertising. We have no agents in the field—not an agent anywhere—we have given no premiums, have clubbed with no other publications, and have offered no inducements of any kind whatsoever. We have made a magazine for the people, giving them what they want, and giving it to them at a right price—that's all. And the people have bought it because they like it and because they could buy it at a right price. Our object in advertising now is to reach a few hundred thousand new readers—people who are not now taking MUNSEY'S MAGAZINE.

A Ten Thousand Dollar Magazine For Ten Cents.

Though there are a good many three dollar and four dollar magazines in America, there is none better than MUNSEY'S, whatever the price—not one. There is no higher grade magazine, there is none better printed or printed on better paper, and there is none better or more carefully edited—none better written, and few, if any, so interesting. It costs in round numbers about *ten thousand dollars a number* to go to press on MUNSEY'S MAGAZINE. That is to say, if only one copy were printed it would cost ten thousand dollars, but spreading this cost over our entire edition of *750,000 copies*, the amount gets down very thin on each individual copy.

When I first made this price, a dozen years ago, everybody said it was impossible—said we couldn't live—said we were bound to fail. We did live, however, and today are publishing a *thousand tons* of magazines a month, which is fifty car-loads. This is more than three times as many magazines as were issued by all the publishers combined of the entire country when I came into the business.

It is because I am so sure of the merits of MUNSEY'S MAGAZINE, and so sure it will please you, that I am now offering to send it to you without any money in advance, and without any money at all if it does not please you. I can afford to take this chance, which, as I see it, is a very small chance, because I believe thoroughly in the rugged honesty of the people. The percentage of dishonesty among the citizens of America is far too small for consideration in a business proposition of this kind.

There is no trick in this offer—no hidden scheme of any kind whatsoever. It is a simple, straightforward, business proposition which will cost you nothing unless you wish it to.

The All-Story Magazine Also Free

I will not only send you MUNSEY'S MAGAZINE, as stated above, but will send you three months free, in addition, THE ALL-STORY MAGAZINE, which is another of our publications. I add this other magazine for two reasons. First, that you may have the choice of two magazines, and second, with the thought that you may want both.

If this proposition interests you, and I hardly see how it could be made more to your interest, kindly fill out the coupon in this advertisement and mail it to me, and you will get the magazines as stated herein.

FRANK A. MUNSEY, New York:

114

You may enter my name for one year's subscription to Munsey's Magazine, for which I agree to pay you one dollar (\$1.00) at the end of three months, providing I find the magazine to be what I want.

In the event that I do not care for the magazine, I will so notify you at the end of the three months, in which case I shall owe you nothing.

It is further agreed that in connection with this subscription you are to send me The All-Story Magazine free for three months, and that I am to have the option of changing my subscription, if I so desire, from Munsey's Magazine to the All-Story Magazine for the balance of the year.

Name _____

City _____

Date _____ 1906 State _____

FRANK A. MUNSEY, 175 Fifth Avenue, NEW YORK

TWO BEE-KEEPERS

March 1st, 1906.

The A. I. Root Co., Syracuse, N. Y.

Gentlemen:—Inclosed find our check in payment for the inclosed order of goods. You may ship same at your convenience. We wish to be in readiness for the season when it opens, and wish you would not delay the order too long. We now have time to get sections made and filled with foundation, which we can not do when spring work opens. Bees are wintering well so far, and we expect them to come out in good shape.

Respectfully, I. R. SUCCESS.

June 20th, 1906.

The A. I. Root Co., Syracuse, N. Y.

Gentlemen:—Send us immediately by express C. O. D., the goods called for on the inclosed order-sheet. Do not delay. Delay will cause us considerable loss. We ought to have sent this order in long ago. The season has opened fine and we have no hives, sections, or foundation on hand. Expect a swarm to come out at any time, and no hives on hand for new swarms. Hustle the goods off.

Respectfully,

I. B. WATEING.

Which column shall we place your favor or order?

We have a large stock of goods on hand and shall be pleased to receive your order now or later. Discount this month, 2 per cent

The A. I. Root Co., Syracuse, N. Y.

HIVES - HIVES



Now is the time to place your order for the hives you will need this year. By getting them now you will save the discount, and can have them nailed and ready for your bees in the spring.

We should like to quote you prices in any quantity on the following:

The Root Chaff Hive

The best chaff hive made

The Danzenbaker Hive

The comb-honey hive

The Root Dovetailed Hive

Standard size and extra quality

Send for Catalog

M. H. HUNT & SON, BELL BRANCH, MICH.

We Sell Root's Goods in Michigan

WEEKLY

American Bee Journal & Gold Fountain Pen and Novelty Pocket-Knife

All 3 for
\$2.75



HOWARD M. MELBEE,
HONEYVILLE, O.

NOVELTY POCKET-KNIFE
(Name and address on one side—Three Bees on the other side.)

Your Name on the Knife.—When ordering, be sure to say just what name and address you wish put on the Knife. The Novelty is in the handle, made of indestructible celluloid, transparent as glass. Underneath the celluloid, on one side is name and address of owner, and on the other side Queen, Drone and Worker, as shown here.

The Material entering into this celebrated knife is of the very best quality.

Why Own the Novelty Knife?—In case a good knife is lost, the chances are the owner will never recover it; but if the "Novelty" is lost, having name and address of owner, the finder will return it.

How to Get this Valuable Knife.—We send it postpaid for \$1.25, or club the Novelty Knife and the Weekly American Bee Journal for one year—both for \$2.00. (Allow two weeks for Knife order to be filled.)

SOLID GOLD FOUNTAIN PEN

Finally, we have found a good Fountain Pen that is reasonable in price. The manufacturers of this Pen say that if you pay more than \$1.25 for other fountain pens, it's for the name. Absolutely guaranteed to work perfectly, and give satisfaction. The Gold Nibs are 14 kt., pointed with selected Iridium. The Holders are Para Rubber, handsomely finished. The simple feeder gives a uniform flow of ink. Directions and Filler accompany.

We send this Gold Fountain Pen postpaid for only \$1.25, or for \$2.00 we will send it and the Weekly American Bee Journal for a whole year.

Get Sample copy of the Weekly American Bee Journal for a whole year.
12 months (13 copies) for 20c; regular yearly price, \$1.00. Address all orders to

GEORGE W. YORK & CO., 334 Dearborn St., CHICAGO, ILL.



Worker



Queen



Drone

COOK BOOK FREE!

one copy of the **American Family Cook Book**, cover to cover and the only Magazine published that lists up-to-date Good stories. Stamps taken. **Agents Wanted.**

To each lady who will send 25 cents for one year's trial subscription to **THE HOME INSTRUCTOR, Quincy, Illinois**, we will send free, postpaid, The Home Instructor is a Woman's Magazine from **Dress Patterns at 5 cents each.**

GOLDEN Opportunities!

EXIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

J. W. WHITE

Gen. Indus. Agt., Portsmouth, Va.

Seaboard Air Line Railway

LADIES WANTED

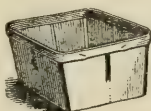
ON SALARY

for a large established firm to solicit and demonstrate a modern toilet soap, distinctly different from all other soaps. No traveling. Easy sales everywhere. Write for particulars and free sample.

The D. Co. 715-725 S. W. St. Canton, O.

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.



Free! Free!

Our catalog of berry-plants, 32-quart berry crates and baskets. Special prices for Feb'y orders.

H. H. Aultfather
Box 3 Minerva, O.

The Survival Of The Fittest Is Lewis Beeware It Always Fits

Did you ever stop to consider why you should insist on Lewis Goods in preference to any other?

At the LEWIS FACTORY the greatest pains are taken to see that all goods are made scientifically correct.

Perfect matching, necessary bee-spacing, accurate dovetailing, correct grooving, and carefully polishing, besides a thousand and one other important details of manufacture are all brought to bear as a result of the thirty years of experience of the Lewis beeware specialists.

Lewis Goods go together right. Why? Because they are right.

Every part is made to fit every other part, just like a watch.

Lewis hives and sections go together with a snap.

What a comfort it is to have bee-goods fit!

What bee-keeper can estimate the value of time and patience lost with poor goods that don't and won't go together accurately? Steer clear of them by ordering Lewis Goods.

You can't afford to take chances of not receiving full value for your money, even if the goods are ordered in the winter time. But now suppose it is swarming season, hives brimful of honey, bees are busy; you can't afford to tie up your bee industry, lose time, lose money, and have your peace of mind annoyed and patience tried by bothering with ill-fitting, inferior goods. Lewis Goods are necessary to your welfare and happiness.

Look for brand. Send for catalog to-day, if you haven't one.

There are a score of our agents besides ourselves who can furnish you with Lewis Goods at factory prices.

ENGLAND—E. H. Taylor, Welwyn, Herts.

CUBA—C. B. Stevens & Co., Havana.

C. B. Stevens & Co., Manzanillo.

CALIFORNIA—Paul Bachert, Lancaster.

The Chas. H. Lilly Co., San Francisco.

Colorado—R. C. Aikin, Loveland.

Ark. Valley Honey-producers' Ass'n, Rocky Ford.

Colorado Honey-producers' Association, Denver.

Fruit Growers' Association, Grand Junction.

Robert Halley, Montrose.

ILLINOIS—York Honey & Bee Supply Co., Chicago.

Dadant & Son, Hamilton.

IOWA—Adam A. Clark, LeMars.

Louis Hanssen's Son, Davenport.

INDIANA—C. M. Scott & Co., Indianapolis.

MICHIGAN—A. G. Woodman Co., Grand Rapids.

MINNESOTA—Wisconsin Lumber Co., Faribault.

MISSOURI—E. T. Abbott, St. Joseph.

OHIO—Norris & Anspach, Kenton.

OREGON—The Chas. H. Lilly Co., Portland.

PENNSYLVANIA—Cleaver & Green, Troy.

TEXAS—Southwestern Bee Co., San Antonio.

UTAH—Fred Foulger & Sons, Ogden.

WASHINGTON—The Chas. H. Lilly Co., Seattle.

G. B. LEWIS CO.

WATERTOWN, WIS., U. S. A.

GLEANINGS

IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
 Illustrated : Semi-monthly : One Dollar per Year
 Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

MARCH 1, 1906.

No. 5



PROF. COOK thinks our nice section honey "would go like wildfire" on the European markets, p. 207. Pity we can't get a little wildfire into our own markets.

MR. ASPINWALL is a conspicuous example of persistent endeavor in one direction. If he ever reaches the goal of the non-swarming hive—and let us earnestly hope that he may—he will have richly earned the prize.

PHILIPPINE BEES, presumably *Apis dorsata*, are said, p. 215, to build cells $2\frac{1}{2}$ in. deep. If these are in combs with the usual midrib, the combs would be 5 in. thick. Is there not some mistake about this? Surely a cell $2\frac{1}{2}$ in. deep would hardly be used to rear brood in.

HYBRIDS are spoken of, p. 201, as worse gluers than Italians. I don't remember ever seeing that mentioned before. Is it a fact? [I had always supposed it was generally conceded that hybrids were more inclined to propolize than pure Italians. I know ours used to be. If I am mistaken I shall be glad to be corrected.—ED.]

CARNIOLANS, according to *Muenchener Bztg.*, excel all others in working on red clover. The dry weather of the past season favored work on red clover, and the Carniolans appeared on it in full force, while the American red-clover stock did not visit it at all. [I should be inclined to think that there would be no difference between Carniolans and Italians. But this is sure: There are strains of either that greatly excel others of their own race on red clover.—ED.]

HONEY-COMB, says Dr. Bohrer, p. 220, "is of no value as food; and in many cases of stomach ailment it is a positive irritant." But say, doctor, is it not true that it is sometimes well to have things in food which have no nutritive value? and are not irritants sometimes a benefit in the intestinal tract? [It has been said that a shipload of horses out at sea ran out of hay. There were oats enough, but the horses did not do well. The captain finally ordered the carpenters to plane up some plank into fine shavings, and these were soaked in water and mixed with the oats and fed to the animals? The story goes that the horses from that time on began to thrive. Perhaps in this sense wax would not be an irritant.—ED.]

FREEZING is said to have killed a frog and some bees, p. 202. Are you sure it wasn't the thawing? A neighbor, one winter, had 200 bushels of apples in our cellar. They were frozen, and the freezing seemed to improve them. But they were thawed out very gradually. If thawed out rapidly they would have been ruined. [There is something in what you say. Two or three have told me since, that frogs frozen in ice will come to all right in the spring. In the case of the frog referred to by Mr. Pritchard, the animal in a solid cake of ice was brought into a warm room. The ice was melted as quickly as possible. I know what you say is true concerning apples, because I have seen this fact proven before my own eyes.—ED.]

G. M. DOOLITTLE, page 209, recommends farmer Jones to use the regular Langstroth hive. I wonder if farmer Jones knows what that is. He will hardly find it listed in any catalog. I am frank to say that I don't know just what is included in and excluded by the term "regular Langstroth hive," although it is a term in frequent use. Please tell me, Mr. Editor, what I would get from a manufacturer if I should order a "regular Langstroth hive." [When a customer specifies a Langstroth hive we make it a rule to

send him one based on Langstroth dimensions and which comes the nearest to being our standard. Some dealers would supply a ten frame, others an eight-frame. In some cases the hives would be dovetailed or lock-cornered, and others might be halved or lap-nailed. I presume that Doolittle had in mind the dimensions of the Langstroth hive and unspaced frame, the one used by Langstroth.—Ed.]

JUST NOW Ohio seems to be the storm-center in the matter of trying to make the saloons obey the law, and it seems to be a dead set between the Governor and the mayors. The Governor says the saloons must be closed on Sunday, the mayors say no. Which whips? [Yes, our Ohio legislature is strong-ly temperance. The *Cleveland Leader* says, "All observers of conditions at Columbus agree that the General Assembly is honest. Ohio has not been so sure of the uprightness of any legislature in many years. They have proved their good faith by their works. . . . The reform outlook is good all along the line." It has just passed a search-and-seizure bill that will make it hot for the owners of speakeasies. Yesterday another bill passed the House that will very greatly broaden the scope of the district-option law now in force in our cities. There are bills pending against treating. Over and above all is a Governor who is most decidedly with the temperance people and for the enforcement of law.—Ed.]

"IS IT POSSIBLE that bees assume a state of torpor that is about midway between that of true hibernation and the sleep of ordinary warm-blooded animals that are aroused at intervals of a few hours to be fed?" p. 203. I don't know whether the answer to that question is yes, or that the condition of bees in winter is simply that of sleep with stops for refreshment. At any rate, we know this, that there is a point, somewhere about forty-five degrees, at which bees show least activity and consume least food. Can we ever get beyond this? [There is a great deal concerning this subject, that has never been exploited. Granted that a cellar temperature of 45 seems to give the lowest consumption of stores, is it not a fact that bees in that cellar inside of their hives have a temperature of nearly blood heat? Taking all the known facts, and putting them all together, it is a little hard to deduct positive conclusions. But GLEANINGS proposes to keep at these experiments for several years. It has been so warm lately that we have not been able to do any thing in the way of subjecting bees to a lower temperature.—Ed.]

"A BEGINNER" writes: "I quote from 'A few Points for Beginners,' in a manufacturer's circular: 'The honey-knife should be kept sharp, and immersed in hot water when not in use.' Now, I can sharpen it all right, but how am I to keep it hot from October to July? Contract with an electric-light plant, flouring-mill, or some other institution that has hot water always, to keep it in soak

for you. Or, don't stop using it during the time mentioned. If your wife is of the kind that keeps her husband constantly "in hot water," all you need to do is to keep the knife with you. [If these wives of ours did not keep us in "hot water" it might be the worse for us. But, joking aside, this question whether hot water should be used for heating a honey-knife depends largely on locality and partly on the honey. If the knife would work freely without the hot water, by all means dispense with the heat; but if it acts logy, bends or crushes the cells, even when the edge is keen, then the blade should be kept immersed in a pan of hot water. In California, when extracting the thick mountain sage, I believe it is generally customary to use a pan of hot water on top of a coal-oil stove. Two knives are used, to work to the best advantage. While one is doing the uncapping the other is heating. It is thus possible to use a hot knife by exchanging. But I have been in yards where bee-keepers say they know hot water is not necessary. But nevertheless it has always seemed to me that a pair of knives in a basin of hot water can not help doing better work than the same knives without the heat and the partial washing that they get; for all particles of wax clinging to the edge will melt off, leaving that edge free to do its best work.—Ed.]

MR. EDITOR, you underrate the effort I made toward keeping pure Italian stock, and overrate the ease with which such a thing may be done, p. 201. For years I tried to keep pure stock; but I rise to remark that, in this locality, the yellow stock does not seem to run out the inferior blood nearly as fast as the inferior blood runs out the yellow stock. Please tell us how far you must travel from Medina before you strike any impure blood. [You once told me, doctor, if I remember correctly, that you made it a rule to buy two or three imported Italians a year so as to keep up a good grade of hybrids. Perhaps I misunderstood you. If I am not mistaken, your breeding stock for a year or two back has been hybrid, and with this stock you hybridized the whole yard. Now, if you had pursued the policy of the queen-breeders and many of the honey producers, like Mr. Alexander, for example, you could have Italianized the bees for miles around. You can go miles from here and not strike any hybrid blood. Sometimes in buying queens to sell again we are obliged to introduce a few untested into the hives until they can "freshen up" for another journey. It is these queens that will now and then show a sprinkling of hybrid or black blood. If you will this coming summer kill off all your one-year-old and two-year-old queens that are hybrid, and introduce Italians in their stead from some good pure breeder with a good record, you will go a long way toward Italianizing your whole locality. By keeping up that policy of continuous weeding out black or hybrid stock you will, within five years, have practically pure Italian stock within a radius of two

miles of each of your yards. I have seen that thing done so many times—that is, I have been in yards where it was done—that I am sure your locality would be no exception.—ED.]

MARY HINMAN ABEL, in *The Delineator* for January, gives glucose a good send-off as “a wholesome food,” “perfectly harmless,” and “a blessing,” and she seems to think it would be for the health of the nation if prejudice would give way and allow more of it to be used. All of this may be true of the chemically pure article which costs 10 or 20 cents a pound; but is it possible that Mrs. Abel has written the article without ever sampling the stuff that the public is consuming by the ton, and, mixed with a third or fourth of its weight of cane syrup, is sold in the groceries for 3 cents or so a pound? If she would take one good swig of some of the stuff on the market, and contemplate upon them for about two minutes, she might tell another story. [There are some whose taste is so blunt that they can not detect the brassy flavor in corn syrups; yet some of these people have just enough discrimination in taste so that, when they taste a honey different from what they have been accustomed, they declare that it is adulterated. Only yesterday a traveling man told me that he bought some honey in Cleveland that he knew was adulterated.

“How do you know?” I asked.

“Because it does not taste like the honey that I used to get on the old farm.”

On inquiring where he got it I soon discovered that he was eating logwood honey from Jamaica—a beautiful honey, white and well-flavored, but distinctly different in taste from clover or basswood. I told this traveling man that the pure-food laws of Ohio were rigidly enforced, and that any dealer in Cleveland or anywhere else in this State who sells adulterated honey would get into the clutches of the law almost instantaneously.—ED.]

PROF. BIGELOW, p. 233, wants facts from my experiences in answer to some questions. “Why do I think bees hear?” In hiving a swarm, if a few bees can be got to set up a call at the entrance, there is little trouble in getting the swarm to follow the call. A swarm once started to enter a hive into which I did not want them to go. I moved the hive to a new place, but a few at the entrance were making a call, and the swarm began to settle at the entrance. I put the hive on a wheelbarrow, and wheeled it some distance away. When I stopped, the swarm began to obey the call again. I trundled the thing around for some time; and whenever I stopped the flying bees began to settle. What but the sound could have attracted them? “What facts lead me to think that bees hear sounds inaudible to the human ear?” I have no facts; I read that long ago; if you know that it isn’t true, I am ready to change my belief. “What makes a swarm of bees cluster?” I don’t know. “Is the queen first to start the cluster?” Certainly not always. “If not, where does she come

in, and why?” With my bees she generally does not come in at all, because, while the swarm is clustering, she is crawling around with clipped wings somewhere near the hive. I think that, when a queen settles with a swarm, she is just as likely to be last as first. I don’t know why. I don’t mind at all, professor, exposing my ignorance to you; but I don’t like to have that aggravating editor gloating over it; so, please inform us more fully about the hearing of bees. [We know that the bee’s sense of smell is very acute, and how they will persistently cling to a bough or limb on which their sisters have been clinging. While not denying that the bees are influenced by the call that has been set up, yet they might follow that hive of bees around, being guided wholly by their sense of smell. Further than this, I will leave you and Dr. Bigelow to fight it out.—ED.]



THICKNESS VS. LENGTH AND BREADTH OF SECTIONS.

IN the last issue, on p. 205, our correspondent J. A. Green corrects me by saying the Root Co. advertises $4\frac{1}{4}$ plain sections $1\frac{3}{8}$ thick when I had said no such sections were in use. While my statement was not strictly correct, the actual facts are that we sell almost no $1\frac{3}{8}$ plain by $4\frac{1}{4}$ square. We catalog the $1\frac{1}{8}$ and $1\frac{3}{8}$ because I learn from our office we did have some calls for them.

I agree with our correspondent that a thin comb in a section is getting to be more and more popular among the bee-keeping fraternity; and this may account largely for the growing popularity of the 4×5 plain section $1\frac{1}{8}$ thick. The 4×5 size is the only one of the plain sections $1\frac{1}{8}$ thick that has very much of a sale. We can almost say that, practically, no other section of this thickness is sold of the no-beeway. At least this is literally true so far as our sales are concerned, although the catalog gives a different impression.

Mr. Danzenbaker, when he brought to our attention the 4×5 section, was very strenuous in his advocacy of a thin comb in sections which this size permitted. He even went so far as to claim that, if it did not hold a pound, rather than *thicken* the comb by a wider section he would prefer to make the section $4\frac{1}{4}\times 5$, leaving the comb the same thickness. I am at a loss to understand why there has not been more demand for the $1\frac{1}{8}$ square plain section. Perhaps this discussion will start the ball a rolling in their favor.

A. I. ROOT: THE MAN AND HIS WORK.

THE portrait on the outside cover page for this issue will be recognized by our older readers as that of their old friend A. I. Root. Its publication at this time will be as much of a surprise to the man who started this journal, and who for nearly half its career was its sole editor and proprietor, as to any of its readers. But we know we are satisfying an oft expressed wish on the part of many of our subscribers when we now formally introduce (if introduction be necessary) our senior editor as he looked about ten years ago. Since that time he has grown somewhat grayer, and otherwise shows more the advance of years. During the last twenty years, to a greater or less extent he has been "turned out to grass," as he says, by his sons and sons-in-law. Indeed, they all feel he has richly earned his rest, and that, if there is any value in his Home talks, he should be kept away from the distracting whirl of business, and husband his energies for the Home papers which have pleased and helped so many of our subscribers in years gone by.

For the last few years, at least, he and Mrs. Root have remained at Medina only a few months in the year, the rest of the time being spent at "the cabin in the woods" in Northern Michigan. Now that they have a new "cabin" we hope their winters will be spent in Florida, for neither of them can stand our Northern cold.

A. I. Root controls 51 per cent of the stock of The A. I. Root Co.; and while, as I have said, he is "turned out to grass" to a certain extent, yet he is kept posted as to all our policies and plans.

While he can not, necessarily, be familiar with every detail, yet no large plans or investments are entered into without his sanction.

It seems hardly necessary to describe A. I. Root's hobbies or his general characteristics. Almost any of our readers could do it just as well as one who has been associated with him all his life. But I may say this: He is a man of action, and must be given something to do or he will begin to pine. He often says he would rather "die in the harness," and I think we may truly say that, when he does pass from the scenes of this earth, it will be because the golden cord snaps, not because it withers up.

While he is "turned out to grass" he is giving his attention to gardening and rural pursuits in general, but, more than all else, to the thing that is nearest his heart, the salvation of souls. While some have objected to his writings relating to Christian conduct and our duty to our fellow-man, yet I think it is safe to say, judging from the string of letters bearing on this point, that 999 out of every 1000 of our readers are glad that he thus gives those plain Home talks that have been the means of bringing life and light to many. He contributes liberally to all the missionary societies of his denomination, and especially to the Anti-saloon League, which he believes to be the

most effective organized effort against the drink evil that was ever started. When a new temperance law is passed, or some further progress made to drive the dramshop further from our homes, or when some city begins to "put down the lid," his almost invariable exclamation is, "May the Lord be praised!" (I fancy he is saying it often these days.) He believes intemperance to be the chief cause of sin, crime, and graft in our cities, and that until we can drive the brewer and saloon keeper out of politics (as it looks now as if we might, here in Ohio at least), we shall not be able to make very much progress in civic righteousness.

In person A. I. Root is slightly under medium height, yet wonderfully wiry and active for one of his years (66). His walk is brisk and his movements alert. With all his malaria, chills, and cold, he has scarcely had a stiff joint nor a twinge of rheumatism. This has made it possible for him to be outdoors and enjoy to his fill the exhilaration of light exercise. How much his capacity to drink in the delights of outdoors has spared him for his work on the Home papers can only be surmised.

MR. BETSINGER AND THE POSSIBLE FUTURE OF HIS WIRE-CLOTH SEPARATOR.

WE learn with much regret that our old friend Mr. N. N. Betsinger is now sick at the Hospital of the Good Shepherd, Syracuse, N. Y., with but little chance for his recovery. And this reminds me that the Betsinger wire-cloth separator is just coming to be recognized as a device that will produce more and better comb honey than any separator or fence ever invented. Our old friend introduced this some eighteen or nineteen years ago; but, like some other good things, it was clear ahead of the times, and hence but little attention was paid to it. But Mr. S. D. House, Camillus, N. Y., has been testing it a number of years, and has demonstrated beyond a doubt (for I have seen his honey) that this separator produces more *strictly fancy* honey than any similar device hitherto offered for sale. He showed me case after case of his wire-cloth separated honey at random, every section of which would be considered extra fancy. It is easy to see how Mr. House has been able for a number of years back to carry off all the first prizes for comb honey at the Syracuse, N. Y., fair.

Mr. F. A. Salisbury, of Syracuse, N. Y., showed me the results of some experiments he had made. He selected several colonies of about equal strength. To some he gave ordinary fences, and to others wire-cloth separators. He took off the honey from each lot, put them in the honey room, and when I stopped off at Syracuse last summer he asked me to say whether I could see any difference between the two lots of honey. I said, without hesitation, that one lot seemed to be all fancy, while the other seemed to be a fair grade of No. 1 and fancy.

"You are sure there is a difference between the two lots?" he asked.

"I am sure of it," I replied.

One lot, he said, was produced by wire-cloth separators, and the others with fences. "Then," said he, "I suggest you go home and figure on making the Betsinger wire-cloth separators in large lots, for they are rather expensive as now made by hand."

We have been figuring for some months, and have not yet discovered any plan whereby they can be made much more cheaply than now. But the difference in price on the honey produced with a wire-cloth separator will easily pay the excess of cost of the separator in one season.

I notice by the *American Bee Journal* that F. Greiner says it is his opinion that this wire-cloth separator, even if it is more expensive than other separators, is "enough better to justify the extra expense;" and that, if this separator had been pushed as the others were, it would "take the lead." I am inclined to believe that Mr. Greiner is correct. But we have been trying to solve the problem of making this separator cheaper so that those who look at first cost may share the benefit equally with those who do look beyond first cost.

In the mean time it is to be seriously regretted that friend Betsinger may not live to see the growing popularity of one of his inventions. Perhaps it may be no small comfort to him in his sickness now if some near-by brother bee-keeper would call on him and convey to him the probable future of his invention. GLEANINGS wishes him a speedy recovery to health; and if any thing can be done to add to his comfort, we should be glad to have his friends notify us of the fact.

DANGER OF STARVATION THIS SPRING; WHAT AND HOW TO FEED.

FEARS have been expressed, and not without some grounds for it, that the extreme mildness of this winter will result in a larger consumption of stores, and this will mean retrenchment in brood-rearing if not actual starvation. Indeed, reports are already beginning to show this to some extent. While it is to be presumed that the ordinary reader of a bee paper will see that he has no colonies running short of stores, many of them, if they will make an examination, will be surprised to see the actual amount of stores consumed. It is very important to go over all the bees that are outdoors, on the first warm day. If there are any colonies that are short, there is nothing better in the world than a comb of sealed stores. Where it does not seem desirable to stir up the brood-nest, lay the comb right on top of the brood-frames, flat down. But bee-space it above the frames, then bee-space the quilt or cushion above the comb. If the hive is not provided with an upper story, put one on. Where combs of honey are not available, a very good substitute is chunks of candy made by mixing pulverized sugar and good extracted honey into a good stiff

dough; put a one, two, or three pound chunk of this on each colony, according to its needs.

In cool weather I do not advise giving liquid food in a feeder, as it stimulates or excites the bees too much, and causes them to fly out and die on exposure to the chilly atmosphere. If the atmosphere is warm enough so that the bees can store all the syrup before it turns cold, less harm will be done. But a colony so fed is quite liable to fly out; and if a weak colony is not watching its entrance, the fed bees are liable to pounce on it.

DIFFERENT METHODS OF CARRYING [HIVES OUT OF AND INTO THE CELLAR.]

IN the two illustrations here given are shown, first, our method of carrying two or three hives on a stretcher, as it were, to and from a cellar. The other view shows these same hives set down temporarily in front of the window of the cellar under the machine-shop, and the stretcher with its load on the ground. After about 25 or 30 hives are deposited, one man steps inside and the other hands the hives one by one to him, when he puts them in their final quarters for winter. Unfortunately, we have no open doorway for getting into this cellar, making it necessary for the carriers outside to unload at the window.

Of this stretcher method of carrying bees, I may say it is adapted only to level ground, and to men who will keep even step one with the other. At the time the photo was taken, it was during the month of December, and snow was falling, as will be seen. After the boys had loaded up I requested them to stand for a minute while I caught them with the camera.

The stretcher, or carrier proper, consists simply of a pair of 2x2 poles 6 or 8 feet long. For loading they are placed on the ground in parallel position. Each man then takes up a hive and places it on the carrier. If the hives are not too heavy, another one is placed over the other two. When loaded each man takes his position, one in front and one in the rear. The load is lifted, when each one can walk in a perfectly upright posture, with his arms outstretched, in which position he can lift the heaviest load.

On arriving at the cellarway it is very easy to unload, for all the men have to do is simply to stoop, allowing the poles to touch ground. With a cellarway not too steep, and plenty of room after they are inside, the men could go clear into the cellar. But where the ground is very uneven, as is the case in our Harrington yard, I greatly prefer to pick up the hives one by one. On an uneven surface with underbrush, it is practically impossible for one man to keep step with another; but where the ground is even, and a helper can be had, this plan has the advantage over any other way I know of. It is better than a wheelbarrow, because there will be no jolting, and because the hives will always be in an upright position.

Then two men in this way can carry a good deal more than twice the load that each man can handle separately, and a great deal easier.

As it is time, or soon will be, to take bees out of the cellar, those who are not already familiar with the plan can very easily try it.

When one has to carry in his own bees alone he is compelled to pick up a hive and then bend back like a half-moon. This is decidedly awkward, both for lifting and walking; and, besides, the center of gravity has to be thrown clear out of a good easy walking position.



HOW COLONIES ARE CARRIED FROM THE CELLAR AT MEDINA.



THREE COLONIES ON THE "STRETCHER" READY TO BE CARRIED TO THE SUMMER STANDS.



In the issue for Nov. 15 Dr. Miller refers to the similarity of foreign journals and the lack of original matter in them; and in a footnote to his *Straw* it was suggested that it would be better to merge them into one or two larger and better journals. The matter of language in Europe makes this out of the question. Besides, these journals do not pretend to represent more than the little company of which each is the mouth-piece. Things are more fixed in Europe than here, and bee-keepers are more interested in what concerns their own neighborhood than in Europe as a whole. In our issue for Dec. 1 I supposed I had referred to all the German bee journals; but just now here comes a new one entitled *Die Europäische Bienenzucht*, "based on American principles." This is Vol. I. No. 1, published by A. Strauli, Scherzingen, Thurgau, Switzerland. Old methods in bee-keeping are changing rapidly in Europe, and some of them are even vanishing; but the publisher of this new candidate for public favor strikes right out for whatever he thinks is best. I infer he has been hampered somewhat in his former efforts as a contributor, as he says, "I rejoice in possessing an organ which is entirely independent, and in which I shall not be obliged to ask for permission to express my opinion." External-ly the journal is elegant.

Of the remaining journals to be noticed, not printed in German or French; I would mention our old friend *El Colmenero Español*, published in Barcelona, Spain. It is the only Spanish bee journal we get.

L'Apicoltore is an Italian journal published in Milan, Italy. It is 39 years old, and one of the best bee journals published.

Corrispondenza Apistica is another Italian journal now in its fourth year, printed in Orsogna, Italy.

Mesilane is a bee journal printed in Lettish in Tallinas, Revel, Russia. Our readers are, of course, well aware of the fires of revolution that are now devastating that unhappy province.

Bitidningen is a Swedish bee journal published in Goseback, Sweden.

Russkie Pchelovodnie Listork is the name of a large and nicely printed bee journal in the Russian language.

De Bie is printed for the Dutch of Holland and Belgium at Wilmarndonck.

Tidsskrift for Biskjotsel is a Norwegian bee journal printed in Tvedestrand, Norway.

Maandschrift voor Bijenteelt is printed in Dutch at Beverwijk, Holland.

The above will show how difficult it would

be to merge these journals all into one, or even have them all printed in French and German—the predominant languages of Europe. Suffice it to say, they are all doing a good work, keeping their eyes on the United States as the land of wonders in the line of honey-production.

The list so far given represents fully half of the bee journals of the world; and the more we look at it, the more we shall be surprised at the vast amount of literature, in books and journals, devoted to the bee and its management.

It is difficult in some cases to make out the full address of our foreign exchanges, and in some it is impossible for us, as the names of towns and persons are so intermingled that we have to give up in despair. Sometimes the editor lives in one place and the printer far from him, each person connected with the publication having his own address.

Germans don't like to be cheated on their food stuffs. A striking evidence of this is related by the *Munich Bee Journal*. A dealer named Gustav Grote was fined \$150 for dealing in adulterated honey, and locked up in prison for 100 days. On top of this he received a month's imprisonment for his deception.



ORDER OF BIRD LICE.

Linnæus, in his classification of insects, placed the bird lice with the bugs, scale insects, aphids, and parasitic lice in the order *Hemiptera*, which have already been described. These lice are very different, however, and should be made, without doubt, a distinct order. They are now placed by Comstock and others in a separate order—*Mallophaga*—a word meaning wool-eaters. These differ from the more common lice, and from all the bug order, in having biting instead of sucking mouth organs. Their thorax, the part of the body just back of the head, which bears the legs, is also very different in these bird lice from the same in the common parasitica of the order *Hemiptera*. Classification, if correct, will really suggest the genealogy of animals and plants. Surely the order *Mallophaga* and the sub-order *Parasitica* are plainly of distinct origin, and to group them together is entirely misleading. The feet of the bird lice are tipped with peculiar grasping organs which permit them to anchor firmly to wool, hair, etc.

While these are very common on birds they are also found on mammals; and by their worrying, irritating bite, are often a

serious scourge to animals victimized by their presence.

As stated in the article on bugs, a kerosene-and-lard mixture, half and half, is a capital remedy against these lice on poultry, where they chiefly affect man as a disturbing agent. I make free to say that ten per cent is a very mild estimate of the damage done to our fowls or the egg product from them because of the exhaustive irritation of lice and mites. Often when eggs are very high the hens give no returns at all. The owner wonders why. The one word "lice," or possibly mites, often explains all. As nearly every bee-man is also a chicken-fancier, at least in a small way, this item interests all in a very practical way. The sovereign remedy, and one not only immensely remunerative, but one as surely merciful, and very cheaply and easily applied, is to make all neat and cleanly, and to use the kerosene-lard ointment. At least twice a year the house inside and yard fence should be thoroughly whitewashed. Make the lime wash thin, and apply with a hand pump, such as the Root Co. sells at a very low figure. Remove droppings from the house not less than once a week. Rub the roost-poles once a month with kerosene oil, in the early morning, after the birds have left their perches. Then keep the kerosene and lard in a covered tin pail always in the house, hanging by nail or wire, so as to be ever ready, but not in the way. Once a month go in on a dark night, and, with gloved hands, rub a little of the ointment under the wings, along the thighs, and about the breast of each bird. If the fowls are kept as docile as they should be (a chicken should never be frightened) this can be done with almost no disturbance. I have done this repeatedly without one of my Light Brahmas or Plymouth Rocks leaving the roosts. I am not always as fortunate with Leghorns; yet it does no harm if they are disturbed one night in the month. In such case, however, I would make the application in the early morning, before the light roused the poultry to wakefulness and action. Let me conclude by saying that no work in the poultry-yard or on the farm will pay better than the above.

A BRIEF SCARE.

I wish to confess to a sharp start this morning as I read Dr. Miller's note on page 14. His first words were what startled me; yet before I completed the reading I was as greatly pleased. GLEANINGS would not have its mighty hold on our people if it had stuck severely to bees and the apiary. The name A. I. Root has become, and very justly, a household word in many a home in America, and, I may truly say, the world over. His sermonettes on the "drink problem," on tobacco, on the golden rule in business, etc., have, I am sure, done wondrous good. I sincerely believe that, if a vote were to be taken, ten to one of our readers would say keep the Homes department and the other wealth of good things in the paper. Dr. Miller is wise in his words, that we need

to read and think beyond the mere range of practicability, even to be the most practical. Dr. Franklin's kite-flying and Watts' eyeing the steam of the tea-kettle were not business, but a glorious use of their time, nevertheless.

TEMPERANCE.

Dr. Miller illustrates his own point in his comment on temperance. Let me tell him that one of God's own, Dr. Chapman, is doing right royal work for temperance in Southern California. He is a Presbyterian minister who left a very successful pastorate and a lovely home in that lovely city of California, Oakland, and has now given years to the Anti-saloon League in Southern California. He is a very Hercules in strength, and he hurls words of sense and power against the awful drink evil that are working most grandly to drive this saloon scourge from our fair section. Most of our cities and more than one entire county are clean of the wicked traffic. God bless and help Dr. Chapman and all his helpers, among whom may all readers of GLEANINGS be counted.

BEER AND TEMPERANCE.

We often hear it said that Germany is the greatest beer-drinking country of the world, and the most temperate; therefore (?) I have no doubt of the first assertion; yet I have seen more drunkenness since I reached here, Oct. 15, than in all the eleven years' sojourn in California, and more than I have ever seen elsewhere. Therefore (?) we hear that the water here is unsafe, and so one must drink wine and beer. I drink the water freely, and see no ill results. Wish I could say the same of the beer-guzzlers. I believe Berlin to rank away up in the drink habit, in drunkenness, and in immorality. I believe the three harness together.

A CASE IN POINT.

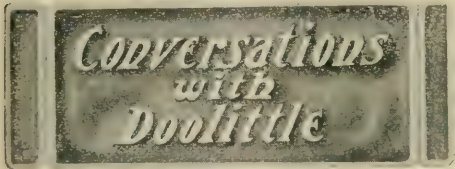
I read with exceeding interest of the triumph of engineering skill of Mr. Wm. Hood in constructing the Lucia cut-off at Salt Lake. This crosses the lake west of Ogden instead of passing around north, although this required a very high trestle of twelve miles, and an expensive "fill" of twenty miles, yet it cuts off 43 miles, and eliminates four very steep grades, and saves more than twice over the big interest on the entire cost of construction. There were about 3000 men constantly employed in the work. But the fact that interested me most was that no intoxicating liquor was permitted by Mr. Hood in the vicinity of the work. This brought thrift, frugality, and eliminated brawls, fights, quarrels, and other disturbances that would have embarrassed the enterprise. Some of our railroad managers forbid not only drinking, but tobacco as well, in engaging their employees. They realize that keen brains and sharp vision are not fostered by drink or tobacco, and they must have their men at their best. God wishes and deserves the best we have to give him and the world. Can he get it if we are the slaves of either of these habits?

THE WIVES.

Those were good words: "Elected to an important office." I believe I'd better resign and let another take my place. *I consulted* my wife, and she approved. I am glad, Mr. Editor, you said that. Oh that more of us would advise with the "gude wives"! They will not advise tobacco or drink. We shall rarely go wrong or act unwisely if we follow the words of the wife. They are tremendously interested in us, and they will not be prejudiced by what might influence us to advise us wrongly.

A. I. ROOT.

May I give a word that I had never expected to speak? I early learned to love and respect A. I. Root. I believed in him, and felt that he verily meant to do God service. Years ago he was to come to Michigan. I wrote, urging that he come and visit us. He came. He, wife, and I talked long into the night. It was a good visit. I lighted him to his room, and then went with my wife to my own room, and said: "What do you think of our friend?" for I had learned to have great respect for her intuitions. She answered, "He is a good man, and will do a great deal to sweeten the world." Surely the sequel has vindicated my wife's judgment.



COLOR AND MARKINGS OF CARNIOLAN BEES.

"This is the second day of February, is it not, Mrs. Doolittle?"

"Yes, Mr. Doolittle, it is. Why do you wish to know?"

"Well, you have not forgotten what our fathers used to say about Candlemas day—'half your wood and half your hay,' have you?"

"That is so! Surely I had forgotten that old superstition. And, let me see! This is the day when the old bear comes out; and if the sun shines so he can see his shadow he goes back in his lair again and stays six weeks. Am I right?"

"Yes. And if he does not see his shadow he is going to stay out, for our winter will be over. But if he sees his shadow we shall have six weeks of winter while he is lying in his lair."

"I hope he need not see his shadow, for then we shall practically have no winter at all, for up to last night we have had nothing like our usual winter weather—no snow, and all mud most of the time, with the mercury at 70 above zero one week ago Sunday."

"But it was 3 below zero this morning, and it now looks as if the sun were going to shine; and if February goes by without plenty of rough zero weather it will be the first February of that kind on record in this locality."

"Yes, I know that we generally have 'eight weeks' of winter in February, or it seems that long, from the great rigor of the month. But how did the bees stand our week of summer weather when the mercury was from 50 to 70 above zero most of the time? Did not the bee-cellar get warmed up so the bees became uneasy?"

"No, not at all. This was the worst test of any thing we have had since thirty years ago, when the cellar was built. That extremely hot week the last of January, coming after an extremely mild winter up to that time, made me fear it would raise the temperature in the cellar till the bees would become uneasy; but when Mr. Clark and myself went in, just after the warm wave had passed, we found the temperature of the cellar at 46½ degrees, or 1½ degrees colder than it was the fore part of December, three weeks after the bees were set in."

"That is wonderful. And how were the bees?"

"Never nicer in the world—great clusters hanging down between the bottoms of the frames and the bottom-board, and all so quiet that not a bee stirred, even when the light was held close up to them. Hark! what was that?"

"It sounded like a rap at the door. Go and see who is there."

"Good morning, Mr. Doolittle. My name is L. A. Smith, and I had to get up pretty early this morning to come all the way from Montana to see you."

Come in, Mr. Smith. Cold outside here in York State. You must have had a cold trip."

"It was quite warm when I started; but it has grown rapidly cold since I entered your State. I came (an automobile story!) with Marriott in his automobile—that Stanley flyer, that one he made a mile in 28½ seconds with, down on the Florida beach the other day, so we did not have time to think of much else save using great caution not to run into the Empire State express train on the New York Central tracks. It left Buffalo half an hour ahead of us, making 60 miles an hour; but as we were making 127½ miles in our auto we passed it this side of Rochester."

"Well, well! I noticed that the Stanley flyer had beaten any thing on record that ever traveled on land; but I did not suppose that any bee-keeper would dare ride that fast."

"Well, I am here all safe and sound, and shall feel well repaid for my trouble in coming if you will tell the color of Carniolan bees."

"The description generally given of them says they are black with steel-gray bands."

"I have been given to understand that they are black, grayish black, or brownish

black, according to the different persons telling me of them."

"Did you find them thus?"

"I am not sure what part 'locality' plays in this matter; but I have never seen a colony of black bees in Montana."

"What color seemed to predominate with the Carniolans you had?"

"I have repeatedly sent for Carniolan queens, and they have been red; even the Carniolans that I ordered from the noted — turned red when they crossed the Montana line."

"You do not mean red as we consider the term generally, do you?"

"Well, perhaps not. My bees all show the yellow bands—some three, but more of them five; and if there is any difference between my Carniolans and your Italians it would take an expert to detect it. Are the Carniolan queens red?"

"Those I had were not."

"What color were they?"

"Very nearly the color of the black or German queens. One of those I had came very near being the color of a quite dark imported Italian queen, bordering on the leather color somewhat, but did not resemble my golden Italians in the least; and I am surprised that you should receive queens, said to be Carniolan, from — that were any thing like the golden or five-banded Italians."

"Do the workers from Carniolan queens show yellow bands?"

"The worker progeny from all four of the Carniolan queens which I have had, from as many different breeders, and as many different times during eight years, were not uniform. One queen gave about half her workers that were black with the steel gray bands of hair on the segments of the abdomen, while the other half showed two and three bands, like the Italians, trimmed with the steel-gray hairs. The other queens gave only about one bee in twenty with yellow on the horny scale to the three segments of the abdomen next the thorax."

"Then it would seem that the Carniolans which I have had were not nearly as pure as yours, according to the different descriptions in the papers."

"That is the way it would look. But perhaps you are just as well off, for I have gotten rid of those I have had."

"What was the trouble with them? Were they not good honey-gatherers?"

"The individual bees might be good honey-gatherers; but the trouble was I could not get enough of these individual bees collected together at the time our honey harvest was on to do more than gather honey enough for the feeding of the brood."

"How was that?"

"The queens would lay only sparingly up to the time when the honey harvest commenced; and when honey began to come in to an extent in proportion to the fewness of bees in the Carniolan colonies, then the queen would go to laying at an extravagant pace, so that the larvæ from these eggs would take all the honey the field bees could

gather as their food. And when that extravagant pace of eggs and larvæ emerged into bees the harvest was past and they would starve unless fed with sugar syrup or combs of honey from their thrifty Italian neighbors. But it might be different in Montana, where you have a more continuous honey-flow."

"I am much obliged. Here comes the 'Stanley flyer.' I am back for Montana. Good by."



SUPPLY AND DEMAND; OVER-PRODUCTION AND TOO HIGH PRICES.

I noticed in the Jan. 1st issue of GLEANINGS that Mr. Doolittle takes a somewhat somber view of the outlook for the sale of honey, and accounts for its slow sale by over-production, and the fact that it is not a standard article of consumption like whisky, tobacco, tea, etc., rather than the fear of adulteration. Now, while I have great respect for Mr. Doolittle's opinion, I can not altogether agree with his conclusions. It occurred to me to give my views, although they may be little better than "fancies and fallacies."

In my mind there is little doubt that adulteration plays an important part in the sale of honey. Let us suppose a certain city takes or consumes 15,000 lbs. of honey, pure and adulterated, for it all sells as honey. We will further suppose that 10,000 lbs. of this is adulterated with glucose, half and half. We will suppose further that a pure-food law is enacted that compels each to be sold under its own name. It needs no argument to show that there will very soon be a decrease in the sale of glucose and an increased demand for pure honey. As bee-keepers we may rejoice that pure-food laws are spreading from State to State with very satisfactory results.

Another factor that Mr. Doolittle seems to have overlooked is the decrease of honey-producing plants. If I am correctly informed, the white sage of Southern California, that formerly produced such bountiful crops of honey, is disappearing before the settlement of the country.

Basswood has been placed high in the list of honey-plants, as one of the most important, if not the most so, in the production of surplus honey. With intelligent bee-keepers there seems little reason to doubt that this source of honey will soon be cut off, very largely at least; and as basswood goes, so do the bee-keepers. Mr. A. E. Manum, who formerly lived eleven miles from me, and

owned from six to eight hundred colonies of bees, and one year produced from 35,000 to 40,000 lbs. of section honey, is out of the business, his last colony having died some years ago. Without basswood, he said, he could not make it pay.

¶ In this vicinity honey is fast becoming, if it has not already become, a staple grocery article, and is found on the grocers' shelves as surely as butter and tea or tobacco. Some grocers are already refusing to sell tobacco, but sell honey instead. Let us hope that honey will never produce such a morbid appetite as whiskey, tobacco, or tea, that will make men go many miles for it when other and cheaper delicacies can be obtained near at hand.

But I see a rift in the clouds. The temperance sentiment of the country is increasing, and we hope and believe that at no distant day the commercial interests of the country will unite with its moral forces and crush this hydra-headed monster to the earth.

It would be very pleasant if we could sit in our homes or honey-rooms and have people come to us from near and far, as Doolittle suggests, for our honey; or, as one old farmer did to me, and as he is in the habit of doing, some days ago, to whom I sold 50 lbs. of extracted honey. But this is not the way the whisky and tobacco men sell their wares. Am I not continually receiving circulars from the liquor houses, advertising their *pure whiskies, wines, etc., ad nauseam?* And do I not see the advertisements and pictures of the tobaccoists everywhere on the telephone-poles, guide-posts, and billboards? Dogs bark at them, horses get frightened at them, and the small urchin on the street looks at them and marvels at the mysterious qualities of tobacco that transforms the ragged boy into the man. We are told that Benjamin Franklin was the first to advertise in this country, and I have sometimes fancied that bee-keepers were the last to advertise, outside their trade-journals; but this is only a "fancy."

Let us not get discouraged in trying to educate the people. In many places in Europe honey is as often seen on the table as butter, and it is as common an article of diet; and as a million or so of these foreigners are being yearly brought to our shores they will want more honey.

And while our native population is fast increasing I believe I shall not endanger my reputation as a statistician in saying that the per capita consumption of honey is increasing in this country very much faster than the per-capita consumption of whisky, as I shall hope to show before I close.

I remember some fifty-five or sixty years ago how my father, then an enterprising farmer and bee-keeper, succeeded in securing one year some 50 or 75 lbs., perhaps more, of "box honey." He succeeded in getting the bees all out. The combs were of snowy whiteness. Later he brought some of it to this village for sale hoping to realize 12½ cents per pound net. By considerable effort he succeeded in disposing of only

a part of it, if I remember rightly, at ten cents a pound, and brought the rest home. I remember how sad and discouraged he looked. This looks like a clear case of overproduction or slow sale.

The population of our village is probably about the same to-day as fifty years ago; and yet the last year I have sold, to be consumed in this village and vicinity, some 700 lbs. of comb at from 14 to 16 cts. per lb. and 200 or 300 lbs. of extracted honey, to say nothing of what other bee-keepers have sold.

In 1860 Moses Quinby, then one of the most extensive honey-producers in the United States, produced a large crop of honey, and then bought of honey other bee-keepers till he had some 20,000 lbs., which he sent to New York. Such an unheard-of quantity of honey completely broke down that market, and a considerable portion of this honey could not be sold at any price, and was carried over till the next year. Certainly it would appear that there were too many bee-keepers in the business at that time as well as now; yet to-day that city will take 500,000 lbs. or more without winking.

But you say that was a long time ago, before the introduction of improved hives and methods. Well, let's see. Take the crop of 1904 here in Vermont. It went mostly to the Boston market, eagerly bought up by Boston dealers—i. e., the most of it. But there a large part of it got stuck. I sent down some fifty cases to be sold on commission. Some time in the winter I wrote to my commission house, inquiring how the honey was selling. It replied that very little was sold, and that it could not sell it at any price. The result was that an enormous amount of honey was carried through the winter and through the summer of 1905, probably not less than 50,000 or 60,000 lbs. Was not this a clear case of over-production, or too many engaged in the business? It certainly looked that way. Personally I thought I understood the situation, and bought another yard of bees and secured a crop nearly twice as large as the previous year, 1904, which has sold with reasonable promptness.

But what was the trouble with the crop of 1904 that it sold so slowly? I believe that neither adulteration nor over-production had any thing to do with it, but, rather, the fact that one or two Boston firms who wished to control the market, or largely so, bought up the crop, paying 16 or 17 cents for it so they could not sell at a fair profit after paying freight, cartage, etc., for less than 18 cents, and the retail dealer had to sell for 20 to 25 cents, which was more than most people were willing to pay, with the result that grocers bought what they could sell again at a profit, and turned their backs on honey, as they would very naturally do, if sensible people. This was clearly a case of slow selling, and also too high buying.

Once more: If honey sells so slowly that old producers, who have all the bees, and all the experience and utensils necessary for the successful prosecution of their business,

fail to eke out a precarious livelihood, what can a beginner do but go out of the business as soon as he learns the conditions?

Much more might be said; but I will close by saying that I believe the matter of production is largely automatic. If the price for any product is high, as potatoes or beans, hay or honey, more will be produced. If too low for profit, production will drop off without much regard to the advice of the agricultural press or bee journals.



TAKING OUR BEES FROM THE CELLAR IN THE SPRING.

The Three Different Methods and their Advantages and Disadvantages.

BY E. W. ALEXANDER.

It will soon be time to attend to this, the first work of the season; so let us think over the many ways of doing it and see if there is not some one way much better than any other; for we don't want to make any mistakes this summer, especially at the start; for if we do, it frequently means spring dwindling, weak colonies, trouble from robbing, small surplus, and discouragement in the end. These can, many times, be traced back to a bad blunder made in taking our bees from the cellar.

I will first speak of the two most common ways of setting out bees, and in doing so I will call your attention to some serious fault in each; then I will describe the way we now do, which we think is far better than the way we used to do, and as many are doing now.

First, we have a fine warm morning, and we wish the bees were out; so, come on, boys, let us set out the bees, and out they go. We finish about one o'clock, and find that they have all come through the winter in quite good condition, and the boys say, "Oh, my! father, what a nice big fly they are having! I'll bet there are some hives over there in the middle of the yard that have two painfulls of bees now."

"Yes, I see, boys; and since the wind has sprung up from the east, nearly all those hives at the east end are getting far more bees than belong to them. Don't you see how they head up against the wind? Then look over here at those hives at the west end of the yard, and see how very few bees are going into them."

Then I draw a long sigh, and say to myself, "It is done. I have made a big blunder,

and I can see only spring dwindling, weak colonies, and small surplus for this season."

My friend, I hope you have never had and never will have your apiary in that condition. I have been there many times, and I know well what the result will be.

Now we will take up another way of taking out our bees. It is this:

As the sun set to-night it had every appearance of a fine day to-morrow; so come, boys, I think we had better set out about 100 colonies of bees to-night, for we have a big lot to handle, and it will not be so hard to make several jobs of it. So we took out about 100 colonies that night; and after they had been out a little while they quieted down so they did not commence to fly until about 10 A.M. next day, then they flew quite well; but as it got some cloudy, and they kept on trying to fly, many were lost.

Well, we think it is time that they were all out, so we take out another lot to-night. These have a better fly, for it is much warmer. But here is a new trouble started—nearly all those hives we took out the first night are robbing these last hives, which are so busy getting water and locating their home that they don't seem to know it. Well, that is too bad. We are now, as the saying is, between two fires. Those that are left in the cellar have been so disturbed by taking the others out that they are leaving their hives badly, so I say, "Come on, let us get all the trouble on one side. We will take out the last to-night, let come what may."

This is done, and the next day happens to be the brightest and warmest day yet; and, oh what a picture that apiary makes the night of that last day! Those bees that were taken out the first two nights have commenced to rob this last lot as fast as they tried to fly, and not only robbed them of a large part of their honey, but the call that those strong full hives kept up all day has taken most of the bees from this last lot we carried out, and now less than 100 colonies have the greater part of the bees of the whole apiary, and they are so demoralized that it will be a hard job to get them righted, and I know we shall lose one-half of our colonies this spring.

Now the boys proposed to sit down and talk the situation over, and see if there is not some way that this loss and trouble can be avoided. O experience! thou art a dear school, and I often wish I could give the many readers of GLEANINGS more of our costly experience before they make the many bad mistakes I have made.

Now we will take up the third way of taking bees out of the cellar:

First get every thing all ready for a big job, and watch the weather closely, especially after a few nice days, for it is quite changeable at this time of the year. Then when the wind gets around in the east, and it commences to become overcast with hazy clouds, and has every appearance of bad weather for the morrow, we commence about sundown and carry out all our bees—

yes, even if it takes not only all night but into the next day; and if it commences to rain before we are done, all the better, for we don't want any to try to fly until they have been out two or three days if we can help it. During this time they will become nice and quiet; and when a fair day comes they will commence to fly, only a few at a time, and will get their location marked, so there will be no mixing up or robbing, as they all have their first fly together. Then when the day is over we find by examining our hives that nearly every one has apparently retained all its bees.

Now we feel that we have at last learned how to take our bees from the cellar. We know that close attention hereafter will almost wholly prevent spring dwindling, and we can see a fair chance for a good surplus in the fall. There are some who recommend setting out their bees quite early, some time before there are any flowers to work on. This I have tried several times, but never with good results. I'd much rather wait until there is something ready for them to gather pollen from, as soon as they have a chance to fly. Some may be unable to see how this way of taking bees out at night and all at one time can in any way prevent spring dwindling. It is this: It prevents a part of your colonies from becoming unnaturally strong by receiving bees from other colonies that consequently become correspondingly weak. Then these strong colonies continue day after day to draw many bees from those unfortunate weak colonies until they have but very few bees left. I have given this subject much thought and attention; and while I will admit it is not the whole cause of spring dwindling I am sure it frequently is one of the principal causes of so many of our colonies in early spring wasting away to a mere nothing.

Years ago we set out our bees much earlier than we do now, and we frequently gave them rye meal to work on as a substitute for early pollen. This practice caused them to leave their hives in search of flowers, many days when the air was too cold for them to fly in the shade, and so we discontinued it some time ago. We now like to keep them in the cellar until the most of that chilly weather is past; then when they are set out we do all that we can to hurry them along until the summer harvest is gathered. If those of you who have a large apiary to set out in one yard will try setting them all out in one night I am sure you will be well pleased with the result, especially if you can choose the weather so as to have one or two cool cloudy days before they attempt to fly. In that way you avoid getting your apiary in that demoralized condition that is often done by putting out a part at a time. It is easy to make these bad mistakes; and, if done early in the season, they many times leave their blighted mark on our apiary through nearly the whole summer.

Delanson, N. Y.

[While much that is said by Mr. Alexander may not be new, yet he has stated so

clearly the right and wrong ways of doing this work that I am sure all our cellar-winterers can read it with profit. We used to select a cool or crisp morning when old Sol was just showing his smiling face over the horizon, and when it would probably warm up during the middle of the day; but just so sure as we did this we would have a pow-wow among the bees. Sometimes when taking out a part, and later the entire lot, we would have another pow-wow—i. e., a case of robbing, the early bees stealing from the late ones. So, taking it all in all, I believe Mr. Alexander's advice to be particularly sound.

Later.—Since writing the foregoing the following has been received. The conclusion of both writers is very much the same. —Ed.]

WHEN TO SET THE BEES OUT IN THE SPRING.

The Different Conditions that Have a Bearing on the Case.

BY C. DAVENPORT.

Although the right time to remove bees from cellars in the spring is a subject upon which much has been written it still is, as that time draws nigh, a matter of interest, especially to those who have not been long engaged in our fascinating pursuit. My experience has been that, whether it is best to set them out early or late, depends upon conditions which I will endeavor to explain.

In the first place I am governed in this to some extent by the conditions of the previous fall: for if the fall flow has continued late in sufficient quantity to keep brood-rearing up so that there is a large force of young bees that go into winter quarters, they can stand a longer or late confinement, other conditions being equal, better than if the fall flow were deficient, so that a large part of the cellar force was old or middle-aged bees at the time they were cellared. This latter condition has happened a number of times here; but if the weather was such that they could be removed early they built up strong without more (and in some cases much less) spring dwindling than when a strong force of late reared bees was cellared and kept in late; for a large force of young or late-reared bees may not insure safe wintering or prevent spring dwindling.

The heaviest winter (or, rather, spring) loss I ever had occurred when brood-rearing was kept up late the previous fall. But in my opinion the most important thing to be considered in this matter is the condition of the bees themselves in early spring. If they are quiet and still in a semi-dormant state I do not believe any thing is to be gained by setting them out before settled warm weather; on the other hand, if they are restless and uneasy, and many are leaving the hives, and it is necessary to open windows or the door at night, I believe it is better to set them out the first day in March when the

weather is warm enough; for when bees have become very restless and uneasy in early spring, admitting the fresh or outside air causes great excitement; and, while they quiet down in time, I believe this excitement, if repeated very often, is harder on their vitality, and causes the loss of more bees than to set them out early.

I have at different times, when it became necessary to cool a cellar by admitting outside air at night, gone in and remained for some time to note the effect. In some cases it caused such an uproar and disturbance that thousands of bees left the hives and were lost. Where bees have become very restless and uneasy owing to bad air or the warmth of the cellar, I think cold air should be admitted gradually, or more harm than good may be the result afterward in spring dwindling. If bees have become so restless that it is difficult to remove them in the day time without many being lost they can be set out in the evening; though many suppose that, if bees are set out at night, they will fly the next day, no matter what the weather is. Such is not the case. They will not fly until the weather is suitable, except a few which would have flown out if they had been left in. But cellar-wintered bees, if removed in the day time, will fly, no matter how cold it is—that is, a large part of them will. I have in previous years removed or set out a good many in the evening, for then when they do fly they do not come out with such a rush, and mix up as they do sometimes when large numbers are set out on a warm day. But of late I have removed most of them in the day time, and practiced the plan of smoking each colony as soon as it is removed from the cellar. If this is done, and the entrances contracted, there will be but little if any trouble by mixing up or deserting hives.

Southern Minnesota.

HOW CAN WE SECURE² MORE HONEY OF THE BEST QUALITY?

Alsike Clover vs. Alfalfa.

BY WM. M'EVOY.

This is the all-important question, and I am well aware that nearly every one, if he answered, would say, "By increasing and moving the bees to where they can gather honey from clover." This can be done; but with the increase of bees will it not lead to encroaching on other bee-keepers' rights? It certainly will if the parties moving the bees from place to place don't provide for their share of the pasture. Almost any locality can be made a good one by seeding down 20 acres each year for three years with alsike clover. I am going in for increasing, and starting out-apiaries in places where no bees are kept, and will supply enough alsike clover seed to seed down 20 acres each year for three years. It will cost me only about the price of 300 lbs. of extracted honey each year; and for this little outlay I shall be im-

mensely paid with a fine quality of the best honey.

Woodburn, Ont., Can., Feb. 12.

[When we consider I do not remember that any accurate experiments have ever been made showing what 20 acres of it put in every year for three years would do in keeping an ordinary bee-yard busy. If the suggestion had come from a lesser bee-keeper than yourself I am frank to say I should not have thought very much about it; but inasmuch as you mention the acreage it occurs to me that you know whereof you speak. Well, now, if there is a possibility that the profits of one yard can be very materially increased by the sowing of 20 acres of alsike for three consecutive years, we may well try the experiment, for there would not be much risk, because the price of the seed itself, or hay either, for that matter, will pay for the crop even if the bees should get no honey from it. By whatever amount the honey crop might be increased, there would be just that much clear gain.]

I have often gone into localities where bee-keepers claimed they secured almost no honey from white clover, but considerable from alsike. Next to alfalfa, alsike is the great artificial-pasturage plant that a bee-keeper can work at all to advantage. But alfalfa will not grow and yield honey in the East, while alsike will thrive almost anywhere in the humid regions or rain-belt of the North, and yield honey. We are almost tempted to put 20 acres near one of our own yards, and get our neighbors to put in as much more as possible.—ED.]

IF I WERE TO START ANEW, WHAT STYLE OF FRAMES, SUPERS, AND APPLIANCES WOULD I ADOPT?

The Importance of Having a Hive that will Give a Large Control of Swarming.

BY R. F. HOLTERMANN.

[In the Dec. 15th issue of GLEANINGS we promised to furnish for the current year a series of articles from our best writers on the subject "What Hives and Fixtures would I Adopt if I were to Start Anew?" We have selected from among our correspondents men of a wide range of experience, some of whom are using standard factory goods, and some of them special hives of their own design. It is not the purpose of the editor to take any part in this discussion, and he will probably attach no footnotes to any of the articles, leaving each one to stand on its own merits. At the close of the discussion he may or may not prepare a general summary. The first of the series which we have to offer is from Mr. R. F. Holtermann, of Canada. This will be followed by others, so that, as the series goes on, the careful reader will be able to draw on the experience of some of the best men in our ranks. After Mr. Holtermann described his hive and system at the National convention in Chicago, the editor of this journal requested him to enter into this discussion. The article which he has furnished, though long, is full of interest and valuable hints, for Mr. H. is an extensive as well as a successful bee-keeper.—ED.]

The above question is one which confronted me five years ago. I had sold out every thing, and had the rare opportunity to begin anew; and the question was, what to get

and how to get it for the least outlay. The path upon which I launched out was untried, and not without misgivings; and yet I had to act; and at the outset let me say that while, during the past five years, I found I had made some mistakes, I builded even better than I anticipated, and I have, during these five years, passed from the condition where I had to chase during the swarming season the greater and best portion of the day after swarms; and from the condition where broken-up colonies diminished my honey-yield very much, having colonies in the fall, and therefore spring, of extremes in numerical strength; and being content with these conditions to a condition where I look upon a swarm as a great misfortune in the history of a colony, and have reached the condition where I see even with a long flow and strong colonies in the spring the possibility of well nigh entirely controlling increase. I realize that strong colonies in the spring can be practically controlled and kept contented, even through a prolonged and not heavy honey-flow, and a much larger yield of honey secured, and hives kept in a more uniform condition throughout the year, and at the same time the unpleasant work of hiving swarms done away with, and also the expense of having some one watch the bees. I do not want to speak boastfully. I owe much to many sources for information. I am a strong advocate of taking all the bee periodicals that have any merit at all, and also a strong advocate of going to conventions and getting good ideas in convention and between sessions, and having false ideas knocked out by bringing them forward. The foolish thought, that one should keep an idea (in one's own estimation good) to himself is often suicidal, and many a one would have saved himself from expensive mistakes had he ventilated his pet notion.

Judging by what those about me under similar conditions have been able to accomplish, and that is the only fair comparison, my system is a brilliant success; and had my bees not been in out-apiaries upon the farms of others, and under their constant supervision, so that every mouth could be stopped, I should have been accused of adulteration or a misstatement as to fact. During the past season I secured from 296 colonies, spring count, a full 60,000 lbs. of honey, about 1000 lbs. of it comb honey. I had only about 15 natural swarms—I believe not quite that; ended the season with 336 colonies, which, without feeding a pound, would, in 12-frame Langstroth hives, average between 85 and 90 lbs. in weight, giving the bees an abundance of stores to turn into bees when spring came.

THE SUPPLY-DEALER AND THE SIZE OF HIVE.

The supply-dealer, if honest, has a difficult position. As I said at the Chicago convention, so I say now, with too few exceptions he has to deal with men in an industry, comparatively few of whom realize the value of the *very best* of equipments. He has to cater to a trade which is looking over catalogs or to

other sources for the hive, either with one comb-honey super or one extracting-super, which can be bought, not for the *lowest price*, the *cheapest* (mark the difference), but for the least *momentary outlay*, even if it is a gross extravagance to use them from year to year. Speaking in a general way right here, special factories may sometimes make goods rough, inaccurate, and not uniform; but home-made and local factory goods are always that way. Hives and all their equipments require accuracy and smoothness, as fixtures in connection with no other stock do. If the interiors of hives are not smooth the bees keep propolizing them; if bee-spaces are not accurate, propolis and comb building lead to constant inconvenience in handling, and loss of time and loss of temper to those about. I therefore decided on factory-made goods, and willingness to allow a fair profit after paying the expense of having good machines operated by skilled hands. All my past apiarian experience was then centered upon the size of hive, and in my decision I felt that, so far as that went, there was no risk in adopting a hive as large as the ten frame Langstroth; but what about the twelve-frame? I was in doubt; but I decided on the latter. First experience with, and the experience of others, decided me that, while a variation from the Langstroth (and, if any, in depth, I favor one slightly deeper—say one inch), might be a slight improvement, there was not sufficient to overcome the disadvantage of odd sized goods—a departure from the standard, and the resultant difficulty in quickly getting supplies, and the increased cost, also the final loss when, through death or otherwise, the goods have to find a market value.

A STAPLE-SPACED FRAME.

I used a frame designed by Mr. S. T. Pettit, $1\frac{1}{2}$ in wide by $\frac{5}{8}$ deep top-bar; the side-bar, after passing the center, tapers, and meets a bottom-bar $\frac{3}{4}$ inch wide. This is to prevent crushing bees by drawing out combs, which a wide bottom-bar is more liable to do. The top-bar has no groove, as such would not only weaken the top-bar, but lead to a waste of the foundation inserted. This portion is much needed at the bottom in the ordinary sheet of foundation to prevent the building of drone comb.

In passing let me say all the foundation I use is specially made, and wider and deeper than the ordinary. The frame is stapled, being spaced by the latter, driven in by means of a gauge (the last stroke being always about the same weight to secure uniformity), and a staple at each end of the side of the frame about an inch from the top bar, and at opposite sides. This leaves one end out, the outsides unspaced, and is a convenience in taking out the first comb. This method of spacing I learned from Morley Pettit.

The order of development in comb-holders I put as follows: The sides of the straw skep or box hive; a top-bar without side or bottom-bar; the complete frame. The un-

er, as will later be described, is over two-thirds the value of a double-walled spring-packed hive; and when the colony is full strength it needs no more. If not full strength, the outside of the 12 combs can be taken out, and the space filled with a $\frac{3}{4}$ follower, with felt paper between them and the side of the hive. A hive so prepared, set upon a stand filled with chaff, leaves, etc., gives us every thing double-walled but the back, and yet every thing comes into use later.

When hot weather comes, the double door can be drawn part of the way out, and become a shade-board to the front of the hive.

A QUICK METHOD OF SCREENING THE BEES IN THE HIVE.

The wire screen B has now been used for three seasons by me to inclose the bees in the hive with the wide open $1\frac{1}{4}$ entrance. I have moved the bees on wagons, shutting them in all night, and longer during July, August, and other months; and with thousands of experiences I have to smother my first colony so moved. I have also dropped down the screen when a swarm began to emerge, and confined them to the hive and portico until they returned, and then treated them, thus saving chasing after a swarm.

Three years ago we ran an apiary in this way, allowing a good deal of swarming, keeping the screens here and there in the apiary convenient for instant use. In only one case was a colony smothered. It was in very hot weather, and a student I had from England forgot the colony and left it confined for at least a day. These screens can, during the afternoon previous to moving, be inserted a third of the way into groove C and easily drop-

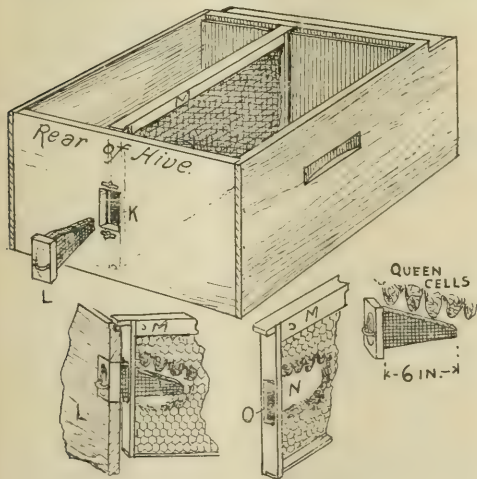
ing where to find brood and where honey, and I do not want to find the body of the hive deserted, or largely so, and the queen out of place. For comb honey also I use queen-excluders to keep the drones from the sections. In the supers, I for the first time last year used ten combs in the twelve-frame space, and find it very satisfactory. I should not want closer spacing. Of course, when attempting to draw out foundation this spacing will not do.

MY SUPER-VENTILATOR.

In J we have a ventilator. No extracting-super should be without such. It consists of a groove through the board, $\frac{3}{4}$ deep by 6 to 9 in. wide. My ventilators are not as shown in the illustration; but this fall I designed the one as given. It consists of three wide staples, one at each end of the groove and one in the center. Under it slides a galvanized iron piece of proper length and width. It turns up slightly at one end; and as it shuts, a small spring rises and prevents it from moving until the spring is pressed down. This is a cheap, effective, and simple design. By this method fresh air can be given to the bees in the super, and their only source of air is not through the crowded brood-chamber, and therefore air already largely exhausted. Many reasons make it advisable not to remove the honey until the close of the different flows of honey; and the bees, as I said in Chicago, must have a brood-chamber a certain proportion to the super room. This should not be less than two of super room to one of brood-chamber. Then comes a heavy duck cloth. Cheap cloths soon have holes; then a soft felt, and then the cover. The object of the soft felt is to secure shelter from heat or cold. The soft material takes up any unevenness in the frames or underneath, so the cover will fit well upon the edges of the hive.

CHEAP COVERS FALSE ECONOMY.

As to the cover, if I can say any thing in this article that will lead bee-keepers generally to abandon the low-priced but extravagant and expensive $\frac{3}{4}$ or similar covers I shall have benefited them to the extent of millions. Let us present a parallel to the present hive with shallow entrance, no ventilator in super, and $\frac{3}{4}$ sides and cover. Did you ever, in hot weather, extract honey in a frame building with no ventilation except a strip six inches deep under the door? If you did, you might get some idea of what the bees must suffer in a similar device in hot weather. It must be torture; and no wonder they want to keep from crowding such a hive by swarming. Again, in cold weather we want better protection than this in our homes. With a light white frost, go out in the morning and see none lying on the $\frac{3}{4}$ hive-covers when the bees are underneath, and realize that heat is continually escaping. Wasted heat, with coal at \$5.00 a ton, is bad enough; but more so when we are using up a furnace in producing it. But when we come to honey as a heat-producer at \$140 a ton, and, say, 25 per cent water, bringing it



SWARMING-CELL DETECTOR.

ped and fastened by means of a sack through the mesh and into the light board at the top of the portico. The queen-excluder requires no description. I would not want to run for extracted honey without it. I want to be master of the queen to the extent of know-

up to something like \$175 a ton, and the bees have to wear themselves out in generating this heat, we are surely indulging in an extravagant economy, and nothing more need be said. But this is only half the loss. By the escape of heat through cover, crack, etc., the power of the bees to cover brood is much reduced—a very serious item during the building-up time. On every hand we see this wasteful process. A cover is but little protection against heat or cold—how long will it be before there will be enough demand for something better to make it worth while for the supply-dealer to catalog it? The cover in the illustration is a tray with $\frac{3}{8}$ lining in the bottom, $\frac{1}{2}$ -inch rim, and felt paper to the depth of the half-inch fills the tray. Over this is slipped a galvanized pan which telescopes over the hive or super about half an inch. I have used painted cotton. I had 275 such covers. Prepared paper in this, the rain is likely to drive in at the ends of these. I had 200, and at a good deal of expense I have made changes, and favor the galvanized-iron tray. Let it be well galvanized, and it should last 25 years.

MY QUEEN-CELL DETECTOR.

Now for the queen-cell detector. If we take a comb near the center of the brood-chamber, and cut about the center a long hole, say half an inch, more or less, deep, and maintain that place when the bees want to build queen-cells, they will, in ninety-nine cases out of a hundred, utilize this. This has been taken advantage of in queen-rearing and other ways. It is simply providing the bees with a convenient spot in a favorable location for cells. This is taken advantage of in my cell-detector. K is an opening in the back of the hive. L is a block with attached frame-piece which slips into an opening in the frame opposite. The opening in the comb is bound by a piece of strong tin $\frac{1}{2}$ inch wide, thus securing a bee space between the comb and the block and piece L. With a built-out comb, which is better if not too new, the end-piece of the end-bar of the frame can be cut away entirely. If the bees have the swarming impulse, in nearly every case cells are found here if any are in the hive. The colony can be examined by withdrawing L, if any are found here, then the entire brood-chamber must be examined. Since my patent has been issued which covers this method of examination of queen-cells in whatever way, and also a small feeder in the place of the block for stimulative purposes, which can be refilled through the opening K, I have made the block sloping down, finding it better for the convenience of the queen; but this does not affect the patent. Such a device is of great help to the timid novice, the amateur who has not much time, the man who makes bee-keeping a side issue, and the extensive expert bee-keeper; but such a device becomes largely of no effect to the man who has holes in every direction in his combs which are so made that they will not be filled again with comb. Mr. W. Z. Hutchinson indorses this idea; in fact, he

knows it is a success. Mr. Frank Coverdall, Maquoketa, Iowa, strongly indorsed it at Chicago, as did others.

THE BETSINGER SEPARATOR.

As to comb-honey supers, I have 100 Betsinger supers. They have a capacity of 3000 sections. The separator is made of tin-bound wire cloth, with a mesh large enough so the bees can pass through anywhere. With this the comb honey is capped just as evenly as with a solid board separator; and the latter, unlike wood, can be cleaned and made as good as new every season, so they are cheap in the end.

I have a specially designed straining-device and an uncapping-machine, which I may be able to describe at some future time.

Brantford, Ont.

WORK IN THE APIARY.

The Work that Can be Done Profitably During the Cold Weather; How Far Can Bees Fly?

BY W. R. GILBERT.

What is there to do now? would be asked only by the man who is accustomed to make preparations when there is little time for the purpose. There is more honey lost, I firmly believe, through lack of supers, either not procured at all or not ready when wanted, than from any other cause, in apiaries that are supposed to be managed.

I have seen hives in our garden with supers two or three stories high, and all full, while near by other bee-keepers have plenty of hives, but some of them supered. What folly! A swarm put into a box or skep will consume honey sufficient to pay more than half, if not the whole, of a modern outfit, in elaborating wax and building combs as well as in feeding thousands of larvæ. This should not be lost sight of. Suppose a strong colony sends out a good swarm, and two casts in due course, there will be in each hive at least 2000 hungry larvæ daily, to satisfy with food composed of honey and pollen. By proper management the three lots of bees might have been kept working in supers over their original home, while below only one lot of brood would be consuming honey. It is a well-known fact that one good stock will store more surplus than two or three small ones. Hence it is most desirable to plan work in the apiary beforehand, with the object of limiting the number of hives instead of increasing by immoderate swarming.

A well-known bee-keeper once wrote, "I have 75 lbs. of honey to the colony—25 lbs. of comb honey here, and 50 lbs. at the out-apiary, while neighbors have little or nothing. A poor year shows that proper manipulation of bees counts, while in a good year even the novice may succeed." It is also interesting to learn that the same authority says his own annual average for nearly 20 years up to the time he went largely in for queen-rearing was 80 lbs., ranging from 30

lbs. in his poorest year to 166 lbs. in his best year.

The planning of work will include not only the examination of every stock—feeding, and uniting to form good strong colonies—but making arrangements for planting out-apiaries in conveniently situated areas. All interference with hives should cease early in October.

HOW FAR DO BEES TRAVEL?

Upon this point much depends. The very object of establishing out-apiaries is to enable the bees to gather the greatest possible quantity of honey during the time the honey-flow lasts. It is most absurd to try to see how much the distance bees actually fly can be stretched. For twenty years I have always acted on the teaching that, if you want to move bees, it must be at least two miles. Time after time have I had occasion to move bees, much within that distance, but beyond a mile, and in only one instance have any bees returned. It is certainly unwise to expect much honey from a stock of bees located a mile or more from a honey-producing crop.

I once knew of an apiary which remained on the spot for eight years, and its crop was always shorter than that of any other apiary. It was on the bank of a large river, and about four miles north of the house; and, although it was known that the vicinity of the river had something to do with the scanty crops, yet it was not moved, because it was in a location where orchards abounded, and the facilities for a spring harvest were good. It was a long time the impression that the home apiary was helping to cut off the honey supply by its proximity; but this doubt was well cured when an apiary of ten colonies was found just half way which had harvested more surplus than the known ones. I have often since ascertained that localities three miles apart may have altogether different crops, both in quantity and quality. We should find out what crops likely to be of value to bees are growing in our district, and before the end of May. When stocks may be moved without danger, remove the bees to a spot only about a field away from the best sources of honey.

Medicine Hat, Man.

[Our basswood apiary is located about a mile and a half in an air-line from our home yard. One year when the basswoods were at their height I walked across the country to see how far the home bees were flying toward the basswood yard, and the basswood toward the home yard. I was surprised to see that the line of flight did not go much beyond half a mile. The probabilities are the bees could find all they could gather within that distance. In the case of clover it is possible and probable the bees would fly further, as they would have to take a longer time in getting a load, and in flying from one blossom to another they might go two or three miles. But I am satisfied that in an ordinarily level country they do not go much beyond a mile, even for clo-

ver. But there are marked exceptions to all rules. Mr. Alexander thought his bees would sometimes go five miles, for, as you are aware, he has 750 colonies in one locality. This number would drain all the nectar in a radius of two miles without difficulty; yet two or three miles beyond they can see other patches of white (buckwheat), and apparently they will fly further across a valley or a body of water, when they see plenty of color beyond, than they will when they have to go over underbrush on a level where they can't see ahead. Possibly this long-range-vision idea will be pronounced a heresy. Let the doubter travel over the country and observe for himself.—ED.]

CHAMBERS' CELL-STARTING DEVICE.

A Simple and Convenient Device for Starting Queen-cells.

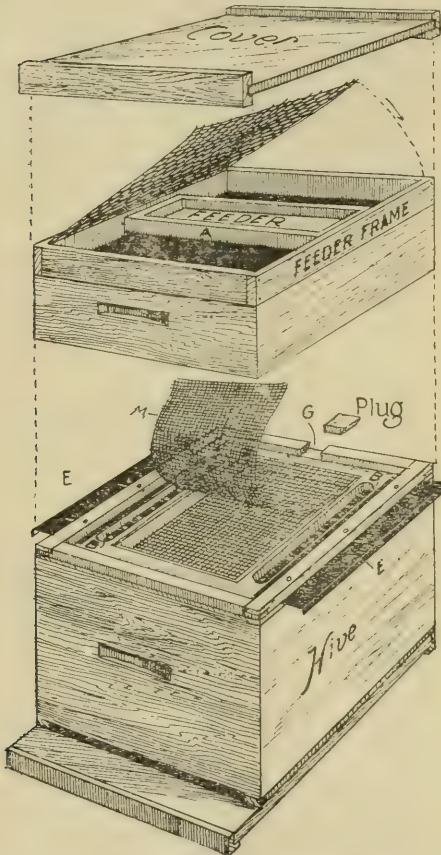
BY J. E. CHAMBERS.

[The reader may be a little confused unless he understands that the lower hive shown in the illustration is *not* full depth but *half depth*, the same as the half-depth body shown under the feeder-frame. Otherwise it would not be possible to take frames from the lower to the upper hive, as explained by Mr. Chambers, who, if we are correct, is a user of shallow brood-chambers.—ED.]

During the past six years I have been studying the many different systems of queen-rearing and cell-starting. To most of them I have found one serious objection: They are all too complicated, too technical, methodical, and admit of no modification or elasticity. They take up too much time, all pottering and mussy, and are entirely impractical in the hands of the novice, and fail to bring results proportionate to the amount of work involved. After quite an extended trial, side by side, I had to give them up as not being equal to (in my hands at least) the system and device which I am going to describe. Of course, I do not want this understood as a condemnation of any of these systems. In the hands of the very expert they are, no doubt, effective; but the less expert, to say nothing of the novice, will be apt to fail of attaining satisfying results, in either quantity or quality. As for myself I do not claim to be much of an expert. I have been studying queen-breeding but a little over six years and bee-keeping for twenty; and to my awkwardness, perhaps, as much as to any thing else, is due my failure to make these several systems work satisfactorily. Be that as it may, I have one of my own, and intend to give it to the public. I make this explanation in order to assure all that I am not leveling my guns at any one's pet system as some may think.

This new device consists of a trap screen-board; but a double screen is preferable for the purpose of maintaining the colony odor, at the same time keeping the reigning queen in the lower hive as far away from the cell-starting bees in the upper hive or super as possible. This double screen is shown at M, the top screen being raised in order to afford a clear view of the lower one. At either side

of this screen is shown a long slot covered at the bottom with perforated zinc, and at the top with tin slide, shown at E. E. In the rear of the board is a flight-hole and plug, shown at G.



THE CHAMBERS CELL-BUILDING HIVE.

This description completes the explanation necessary to a clear understanding of this part of the device. The remaining parts consist of a plain rim two inches deep, and the size of the hive in use. This is called the feeder-frame. Nailed crosswise of this frame is the feeder, shown at A, with a bee-space over and under it. In the illustration the screen cloth is turned back to show the feeder. When I desire to start a lot of cells I fasten a trap screen-board to the bottom of a shallow hive-body and take it to a hive containing one of my imported breeders. I now select four combs of as nearly solid sealed brood as possible, and one comb of brood in all stages of development, placing the sealed brood in the center of this shallow hive. I spread them so as to receive the comb containing the open brood, and then fill up the lower hive with empty combs. I now place the feeding-rim over the shallow body, and the cover over all. But if the weather is very hot it will

be necessary to lift the cover a little in order to give air. The tin slides, E. E., are pulled out as shown in the illustration, at nightfall. I raise the cover and pour into the feeder a pint or more of thick feed. This will occupy the attention of the young bees during the entire night. Early in the morning I go to the hive and shove in the tin slides, and thus trap the full force of young bees at work above the trap-board. In less than 24 hours they will be starting cells; but during this time water must be given in the feeder, for these young bees are cut off from all possible chance of getting it. As soon as all is ready I begin operations by taking a cell-bar, with about 25 Doolittle cups attached, and, going to the hive, I blow a little smoke through the screen-covered feeding-rim to drive the bees down a little and tilt the rim to one side, and quickly lift out the comb containing open brood, being very careful to brush the adhering bees back into the hive. I now turn the comb upside down on the feeding rim, and with a fine camel's-hair brush I proceed to throw out the young larvæ in the cells already started, using the royal jelly to prime the artificial cups; and as the colony contains a breeder I do not have to open another hive in order to get all the larvæ I need for grafting these 25 cells; and I always feel good about this special feature of this system, for I know well enough that these young larvæ have not been starved during the first few hours of their life, but are, on the contrary, always found floating in royal food, and these are the kind to use when the cells are all grafted. I place the cups down between the combs of sealed brood, and close up the hive. I now tilt the top body up and replace the comb of open brood in the lower hive where it first came from, and the operation is complete except to give water during the day and feed at night. On the third day after the cups are given I pull out the tin slides and restore communication with the lower hive, and at the same time I remove the plug G and allow the trapped bees to have a flight. Only a few of the old fellows will return to the lower hive, and these do not matter. From this time on during the season I do not close up this hole, but allow the bees to use it at all times as a flight-hole. The tin slides are to be shoved in only when trapping bees to start cell-building, and must be pulled out again as soon as cells are well under way, and again shoved in when a second batch of cells is wanted. The number of cells a colony can complete is, of course, governed entirely by the length of time the sealed cells are left with the building colony. I always prefer to leave them until the evening of the sixth day, and in this way I can get only two batches of cells a month; but as I have fifteen imported breeders I can easily get 675 cells a month from the lot; and if I choose to take away the cells as soon as they are sealed I can easily get a thousand or more. Besides all this I can get drones galore by drawing away freely the unsealed

brood, at the same time returning a host of well-fed young bees back to the lower hive. These conditions, with plenty of drone comb in the lower hive, and abundant feeding, always insure a good supply of drones, which is of the utmost importance to the queen-breeder. Meantime the colonies are kept at normal strength, and during the past year such colonies gathered nearly as much honey as any others in my yards, and the quality of the cells thus produced I consider fully equal to any that I ever saw, not even excepting swarm cells. Moreover, there is this very important advantage—no colonies have to be torn up or remain long queenless. Only one colony is disturbed at a time, and the work is all done in such a short space of time, and the bees are so well protected, and exposed for so short a space of time, that robbers do not have much of a chance at them in a bad season.

After the colony is once prepared it is just fun to raise queens; whereas by the use of other systems I always considered it a very tiresome job at best. However, there are some things to be constantly kept in mind when using this device and system. One of the most important is that, when used to its full capacity, the constant drawing-away of open brood may induce supercedure of the queens, as the same conditions prevail as when a queen is failing. At the same time this is the prime reason why drones are reared so abundantly, yet still another can be found in the returning of the large number of well-fed young bees to the lower hive directly on to the queen and brood. The surfeit of feed also has much to do with these results.

In this article I have but barely outlined the possibilities of this simple device; neither have I laid claim to any thing but what I have actually accomplished. However, I think there are several improvements possible; but as it is, I know it is vastly superior to many of the complicated systems now so extensively used, and to the novice it is simple and sure of results. I am not one to court notoriety, neither do I care a cent for what this or that one may think or say; but to those who want something easier and simpler than the systems now in use I especially recommend this. It will not disappoint you.

Vigo, Texas.

POULTRY.

Some Recent Misleading Statements Concerning it Corrected; Eggs Sold by the Pound.

BY BARNARD CUMMINGS.

As an introduction I wish to say that I am a bee-enthusiast as well as a poultry-fancier. I wish to do the bee fraternity as much good as possible, but I feel the same interest in the poultry industry. This interest leads me to correct a few errors concerning poultry which GLEANINGS has been publishing. The first one that I noticed was by the editor, page 1029, 1905: "Bees will yield a

great deal more money than the poultry business, on the average." Next came the defense of the above statement in an answer to a Straw, page 1062. Then the editor again, in the same issue, says, "But no one would think of buying eggs by the pound."

Inverting the order I will answer the last one first. Eggs are sold by weight, in parts of Minneapolis at least. Without doubt, if you will write to the *Reliable Poultry Journal*, at Quincy, Ill., they will furnish you any number of localities where eggs are sold by the pound. This is the only fair way when the eggs are to be consumed.

The defense offered to Dr. Miller's Straw, "Several young men who have gone into the poultry business quite extensively and sunk every cent that they had," can be given as a very good reason for a failure. Think of a beginner sinking every cent in the bee business! The idea is prevalent that anybody can succeed with poultry while the reverse is the case with bees. This difference causes the plunging into the poultry industry, only to lose most of the property; and the slowly accumulating beginning and investments in bees, the way of sure success.

If I may digress I will state that it took me four years—between the ages of 14 and 18—to be able to keep a flock of chickens during winter just the way that I wanted them. That way calls for all the chickens in good condition, and eggs just when wanted. The last is very important in raising prize-winners. Did any of these young men have practical knowledge of poultry?

Now to go back to the first statement. The editor has thoroughly intrenched himself with that word "average." I do not purpose to deal with that word. Were I to get an average I should have to consult records for weeks; nor do I purpose to give records of what an average man can do with each. When we consider a bee-keeper who uses modern methods—the only ones entitled to that name—we must consider a poultry-man who does succeed, and does more than to provide himself with delicacies; for assuredly bee-keeping is skilled labor, while merely to keep fowls does not require such skill. As we have taken a bee-keeper whose profits are the minimum—practically nothing—and contrasted him with a man employing the same intelligence in raising poultry, and as we have agreed that such a man does obtain profits, and remunerative ones, we can not but admit that in this case there is more money in poultry.

We will present the matter in another case. What can and is to be obtained from each? Here, again, I am unable to offer a table of facts, as much as I desire to do so. On page 1020 Mr. Quirin admits \$8000 to exceed his income. Mr. Quirin's income is the only bee-keeper's income I can put in figures; but I am enough of a bee enthusiast to know approximately what our greatest bee-keepers clear on the average each year; and, as I stated, I am a poultry-fancier enough to know much the same regarding our lights in poultry culture. I am prepared

to name several poultry-men whose profit, I am satisfied equals at least twice that of as many bee-keepers. Among these are Northrup, of Black Minorca fame, who sold a cock bird last year for \$1000 together with some twenty others for over \$800, if I remember rightly. I was unable to find the paper, but the \$1000 rooster is a classic. Others of as great an annual profit are Fichel, of White Plymouth Rocks; Arthur Duston, of White Wyandottes; Knapp Bros., of White Leghorns; Rankin and Weber Bros., of Pekin ducks. These men have made more from poultry than our specialists have from bees. This, together with the fact that the poultry business can be indefinitely increased without seeking locations for out-farms, shows that more money can be made with poultry than with bees.

It might be well to compare two "gauges" of the business. I refer to the papers and the shows. The poultry industry supports such shows as are beginning to be dreamed of by the bee-keepers. But the papers! GLEANINGS, the largest bee paper published, has a subscription list of about 30,000, while the *Reliable Poultry Journal*, the largest of its kind, guarantees a circulation of 50,000 copies, and claims that it will distribute 55,000. There are seven bee journals published in America. I will estimate that there are about forty poultry papers.

Many of the readers may wish to know why Frank McGlade, page 1307, failed so utterly. I don't know. He doesn't say enough. However, with fair management he should have hatched 500 of the 660 eggs set under the hens, and raised at least 475 of the chicks. Why didn't his fifty pullets lay? If they were good s'ock and early birds, as he says they were, it was because of the poorest of management. At his illustrations I am ready to laugh with the rest of the bee-keepers and poultry-men.

One more thing. If he had started bees first he would have failed with them. It was only what he learned from chickens that made him capable of keeping bees. In the same manner, had he failed with bees first he would have taken chickens in a way that would have brought success.

Chicago, Ill.

[Referring to the two quotations from myself, I will say that I had in mind only the poultry-keeper who raises eggs to sell for the market. Of course, I was well aware that, where fancy stock was sold, large prices are secured. But in view of the evidence already presented, I am now prepared to believe that the poultry business can be made to pay even where eggs are produced for the market, and I therefore stand corrected. Perhaps I am not giving away any secret, but I will state that I have about a dozen hens, and I am trying to see what I can make them do. It has been somewhat of a revelation to us to learn that so many of our bee-keepers are also poultry-keepers; and for that reason we shall be the more anxious that the chicken side shall have "a square deal" in this discussion.—ED.]

BEE-HUNTING.

Conditions under Which it Can be Made to Pay.

BY RALPH P. FISHER.

Mr. Frank P. Stowe's article on page 1193, November 15, has brought to my mind days that I myself have spent at the same sport. Anybody reading the article for what it is worth would be apt to infer that bee-hunting as a business is not profitable, and so to indulge would surely result in dissatisfaction.

In my opinion anybody clever enough to understand the nature of bees can, with the right system, turn bee-hunting into no little source of profit. As locality seems to have a great deal to do with the quantity of honey produced, just so does it limit the success of bee-hunting as a business. A locality, to be an ideal place for wild bees, must possess clusters of old timber, rocky hills, or swamps; in fact, any place where one can find hollow trees of oak, elm, or ash of sufficient size to accommodate their requirements. This same location must also contain domesticated bees kept in such a way that absconding swarms are frequent. Almost any farmer keeping bees can tell you how many swarms flew away and how much honey he could have had, if he were only at home to hive them properly instead of being somewhere in a back field plowing.

Although our friend Stowe resides in Connecticut, he is evidently not blessed with such a locality; but I know personally that there are many places in that State where wild bees are more plentiful in the same surrounding parts than the domesticated ones. As a rule, in any country having small mountains or hills well wooded, wild bees can be found in quantity.

A special box is not needed at all, as a common cigar-box containing a square of honey and a glass or two with which to catch the bees concludes an ideal outfit. If you are out for business you need not less than a quart of syrup proportioned as follows: Sugar ten parts; water ten parts; honey five parts. This is very good, but one could use any sort of honey and in any quantity desired. Also pour ten or twelve drops of anise oil over the box in order to procure an aroma scented highly to attract the bees or they will go to work again on the flowers if many are present.

I have found as many as four trees in a day; but, to be more exact, most generally two or three, with occasionally only one. The bees are taken out, hived, requeened, and allowed to rob all the honey, after which they are sold. Five dollars is the price of a good colony of bees in an eight-frame hive with the ordinary Italian queen. Some swarms thus treated store as much as three supers of honey in 4½ sections. Three such supers equal 72 lbs. This, sold at 15 cents straight, amounts to \$10.80; and if this does not prove bee-hunting profitable, then Mr. Stowe's article may hold consistent.

Great Meadows, N. J.



EARLY VS. LATE PUTTING OF BEES IN THE CELLAR; NO-D RIP CLEATS ON CORRUGATED PAPER.

In reply to Dr. Miller's Straw, page 1292, I beg to say, Nov. 25, 1904, I moved about 50 colonies of bees $3\frac{1}{2}$ miles and put them in the cellar Nov. 26 without a flight, as both days mercury was about 15 or 20 above zero. They were put in the cellar with about the same number that were put in Nov. 15, that were located there, in exactly the same manner, and on my various visits during the winter I found them as quiet as the others; and along toward spring those put in on the 15th seemed to be more uneasy. There was no difference in their condition when removed from the cellar about April 10. and not a single dead colony in the cellar, and these latter ones built up just as readily as those cellared on the 15th. These last-cellared ones I bought at various places in the country, and were hauled to my home yard from two to four weeks prior to Nov. 25, and had plenty of flights between the two journeys.

On page 1330, footnote to J. E. Crane's article relative to packing comb honey in corrugated paper, why not use the no drip cleats on top of the corrugated sheet?

Don't encourage the importation of stingless bees. We have English sparrows enough here now. ELIAS FOX.

Hillsboro, Wis., Dec. 29.

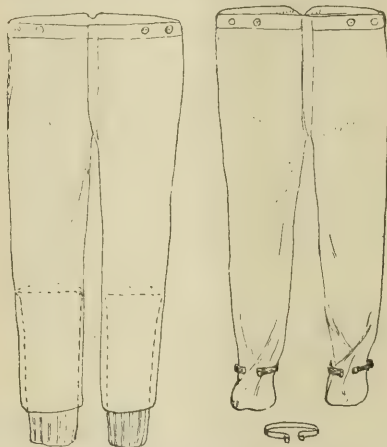
[It would not be practicable to use no drip cleats on corrugated paper, for the reason that such supports present so narrow a surface that the weight of the sections would cause them to mash down the paper at the narrow line of contact. To use a homely illustration, I might say you can *crawl* alligator fashion over thin ice on a pond because your weight is distributed over considerable area of ice, when you can not *walk* on that same ice because your weight would be focused down on a few square inches under your feet. When sections are piled directly on corrugated paper, every inch of their bottoms is distributed over every inch of that paper. If that weight be put on two or three or four narrow lines of contact with the paper, the surface of the paper next to the line of contact would crush.

You need not worry about stingless bees. In the northern States, at least, it would be impossible to propagate them. We had one colony that we managed to keep alive some two or three months in warm weather; but the first cool nights of September cleaned them out. There may be differences in varieties; but I doubt if there is any locality,

except in the extreme southern parts of Florida, Texas, or California, where they could be kept through winter. The most that we can say about stingless bees is that they are interesting curiosities. I have not been able to regard them thus far in any other light. The English sparrow would hardly be a parallel case, for the reason that this bird came into a climate almost the same as it left in mother England. The stingless bees, on the contrary, when brought to this country come into a climate very different from what they have been accustomed to. — ED]

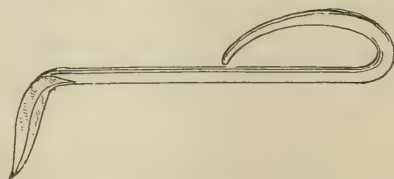
HOW TO PREVENT BEES FROM CRAWLING UP THE TROUSERS LEGS; A FRAME-HOOK FOR A HIVE-TOOL.

If you don't want to be bothered by bees crawling up the inside of your trousers, have the good wife cut the bottoms off the legs of an old pair and sew them in below the knees, letting them hang about three



inches below the bottom of the trousers legs. Tuck the false legs inside your socks and let the pants legs hang outside. This plan will keep the bees out, and also keep dust and dirt from soiling the underclothes, when working in a dusty place. Try it: you will be more than pleased with the results.

I use the Hoffman frame, and think it the best one on earth. I made a hive-tool of $\frac{1}{2}$ -inch round steel, with a double-edged knife-blade turned on one end. The other end is turned over to make a handle. The blade is



about one inch long and $\frac{3}{8}$ wide at the widest part with a rather blunt edge on the upper side; but the lower edge is keen, and will cut as well as a jack-knife. The tool is 13

inches long. To loosen frames, push the tool down between them; shove the blade between the end-bars and pull up, or shove down between the end-bars. It is also very handy to run down between the end-bar and the hive to cut burr-comb. If the frame is liable to break, hook the blade under the lower edge near the end-bar, and lift, after the frame is loosened at the top. This tool can also be used to pry covers loose if right-ly made.

R. D. CHAPPELL.

Vassar, Mich.

[Your scheme of sewing false pants legs below the knees inside of another pair of pants is not bad. It would do away with the unsightliness of tucking the pants into the stockings, although for hot summer weather it would be too much of a good thing during times when the bees are not being worked. The plan that we ordinarily employ, and which we see used by many of the best bee-keepers in the country, including the Alexanders, is to tuck the bottom of the pants together and hold them tight by means of bicycle pants-guards as shown in the illustration at the right. The guards can be bought anywhere for 15 cents a pair, and it takes but a moment to put them on; and if the pants be carefully tucked before being encircled by the guard, no bee can crawl up. They would have an advantage over your false legs in that they could be instantly removed and thus contribute to the comfort of the wearer in hot weather.

Your hive-tool I believe to be all right, where you separate the frames at the points of contact between the end-bars; but this sharp edge would, in my opinion, soon whittle down the V edge of Hoffman frames, and thus destroy exact spacing. In cool weather, when propolis is bad we sometimes use the knife-blade, pushing it between a pair of end bars. Ordinarily we have no trouble by using a blunter tool and giving a side twist between top-bars.—ED.]

QUESTIONS CONCERNING THE BUYING OF NUCLEI.

1. What kind of feeder is best to feed up nuclei that have been bought in the spring?

2. I shall buy three-frame nuclei. How long should it take for them to increase so I could put three frames in another hive, leaving the original three in the first hive? Shall I have to buy another queen, or will the new nuclei have queen-cells so they can raise their own queen?

3. How long should I feed after this?

4. How should I place the division-board when I place nuclei in the hive?

E. E. SHERWOOD.

Wurtsboro, N. Y., Jan. 19.

[For feeding up nuclei when not strong, chunks of Good candy made by mixing sugar and honey into a stiff dough are excellent. Giving liquid syrup early in the spring is apt to stimulate too much, and to incite robbing. These little nuclei should have small en-

trances, not much larger than that two or three bees can pass at a time.

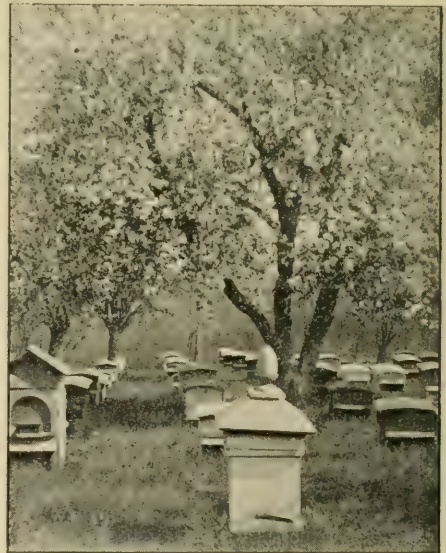
We generally use Doolittle feeders. They are nothing more nor less than hollow division-boards to hold syrup, and hang in the hive just like a brood-frame.

With the right kind of management you might be able to take away three frames of brood and bees in about six weeks. In good weather you may do even better. A better plan, however, would be to let each nucleus have its increase all in one hive till the hive is nearly full of bees and brood, then make your division. A strong colony will rear more brood, in proportion to its size, than a nucleus.

You can rear your own queens; but if you wish to make rapid increase you had better buy them.

You should not feed after the bees begin to gather honey from natural sources.

The division-board, if a full sized hive is used, should be placed close up to the brood.—ED.]



AN APIARY UNDER APPLE BLOSSOMS.

Here is a view of part of our apiary, "when the apples bloom," made by my son Arthur.

LOUIS C. KOEHLER.

Tisch Mills, Wis.

PREVENTING SWARMING BY PUTTING ONE COLONY DIRECTLY OVER ANOTHER; IS THIS PLAN A SUCCESS?

Two or three years ago I read in an article in GLEANINGS of a plan of working two hives of bees together—one on top of the other—with very satisfactory results. It was stated that neither of them swarmed, and that a fine lot of honey was taken off this double decker. I worked two weak colonies the same way the season of 1904. They

gave me 112 sections of honey; and if either of them swarmed we never knew it, as we can not watch our bees very closely, so we were not very sure on this point. Won't you please tell us what you think, know, or can find out about this plan, especially as to its influence on swarming? The writer would be grateful to read something on this subject.

J. L. HOWE.

Robbinsville, N. J., Dec. 26.

[I would not be able to give you any definite answer as to when the method you describe was given. Possibly what you refer to may be a series of articles by the editor, describing and recommending the "double-decker" plan of running for comb honey. This is nothing more nor less than two-story colonies, each story having a large amount of brood; in a word, the colonies are made powerful by stimulative feeding or by uniting, the queen being given unlimited room in which to lay eggs. This results in few or no swarms when extracted honey is produced, and very little swarming when comb honey is the object. But in localities of short honey-flow, especially if the seasons are dry, such colonies will give better results in extracted than comb. The plan is particularly well adapted for outyards where the owner can visit them only at stated times even during the swarming season.—Ed.]

SUCCESSFUL BEE-KEEPING ON A CITY LOT.

I am sending you two pictures showing an arrangement for shading colonies kept in a city back yard. This first season I increased from the first hive, at the left, to four. From the second hive at the left I had one

no honey at all. I also fed back two dozen unfinished sections. All the colonies are in Danzenbaker hives.

J. A. PHILLIPS.

Washington, D. C.

[Mr. Alexander says his hives do better without shade; but there are other localities where this would not be true. This would be so in your case.—Ed.]

HONEY INSTEAD OF BEEFSTEAK; BREAKING THE RECORD ON HONEY-EATING.

I think my family of four can beat Mr. Coultrin, page 96, in eating honey. From July 6 1902, to Dec. 31, 1902, we consumed 170 $4\frac{1}{2} \times 4\frac{1}{2}$ sections of comb honey. For 1903 the figures for family are 370 lbs.; 1904 we sold short, so we had only 356 lbs.; 1905 we consumed 346 lbs., and have about 140 lbs. to do us till honey comes. One $4\frac{1}{2} \times 4\frac{1}{2}$ section just does us for breakfast when we have buckwheat cakes.

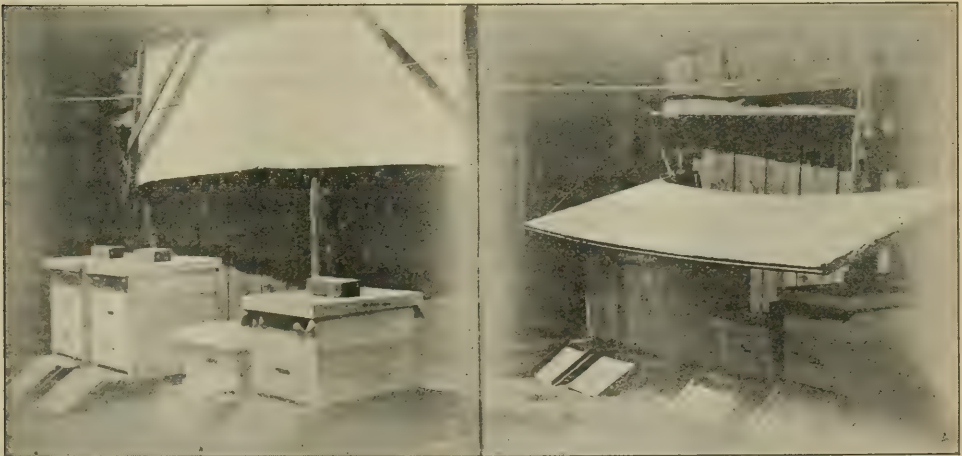
We have some $5\frac{1}{2} \times 6\frac{1}{2} \times 1\frac{1}{8}$ sections. These do us all day.

Honey takes the place of beefsteak with us, we not having had a pound of beef in the house in four years. I like comb honey, and had trouble to get honey enough to eat before keeping bees. I tried the extracted; but what I got had a metallic taste that I did not like. I suppose it was corn syrup. I am a railroad engineer, with a farm. I had a few bees when a boy at home on the old homestead; and when I got a place of my own I got some bees before I had a chicken.

A. C. ARMSTRONG.

Warner, N. Y., Jan. 23.

[There is no question at all that honey is a strong food, and would, to a very great



AN ARRANGEMENT FOR SHADING HIVES.

additional swarm, this latter having one of the Caucasian queens sent out by the Agricultural Department. From the first hive I took off 36 pounds of comb honey; from the second, 44, while many of my neighbors got

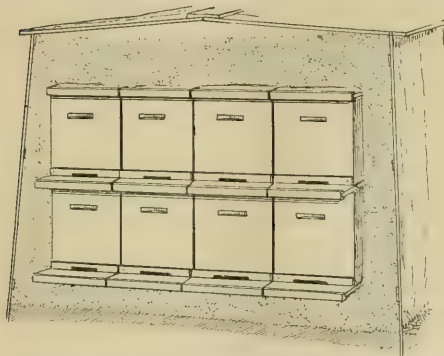
extent, take the place of beefsteak; but say, friend Armstrong, your family breaks the record as honey eaters. Can't you give us the secret of stimulating the honey appetite in the average consumer? If every one

ate honey as your people do, there would not be enough to go around, and the price would go a soaring instant.

Say, we should like to have a photograph of your family. Of course, we assume that its members are healthy; and if you will go to the photographer and get a group picture I shall be glad to introduce you to the bee-keeping world as a sample of what honey can do when used largely as a diet.—Ed.]

WINTERING COLONIES BETWEEN SAWDUST WALLS.

The diagram I am sending you will show you my arrangement for outdoor wintering. Our climatic conditions are generally very damp, as we have a low wet country. You can see how I secured the entrance. I cut



a square hole, $\frac{1}{4}$ inch each way, in the slat. Is the ventilation sufficient? Will the sawdust plan work in a damp climate?

Vanduser, Mo., Nov. 4. W. JOHNSON.

[Sawdust answers excellently for a packing-material, and the only objection to it is that it is a little too dense; and if moisture should get into it it would not dry out like chaff, straw, or other equally loose material. Ordinarily you will find it more practicable to pack each hive separately, as you will find it will be a big nuisance to unpack next spring, and the bees will be very much confused when set on their summer stands. Of course, you could not work them where they are, all summer.

If you mean an entrance $\frac{1}{4}$ inch square it is too small. However, $\frac{1}{2}$ is all right when the other dimensions are eight or ten inches.—Ed.]

POLLEN-GATHERING IN JANUARY.

For 40° north latitude we have been experiencing a remarkable fall and winter. October was moderately cool, but no killing frost occurred till the 18th, and the bees worked freely on the asters up to that time. November was cool, but not cold. December, while not literally "as pleasant as May," was little colder than the average November. January was almost uniformly mild, the lowest temperature recorded being 4 above zero

on the morning of the 9th. The weather soon moderated, being warm enough on the 15th, 18th, and 20th for the bees to fly. On the 21st and 22d the maximum temperature was 70 and 71 respectively, smashing all previous records of the Weather Bureau for January. The bees flew as freely as in springtime, carrying great loads of pollen from the maples. I opened several hives, and, notwithstanding the fact that no smoke was used, scarcely a bee attempted to rob or sting. The 27th, 29th, and 30th were likewise warm enough for the bees to fly.

February gave us a taste of genuine winter, starting in cold, the minimum temperature from the 5th to the 11th inclusive ranging from 2 above to 9 below zero. On the 12th it again moderated, giving us a week of very seasonable winter weather. To-day (20th) is a typical April day, with thunder and showers succeeded by sunshine, a temperature of 58, and bees cleaning house and having a general jubilee. So far this winter we have had but two snowfalls of any consequence.

As nearly as I have been able to observe, my bees are in prime condition, having some brood but plenty of stores yet.

But there's another week of February, with March yet to hear from, which suggests the old darkey's comment, "I have of'en observed that when I libs fru the month ob Ma'ch I allus libs fru de hull yeah."

Zanesville, Ohio.

E. W. PEIRCE.

WHY THE HONEY CANDIES.

I send you a small bottle of honey, extracted last fall, after being thoroughly ripened and capped. This was at the bottom of a six-gallon firkin that we have been using from since extracting till now. I have another firkin of the same size, extracted at same time, that I examined to-day, which which was granulated very little. Do you suppose this one granulated most because it was somewhat stirred by dipping out with a spoon to fill a vessel to be used from? This honey was gathered from white or tulip poplar, sourwood, persimmon, white clover, goldenrod, and possibly a very small amount of a few others.

B. L. FISHER.

Rocky Mount, Va., Feb. 17.

[It sometimes happens that honey will candy in one can and not in another. I have investigated this matter not a little, and find it to be a fact that, out of the same extracting, one lot will cloud up while the other will remain clear; but investigation usually shows that the one that is solidified has been subjected to the operation of dipping a spoon down into it, or drawing some honey from it. Bee-keepers have shown me two lots of the same extracting, stored in the same room, and subjected to precisely the same treatment, that is, neither had been agitated; yet one would be clear while the other was candied solid. This is yet to be explained.

Some two years ago we tried the experi-

ment of *hastening* granulation, and we proved conclusively that, of two lots of honey out of the same receptacle, the one that was stirred or agitated considerably would candy much sooner than that which had not been so treated. This agitation theory explains why extracted honey, or honey out of the comb, will assume a solid condition sooner than that of the same honey in the comb. It is easy to see why this is so, because the former has been subjected to the violent action of the centrifugal force — a force that slams the honey violently against the sides of the can in a way that makes one think of a hard beating rainstorm. Then as it is agitated by running down the side of the extractor and out through the faucet it is further conveyed into big vats or cans, then further agitated by being drawn off into shipping-receptacles. On reaching the dealer it will be redrawn off into retail packages. As a result, it has received all kinds of mixing and stirring that honey in the comb does not have at all. — ED.]

A QUESTION.

Will some one who knows please tell through GLEANINGS how to tell the age of a queen? W. R. CLOVER.

Clinton, Ind., Feb. 5.

[It would be a little difficult to tell how you could recognize an old queen from a young one. I might say, in a general way, she has an "old" look. She does not have that bright crisp appearance that a young queen has; and sometimes there is a dingy hoariness about her not seen on a young queen. But let me tell you it is not always possible to distinguish young queens from old ones. I have seen even experts fooled. Better not rely on appearance, but clip your queens each year in such a way that you can determine in which year they were clipped. In this way you can determine the age of a queen. For example, in 1906 cut off the wings on one side square. In 1907 make a slanting cut, the point of the stub being next to the wings not clipped. Then the year following, cut on the other slant so the point will be in the opposite direction or outside of the queen. Usually this would be about as far as we need to go; but we can make it six by taking the opposite pair of wings. — ED.]

STARTERS FOR WIRED FRAMES.

Is it practical to wire frames when using starters? I want wired frames for extracting, but it is difficult to use full sheets and avoid a second prime swarm during buckwheat honey-flow in August.

Newfield, N. Y.

W. L. HINE.

[It is perfectly feasible and advisable, I may say, to wire frames, even when starters only are used. The natural comb built below the starter will be built over the wires. — ED.]



HIGH - PRESSURE GARDENING IN WEST FLORIDA.

South of Manatee, just before I reached Mr. Bannehr's, while picking my way along a low muddy place in the road I happened to glance over to the left, and my eye caught sight of something so entrancingly beautiful I could for the moment hardly persuade myself it was real. It was a celery-farm of about three acres newly started. The foliage was greater in quantity than I ever saw before, and the rich luxuriant green, bordering on golden, that indicates perfect health of the plants, covered every portion of the entire field. There were no poor spots and no *better* spots; it was all uniform, and in every stage of growth, from the little plants that look like stars (in such straight rows) across the jet-black mucky soil—it was all the same. It was a wet place, and the water was taken off by open ditches perhaps from two to three feet in depth, and, say, every two rods apart over the whole field. I suppose these ditches can be closed so as to raise the water and give sub-irrigation whenever the plants lack moisture; but with the abundant recent rains the main thing has been to take the excess quickly out of the way.

At one point, where the plants were immense in size, they had commenced bleaching with boards. This is done with cypress lumber, almost clear stuff, a foot wide by 16 feet long. The black soil had been cleared of every bit of growth and trash, the ground was leveled as flat as a floor, with grade enough so the water from excessive rains would all go off into the ditches, and every part of the work was done with a mathematical precision that astonished me. When I questioned friend Bannehr he replied:

"Yes, they have in one sense made a wonderful success of that celery-farm. I think it is generally admitted it is one of the finest in the State; but they spent a pile of money doing it. Clearing out the big trees, bushes, roots, clumps, and all, cost a lot, the ditching a big sum more, and, after that, hundreds of dollars have been spent on fertilizers to produce this magnificent growth. It now only remains to see if they can sell the crop for enough to pay for all this outlay."

Well, whether it pays or not I am glad somebody has given us an object-lesson that shows what is really possible in the line of "high-pressure gardening." If money must be wasted in experiments, I like to see it wasted in this way. But we are not sure it is wasted. Later on I learned of a man

who sold celery from a single acre to the amount of \$3300. This was on Terra Ceia Island, near Braidentown. This island is, almost every foot of it, under "high-pressure gardening." Wouldn't this sum warrant a pretty good outlay?

Later, through the kindness of friends Rood and Lathrop (brother of Harry Lathrop), of Braidentown, I saw some more "high pressure." Six years ago, when I visited E. B. Rood he was experimenting with strawberries; and a few days ago I found him "still at it." In a region where nobody supposed that strawberries could be grown, until he showed to the contrary, I saw more green and ripe berries on the plants than I ever saw before in *any* State in the Union—that is, for the size of the plants. In the North, where we plant 2×4 feet, and keep the runners off, of course we have in time immense hills; but here in Florida they plant much closer—2 feet by 8 inches—and, if I am correct, set new plants every year. With this close planting the plants can not be of great size; but the berries on some plants literally hid the foliage. As mulching to keep the berries out the dirt is a rather hard matter, the most of friend Rood's three acres is not mulched; but his berries are all carefully washed before being put into baskets. They are then taken right to the fruit-stores and sold at once. I was with him when he took in one lot, and his customers were sold out and waiting for his morning installment of fresh berries. Of course, mulching must be followed with berries that are to be shipped. The variety grown mostly by friend Rood is the Excelsior. It is rather tart, but a little sugar fixes that. I asked him how it was that he had the only strawberries in that region. He answered something like this:

"Friend R., the rest of the people have not learned how I have been years studying and experimenting. I once sent north for 2000 plants, and did not get a quart of berries from the whole lot. I had so many failures I was about to give up, and *should have done so* had it not been for my wife. I think I could *now* grow strawberries anywhere in Florida."

Now, friends, there are two or three big morals in that speech. His good wife had more sense and *grit* than he had, and the trouble with a whole lot of you is, you have not any wives.

Again he (and his wife) learned the trade by slow and gradual steps just as my friends the Wright Bros. learned how to fly. (I have got a lot to tell you about them soon. They have sold to the French nation the right to *France*, but not to the whole United States, as many of the papers have it.)

Friend Rood has done the same with peaches as with strawberries, and the peaches are so fine he sells his whole crop in strawberry boxes at 10 cts. per quart in his home market. I saw more peaches on one tree than I ever saw in the North. This year the tree got puzzled to know when to bloom, and they commenced in December,

and have kept it up more or less until now; consequently he has peaches of all sizes on the same tree, and blossoms too. Some of the fruit is nearly the size of an egg, and some just out of bloom. With his nice double-seated buggy and big stout horse he took us all over the suburbs of the brisk and growing county seat of Manatee County. Braidentown has grown so much in six years I should never have recognized it. Out in the suburbs we found guava trees loaded with fruit; some just ripening, Feb. 14. We found also loquat, or Japan plums, loaded with luscious ripe fruit; oranges, grape fruit, kumquats, etc., were so plentiful I hardly need mention them.

When a friend and I walked up from the railroad station we found our overcoats and grip rather burdensome, and I suggested we leave them until we hunted up Mr. Rood, at a baker-shop near by. As we opened the door to go out I thought the proprietor's face looked familiar. Sure enough, it was my old friend Trueblood, who used to be a bee-keeper, and took GLEANINGS years ago. Well, friend T. and his good wife have built up quite a business in the growing town, and one of their specialties is a 15-cent lunch—coffee, sandwich, and a little pie. Should you ever go there, tell them you want a 5-cent pineapple pie, such as A. I. Root wrote about. When pineapples are plentiful and cheap they put them in cans, and use them for pies as wanted; and I think pineapple is the very best "pie timber" in the world. The pies are not only delicious, but, as they make them, they are wholesome. I know, for every meal I had in Braidentown was at the bakery, and at my special request it was cereal coffee, beef sandwich, and pineapple pie. Mrs. Trueblood was at one time a missionary in Alaska for four years.

In the afternoon, under the guidance and courtesy of W. U. Lathrop, a comfortable carriage with colored driver took us over the truck-farms and orchards round about Palmetto. Our older readers will remember I have always been a good deal of a lettuce crank; but on this trip I saw more *acres* of lettuce than I ever saw before in my life. There are not only acres, but *miles* of lettuce. It seemed to me there could hardly be people enough, who loved lettuce, in the whole United States to take all this great crop. But I was still more astonished to learn that just now, owing to the large amount that was drowned out by the excessive rains in December and January, the price is away up. It is packed in tall basket-looking crates, holding about 1½ bushels, and the demand is such that growers are getting between \$5.00 and \$6.00 per crate. The variety is Boston Market, or something very near like it; and for fear of a decline in prices, a good deal is being shipped that is not headed up so as to make really first-class heads; but such is the call that growers are surprised at the size of the remittances, and no complaint is made. I am inclined to think the craving for lettuce, celery, etc., in the

winter time, is nature's prompting, and that these things are really beneficial, and, may be, ward off the necessity for drugs and doctors.

The best ground for this business is generally covered with a dense growth of trees and underbrush, and that makes it expensive to clear off. One man told us that, to make new land, absolutely clean of stumps and every thing, all at once, costs just about \$100 per acre. The usual plan seems to be, 3 rows of lettuce, about 18 in. apart, then a two-foot alley. This alley is to give room in planting and gathering the crop, and a horse is also used in cultivating in the alley sometimes. Hand cultivators or plows are run in the eighteen-inch spaces. Chemical fertilizers are mainly used, as I suppose stable manure is not to be had. One man makes a shallow furrow between the rows; a second strews in the fertilizer by hand; and a third, with the right kind of hand cultivator, mixes the fertilizer thoroughly with the soil. This past winter has taught pretty well the importance of surface and open-ditch drainage. Few if any tiles are used; but as there is no frost here to make the sides cave in, the ditches are sliced down with a spade, with very little slope. When weeds are allowed to go to seed it is, of course, quite an expense to keep all the open ditches "open" at all times and seasons. Close cropping is followed when the fertilizers are so expensive. As an illustration, one man remarked a crop of lettuce was cleaned from a field we were passing through, the day before. I stopped in astonishment, and exclaimed, "Why, my good friend! you surely don't mean from this nice field of wax beans?" "Yes, sir. These beans were planted between the rows of lettuce; and after the lettuce was off and trash cleaned up we ran the cultivator through, and the beans just spread out during the last night so they now cover the ground pretty well, as you see."

To work on this "high-pressure" plan a ton of fertilizer (costing \$30.00) is often used on a single crop.

Florida cabbage is also away up, owing, we were told, to the fact that the cabbage crop in the North last fall was unusually short. Here in Florida I am told it is no unusual thing at certain seasons to have a 5-lb. cabbage sell for as much as a 5-lb. pineapple. Well, I can say from experience that a nice hard crisp Jersey Wakefield cabbage grown here in Florida is about as nice as a pineapple. We saw fields of cabbage so large they almost went away off "out of sight." Cabbage can be grown here only in winter. This truck-farming can not be well carried on very far away from the railroad and steamboat lines; and good roads to the shipping-points are almost as necessary. Although much time and money had been spent on the roads, we found them in some places pretty bad; but this was on account of the unusual winter rains. The ditches for drainage are usually along the roadsides, and sometimes these are very deep—ten feet or more, making it expensive for bridges to

get into the fields. Of course, a rotation of crops is desirable, and they are just finding out that oranges and other citrus fruits often do well on this ground so good for the truck business.

Now, please don't think I am blundering when I tell you we drove through a grapefruit orchard of 220 acres—23,000 trees in all. Although 170,000 boxes of fruit have been gathered and sold, there is some to be picked yet. Of course, this great orchard cost a lot of money. I think the trees are now about eight years old; and although the crops afford a fair interest on the outlay, the owners have not as yet received what it cost them; but the prospect is fair that they soon will. A lemon-orchard we visited later has a still larger acreage.

Now I have a strange story to tell you. It illustrates how possible it is in this world of ours to find that, through God's wisdom and providence, our enemies may prove eventually to be our best friends in disguise. Most of you have heard of the *white fly* that ruins orange-orchards and other stuff almost the world over. Of late it has been getting into greenhouses in the North, and, unlike the "green fly," tobacco fumes and stems do not seem to trouble it. Well, greenhouse men and gardeners have also been troubled during damp weather with snails, and there has been much talk in our florists' journals as to how to get rid of them. One writer said the best or only way was to hand-pick them at night, with a lantern—they work only at night. In some countries, we are told, snails are such choice delicacies for food they are worth their weight in gold. Well, various birds also consider them choice morsels, and this is *why* the poor snails dare not venture out by daylight. Now let us go back to the white fly.

This insect does not eat the orange leaves to do any particular harm, but, like all the family of aphides, it exudes, when feeding, a sweet substance called by bee-keepers honey-dew. This sticky stuff covers the orange-leaves so they can not breathe, and finally gives sustenance to a black tarry-looking fungus that coats the leaves and injures if not kills the tree. Well, Mr. F. D. Waite and one other good man whose name I have lost discovered, about simultaneously, that a Florida snail, if given a chance, would go all over an orange-tree and lick the leaves and branches all off clean of this sooty mold or fungus. All you need to do to "pass them round" is to throw a piece of burlap or phosphate-sack across the limbs or crotch of the tree. The snails can hide under this cover during the day, so the birds can not get them, and here they multiply prodigiously. We saw them by the dozens and hundreds clinging to the orange-limbs. They, with their shells, are about the size of beans. You can pull them from one tree and carry them to another, where they will stay if you give them a sack covering for protection. In fact, they will of themselves go from tree to tree if they can find the shelter from the birds and other

enemies. So eager are the people to avail themselves of this great discovery that Mr. Waite told us they were stealing his snails at such a rate he didn't know but a watch would have to be kept all through their extensive lemon-groves. Scientific men have been sent from the Florida Experiment Station, and just recently the Department at Washington is investigating; and their verdict so far is to the effect that the despised snail is going to bless the whole of Florida by giving the citrus-groves a good old-fashioned "house-cleaning."

A full and scientific account of this discovery will be found in the *Manatee River Journal* for Feb. 9, published at Bradentown, Fla.

HOW TO HANDLE BEES WITHOUT VEIL, SMOKER, OR GLOVES; CHAPTER 2.

Some of you veterans rather suspected there would be another chapter, now didn't you? Well, my plan worked beautifully, especially in connection with the outdoor feeding; that is, if I did my work in opening hives when the robbers and all hands were just "scratching gravel" to see who would get most of the feed before it was all gone. I fed about $\frac{1}{2}$ lb. sugar made into syrup to seven colonies of bees, so it doesn't take them long, especially since they have "learned the trade," to get the feed all into their respective hives. Well, so far (it is now Feb. 12) our queen-rearing has been blocked for lack of drones. I have put drone comb in the strongest colonies, fed regularly, but, although the queen lays worker eggs all around the drone comb, I can't get her to start drones. The weather seems all right, and pollen is coming now in great abundance (60 big loads a minute), yet no drones are started in any hive, with this exception: The Caucasian queen produces some drones in worker-cells, and these drones have been flying for some time; but either they are too few or they are not "the real thing," for my young queens do not get fertilized.

I began inquiring among my neighbors, and finally visited my good friend Jos. W. Bannehr, at Bradentown (twenty miles away), and he told me to look his bees over. He and his family were very busy packing oranges; and if I could find drone brood or eggs, just to help myself. I found a very active colony of nice yellow bees that seemed from their numbers, and the quantity of pollen going in, they might have drone brood. He brought me a smoker and veil (with arms to it, cape, etc.), but I told him I thought I could open the hive without veil or smoker. Accordingly I went to work very cautiously, thinking a little proudly, perhaps, of my wonderful skill with bees, the accumulated wisdom from "years of experience," etc. There was a top story on the hive, and about the time I got that off I decided it might be *best* to have the smok-

er lighted and near by. Only *once* before in my experience have I seen bees resent smoke as these fellows did, and that was with our first colony of real Cyprians. I think now I might have got along by working very slowly and carefully without smoke; but just as soon as a whiff of smoke touched these chaps they became regular tigers. They went for my fur cap, and then, while burrowing in the fur, they made that peculiar hissing that bees usually do when they attack any furry animal, and this hissing seemed to be a signal for every bee in the hive to sally forth to war. I think I had better own up that I retreated and got my head into a clump of bushes as soon as I could. I decided these bees must be got out of that fur so as to stop that peculiar hissing, and that I also needed a different "head gear" for such work. While getting the bees out of my cap I was reminded of the little girl's New Testament. She said it was "red outside, and red (*read*) all through inside." These bees were a most beautiful golden yellow all over "outside," and every last one of them was a veritable *fiery demon inside*. I went back in a very humble frame of mind for the straw hat with veil (and sleeves) attached, and fired up that old smoker to its "highest pressure," and was very glad when I got the hive closed up. At some stage of the proceedings, I can't just tell where, it occurred to me I did not want any drones from that hive *after all*, even if they had drone brood. I have for years boasted that bee-stings don't swell on me; but my right hand was pretty well swollen for several days. That "gang," must have a special preparation of formic acid of unusual virulence, and they seem to know it too.

When I got home I could handle my own seven colonies just as usual—no smoke or veil—but that fur cap held so much "virus" or something, I was several times compelled to get a different one. A fur cap is a bad rig for a bee-keeper, sure. It is very much easier to handle any bees, when little or no honey is coming in, while they are busy with an outdoor feeder; and by feeding any colony that is bad to handle, a little sweetened water sprinkled on the frames over the cluster (as Langstroth directs), we can get along very well without smoke. Then comes the question, which is quickest and least trouble? For some time I used the sweetened water, but finally decided the smoker was quicker, and least trouble after all. When every thing is favorable I still work without veil or smoker in my own apiary; but I think we shall find it best sometimes to make an exception. A colony that is raising a queen with no brood in the hive is often very cross; but when the young queen commences to lay, and all hands are after pollen and honey, they usually become good-tempered again. Friend Bannehr says he did not know he had any Cyprian blood in his apiary; but the men who gathered the oranges from the trees over or near that part of the apiary had complained of the bees.

Regarding Our Advertisers.

That the value of farm fences lies in the quality of wire and in the thickness of the coat of galvanizing with which it is covered, is a point brought out in the catalog of the Brown Fence and Wire Co., Cleveland, Ohio. Note their adv't on another page.

In the J. H. Shumway catalog for 1906 almost every variety of vegetable and flower seed for the garden and field is shown. There must be a very large demand for such an interesting catalog, and any one who would like to secure a copy should send early. The offer to send this book free is made on another page.

The Anderton Manufacturing Co., Cincinnati, whose ad. appears on another page, makes a very fair proposition to any one who is interested in vehicles. Their guarantee in which they offer to return the amount of the purchase, should an article prove unsatisfactory at any time within two years is a very liberal offer. You will act wisely in sending for a copy of their free catalog.

A low-down wagon is certainly just what every farmer should have—bee-keepers too. A low wagon on which a flat platform can be placed would be a pretty useful thing when moving hives. The fact is, the low wagon is better adapted than the high to almost all the occupations of the farm. If you are interested, see the "Electric Wheel Co.'s ad. on another page, and take advantage of their free-catalog offer.

The Bateman Mfg. Co., Box 120, Greenloch, N. J., manufacture farm implements which help. They also send out free on request, a book on crop raising which is very instructive and useful to the farmer. By reading such books and keeping in touch with the leading farm methods, farmers become more successful—glean new ideas. Such information can not help to do good. Write for the "Iron Age" book.

To conduct a strawberry-farm, a correspondence school of strawberry culture, and publish *The Strawberry*, a strawberry magazine, is the great task which the R. M. Kellogg Co., Three Rivers, Mich., is accomplishing. In each branch of the work the Kellogg Co. excels, and to this may be attributed their success. Summing up the whole would be to say that they know strawberries. If any of our readers are interested in the culture of this luscious fruit, we advise them to send for a copy of *The Strawberry Magazine*.

We have received three very fine catalogs from the Manson Campbell Co., Detroit, Mich. The titles of these catalogs are Chatham Incubators and Brooders, Chatham Fanning Mills, and Chatham Corn Graders. All are neatly printed, profusely illustrated, and extremely interesting. Any one who is interested in poultry-raising or farming should send for one or all three. These books are for free distribution, as you will see by reading the Manson Campbell advertisement on page 309.

So great has grown the demand for the numerous varieties of evergreen trees that Mr. D. Hill, proprietor of the Dundee Nurseries, Dundee, Ill., makes a specialty of them. He imports evergreens from Russia, Switzerland, Japan, Australia, and from every country where any kind of evergreens is found. Any one contemplating the planting of evergreens, or buying nursery stock of any variety, should write for Mr. Hill's new catalog. It will be sent on request.

The J. W. Miller Co., of Freeport, Ill., manufacturers of ideal incubators and brooders, send out a very interesting book entitled "Poultry for Profit." One of the unique and interesting features of this book is that a number of questions, which a person contemplating going into poultry-raising would be likely to ask, are clearly answered. It also contains many fine illustrations of standard-bred fowls and a review of the principal points of each of the breeds shown. This book is for free distribution, and will be sent at your request.

The Elkhart Carriage and Harness Manufacturing Co., Elkhart, Ind., offer to send a 256 page carriage, harness, and light-wagon catalog free upon request. We have received one of these catalogs, and wish to compliment this company upon its attractiveness and simplicity. Every possible way of showing up a car-

riage or set of harness that could be used is shown in this catalog. The Elkhart Co. make a very fine grade of vehicles, and their catalog will be found a very useful book for every one of our readers. See their offer in ad. on page 311.

The Stromberg-Carlson Telephone Company, Rochester, N. Y., has prepared for free distribution a farm telephone encyclopedia containing 47 pages. Every point from how to go about to organize a telephone company to selecting the telephone supplies and how to build the line, is covered. Many of the pages are finely illustrated—some in colors. There is a four-page telephone story in the book, which is quite a novel. It is quite impossible to give you an idea of how complete this book is; but, luckily, you can get one free by writing the Stromberg-Carlson Company. Whether you have a telephone or not, send for this book, No. 36.

Our readers will find in this number a new advertisement of the Joseph Horne Co., Pittsburg, Pa. This company operates one of the large eastern drygoods houses, and has a very high reputation for first-class goods. We are continually striving to secure advertisements such as this for GLEANINGS, as we believe that our readers desire it. You can greatly assist us in getting new advertisements like this one by ordering whatever you may need in the line of the goods offered, from the advertiser. Of course, when you write do not forget to mention GLEANINGS. See the advertisement referred to on this page.

Joseph Horne Co. Pittsburgh, Penn.

New Imported Organdy, 30c a Yard (40c and 45c Grades)

A short time ago we made two of the largest importers of French Organdies in the United States an offer for their entire importation of Organdies.

They have just accepted our offer.

The organdies are here—a bewilderingly beautiful collection of filmy fabrics for summer season of 1906. White grounds and black grounds with exquisite printings in large and small designs of various colors. In all large dry-goods stores throughout the country to-day these goods are selling at 40¢ and 45 cts. a yard.

News of Art Needle Work

Some examples of popular things at popular prices.

Stamped hats, for working with eyelet or shadow embroidery—the daintiest hat a summer girl could wear. 50c and 65c each.

Stamped Shirts—sheer linen and very fine lawn, to be worked in shadow or eyelet embroidery. Sufficient material for the waist included. \$1.50 and \$2.00 each. Nothing more dressy.

Stamped and tinted Sofa Pillows—floral, conventional, lodge designs, on art ticking. 25c and 50c.

Lawn and Empire Shams and Scarfs—beautifully braided and stitched; some with net centers and scalloped edges, others with hemstitched edge and insertions of Renaissance braid. 25c.

Ruffled Bureau Sets—made of dainty colored cretonne; plain white ruffling; lining to match coloring of scarf. 50c value for 35c.

Finished Table Covers and Cushion Covers—beautifully tinted and braided in floral designs; ready for use. 50c value for 25c.

OAK
HEATER \$3.90

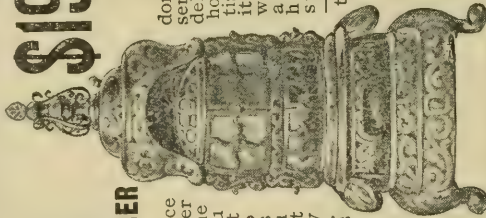


fied in every particular or the purchase price will be refunded. Before you buy a stove send for our large free 1,000 page merchandise catalog. It contains hundreds of **handsome stove bargains** not to be found anywhere else. No matter what sort of a stove you want we have it—**freight paid**—will lay it down at your depot cheaper than you can buy it from your home dealer, or anyone else. And our guarantee makes you safe. You may order any stove shown in this advertisement or in our large catalog; if it isn't **just as we claim**, ship it back; we will pay freight

STOVES
FREIGHT PAID

We are the largest stove dealers in this country **selling direct from the foundry to the purchaser FREIGHT PAID**. Our immense stove business is all done by mail, and is built on the solid foundation of **satisfaction or money back** in every case. Every stove we sell is fully warranted and broadly guaranteed, and the purchaser must be satisfied.

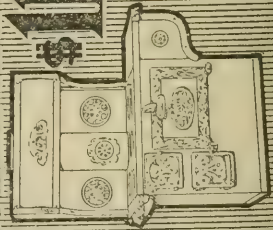
HARD
COAL
BASE
BURNER



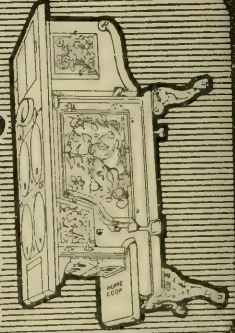
\$19.95

more than pleased with their bargains and recommend us to their neighbors—that's the secret of our rapid growth. You will do the same. When you buy a stove of us you know just what it is going to cost you; you don't have to figure on the freight. You just send the amount of the purchase price and we deliver it to your station,—you simply haul it home. If you don't find a stove in this advertisement that suits you, **send for the catalogue**; it is the greatest buyers' guide published; it will show you an easy way to **save money** on all your household supplies

STEEL RANGE \$11.98



COOK
STOVE \$7.75



If you want to save \$150 a year ask us for full particulars about our special home plan. **There's 10 per cent off list price on everything you buy by this plan.** Write for it today.

Co-Operative Society of the National Supply Co.,
Lansing, Mich. Chicago, Ill.

Hatch and Brood

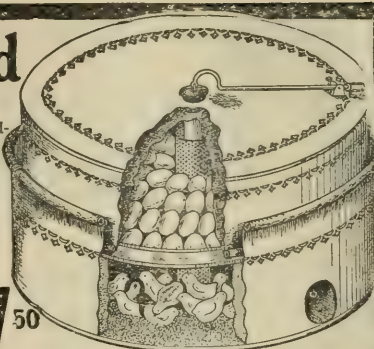
AT SAME TIME

Here's a new thing—a complete hatcher and brooder, one machine that performs both of these operations at the same time and does both well. The

METAL MOTHER Brooder-Hatcher

is a long step ahead of all others—the most remarkable invention in the poultry world. With it 2 qts. of oil hatches 50 eggs and broods the chicks—brood one batch while you make another hatch. Our nest-saving system enables you to do this. A time-saving, labor-saving, oil-saving machine complete for \$7.50. Free catalog—tells how it works. Regular Cycle Hatchers and Brooders at \$5 each are great favorites. Write today.

CYCLE HATCHER CO., BOX 223, SALEM, NEW YORK



\$7.50

INVESTIGATE THE POULTRY BUSINESS



Write for a free copy of my book describing

Profitable Combinations of Egg, Broiler and Roaster Farms

It gives the prices paid for eggs and poultry week by week for the past three years. It tells how and when a hatch taken off each week in the year could be most profitably marketed. It shows how you can make \$2.00 on a large winter roaster. It tells what profits can be made with each of the popular breeds, and the costs of production.

I have helped thousands to make money with poultry. My Model Incubators and Brooders are used on the money-making farms. It is my business to teach those who use them to do so profitably. Whether your needs are small or large, I will furnish without charge, estimates and plans for a complete equipment that will insure success without your spending a dollar uselessly. Send for my complete literature.

CHAS. A. CYPHERS

3927 Henry St. Buffalo, N. Y.

BANTA Incubators & Brooders

Backed by 14 Years of Successful Use by

poultrymen all over the world. No guesswork. They are automatic in regulation and ventilation. Fully guaranteed to give YOU satisfaction. Send for free book. BANTA-BENDER MFG. CO., Dept. 23, Ligonier, Ind.



Our Money-Back Guarantee



Every incubator we sell absolutely money-back guaranteed to do all we claim. The 1906 Reliable is the only incubator with double heating system. Free catalog tells all about it. Pure-bred Poultry and Eggs for hatching. Ask for prices.

Reliable Incubator & Brooder Co., Box B-49 Quincy, Ill., U.S.A.

You can't tell a good incubator or a good brooder by looking at them. The only true test is in the **Hatching and Raising of Chicks**. The machines that **Prove Best** by that test are the

IDEAL

Incubators and Brooders.



Made by the man who knows and backed by the J. W. Miller Cos.' guarantee to give you satisfactory results or your money back after 30, 60 or 90 days **Free Trial**. If you are discouraged try the Ideal—if you don't want to be discouraged try the Ideal. Send for the book "Poultry for Profit"—Free. 128 pages, illustrates and describes everything needed to raise poultry.

Address **J. W. MILLER CO.,**
Box 48 Freeport, Illinois.

The Racine Incubator



We pay the freight

Built by the man who devoted 24 years to its present perfect development.

Can be operated by anyone, anywhere. Auto-

matic regulator, copper tank, white pine case, double walled, nursery. Built to last 20 years.

Don't buy until you read our remarkable **Incubator Book**, written by the man who made the Racine. When you learn what he knows, you will want his machine, we think. The book is free. Write for it. Address

Racine Hatcher Co. Box 114, Racine, Wis.
Warehouses: Buffalo, Kansas City, St. Paul.

Let Me Tell You The Special Price On this Genuine 1906 Chatham Incubator.

If you say so we send it to you at our expense to try 84 days. You see it—you see it work. If not entirely satisfied, return it at our expense. We return your money and ask no questions. Anyway send for free catalogue. Find out about it, then try it. Write today

The Manson Campbell Co. Ltd. 216 Wesson Ave. Detroit, Mich.



84 Days Free Trial

BIG PROFITS in Farm Poultry

If you raise it right. Mark the "H" and let us start you right with a new 1906-Pattern

Standard Cyphers Incubator

"the sensation of the poultry world;" guaranteed to hatch more and healthier chicks with less oil than any other or your money back. We mean it. 90 days trial. Complete catalogue and Poultry Guide, 228 pages, (8x11) Free if you mention this paper and give addresses of two near by poultry raisers. Write nearest office.

CYPHERS INCUBATOR CO., Buffalo, Boston, Chicago, New York, Kansas City or San Francisco.



Take Your Own Time. Old Trusty Incubator

40, 60 or 90 Days Trial.

We want to send you the 'Old Trusty' Book. You ought to read it before buying an incubator, because it has more every-day "chicken sense" in it than any catalog you have ever seen. 300 good pictures. It tells **why** "Old Trusty" does such good work—**why** it hatches so many and so good chicks—**why** it is so easy to operate—**why** it is so economical. It's sold on 40, 60 or 90 days trial, freight prepaid. Write to us.

M. M. Johnson Co.,
Clay Center, Neb.



We Pay
the
Freight.

\$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

GEO. H. STAHL, Quincy, Ill.



The 'Kant-Klog' Sprayer

Something New. Gets twice the results with same labor and fluid. All sizes. Flat or round spray from same nozzle. For trees, vines, vegetables, whitewashing, disinfecting, wagons, fire, etc., etc.



Agents Wanted.
Circular free.

Rochester Spray Pump Co.,

East Ave., Rochester, N. Y.

The Fresh Air Incubator

Fresh Air applied to Artificial Incubation in a new and effective way, making possible higher per cent hatches, brighter, healthier stronger chicks.

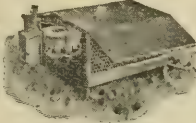
5 FREE BOOKLETS ON ARTIFICIAL POULTRY PRODUCTION

1st—The Standard Incubator. 2nd—An Incubator for Beginners. 3rd—Universal Hatcher and Colony Brooder. 4th—Feeding Chicks. 5th—What Users are Doing.

A PIANO BOX WILL DO

Put the Universal Hatcher into it and make your own brooder. The Universal Hatcher may be attached to any size or form of Colony house, mushroom house, small portable building or piano box and make about as good a brooder as money can buy. Write for catalog and the five books FREE. Others to follow, you'll get them all if your name is on our mail list.

Prairie State Incubator Co., 414 Main St., Homer City, Pa.



Deming's Sprayers

are the ideals for many thousand fruit growers. Get the best. Something for every purpose. Knapsack, Hand, Bucket, Barrel, Etc. Also Power Outfits. Every approved device for right working. Agitators, superior nozzles, etc. Send for free catalog. The Deming Co., 230 Depot St., Salem, O. Henlon & Hubbell, Western Arts., Chicago.



WATER GLASS EGGS

Preserve them for many months just as fresh as the day they were laid with

WILLETT'S WATER GLASS PRESERVER

The only sure way of preserving eggs to sell at high prices. Pure water glass. Cost, about 1c per dozen. Pint, 10c; quart, 25c; gal. \$1. Circulars free for postal. **Willett's Water Glass Egg Preserver Co.** Box 63, Anderson, Ind.

Take Your Choice.

Guaranteed Self Regulating Incubators **RENT** at \$1 and \$2 per month. Let rent pay for it. We pay freight. Buy on **40 Days Trial** or buy parts and plans and build one. Prices, ready to use: \$5.00 up. Free catalog—tells all.

BUCKEYE INCUBATOR CO., Box 64, Springfield, O.



LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address **COILED SPRING FENCE CO.** Box 448 Winchester, Ind.



CAPE CURE

It's Cape that kills off the big hatches and spoils poultry success.

CONKEY'S CAPE CURE

guaranteed to cure and prevent or your money back. Try a package. Dealers or druggists or by mail, post-paid, 50c per package. Conkey's big illustrated book on poultry diseases FREE. Send 4c to pay postage.

G. E. CONKEY & CO., No. 315 Ottawa Bldg., Cleveland, O.

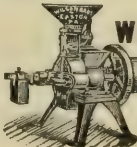


Make Your Own Fertilizer

at Small Cost with

Wilson's Phosphate Mills

From 1 to 40 H. P. Also Bone Cutters, hand and power, for the poultrymen; Farm Feed Mills, Graham Flour Hand Mills, Grit and Shell Mills. Send for catalogue. **WILSON BROS., Sole Mfrs.,** Dept. Easton, Pa.



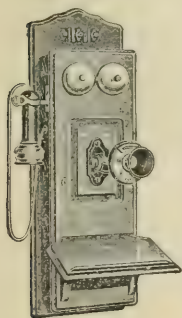
The Farmer's Wife

And the Telephone

When considering the advantages of a telephone on the farm, and whether or not to buy one, don't forget the wife. Of course the telephone is a "time-saver" for the farmer, it removes the necessity for so many trips to town, and gives him more time for work, but above all don't overlook the companionship it will afford the wife during the long day when the men-folks are away. It will be a protector to her and a messenger if occasion compels her to call for aid or assistance in a hurry. It will relieve the dry monotony of many a dreary day and drive lonesomeness away. The story is told of a line inspector, out in Illinois, who one day found a woman rocking and knitting, with the receiver of her telephone tied onto her head, so that she might hear all the conversation that passed over the line. That poor woman was not "nibby," she was just lonesome. Hundreds of farmers' wives know what it means to be lonesome—to yearn for companionship. Think what a relief the telephone will be to your wife,

what a sense of security it will give her just to feel that she has the entire neighborhood right at her elbow when she wants them.

Stromberg-Carlson Telephones



are best for the farm, because they are always in order. They are made right, especially for such service, and they stay right. You can buy cheaper

telephones, but they will cost you more in the end. They will be out of fix most of the time and will require constant attention to keep them "working" at all. To make your farm line both practical and profitable, don't experiment with cheap telephones. Buy only the best. We would like to help you to decide which is best; to do that, let us send you our new book, "How the Telephone Helps the Farmer," in which we illustrate and describe the process of making a farm telephone from beginning to finish, taking up particularly the most important or essential parts and showing how we make them and how the cheap fellows make theirs. This will be an object lesson to you that may save you a good many dollars and no little disappointment. It tells how to interest your neighbors in building a line, and will furnish valuable information you cannot afford to be without. It's free—write for it today. A postal will do; just say, "Send me 36-N," and it will come by return mail.

STROMBERG-CARLSON TEL. MFG. CO.
Rochester, N. Y. Chicago, Ill.

Paint Without Oil

Remarkable Discovery that Cuts Down the Cost of Paint Seventy-Five Per Cent.

A Free Trial Package and a Big Book Telling All About Paints and Paint-Making are Mailed Free to Everybody Who Writes.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powderpaint. It comes to you a dry powder and all that is required is cold water to make a paint weatherproof, fireproof and as durable as oil paint. It adheres to any surface, wood, stone or brick, it spreads and looks like oil paint and yet only costs one fourth as much. For many purposes it is much better than oil paint and is indispensable to every property owner.

Write to Mr. A. L. Rice, 553 North St., Adams, N. Y., and he will send you a free trial of his new discovery, together with color cards and his valuable book on Painting, all free. This book lets you into all the secrets of paint-making, exposes fake paints, tells you what kind of paint to use for different purposes and shows you how you can save and make a good many dollars. Write today and the book and free trial of Paint will be sent you by return mail.

Let Us Quote You a Price On a FIRST-CLASS FANNING MILL

200,000 CHATHAM MILLS are in use today. They are doing the work. Many of them were sent to these users on the 30 day free trial plan. We will send you one to try, too.

If it does not clean grain and seed, separate the good from the bad, and improve every bushel to your entire satisfaction, send it back and we will refund every cent of your money.

We pay all freight. Now we could not make this offer if we did not know The Chatham will satisfy you.

Anyway, send today for our free book entitled "How to Make Dollars Out of Wind," a book on good seed, how to obtain it.

THE MANSON CAMPBELL CO. Ltd.
342 Wesson Avenue, Detroit, Mich.



SPRAY PUMPS

The Pump That Pumps

SPRAY PUMPS

Double-acting, Lift, Tank and Spray



PUMPS

Store Ladders, Etc.

HAY TOOLS

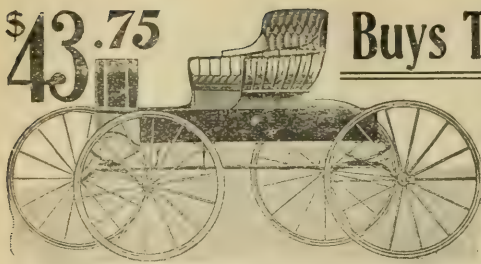
of all kinds. Write for Circulars and Prices.

Myers Stayon Flexible Door Hangers

with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & BRO.
Ashland, Ohio.

\$43.75



Buys This Rubber Tire Wagon

Union Quality. Fully Guaranteed. Best hickory wheels; $\frac{3}{4}$ in Rubber Tire; long-distance, dust-proof, high arched axles; oil-tempered springs. First-quality material and finish. Worth nearly double our **Factory Price**. We ship for your examination, without a cent in advance, if desired, and allow

30 DAYS FREE TRIAL

Money refunded on all purchases not satisfactory. You save dealers' profits. We build 150 styles of Vehicles, from \$26.50 to \$150. 50 styles Harness, \$5 to \$60. Write to-day for our 200-page Illustrated Style Book. Free for asking.

Union Buggy Co., 45 Saginaw St., Pontiac, Mich.

**We Make
We Sell
We Guarantee**



We are not inviting you to buy a vehicle through a mail order house. We are manufacturers. "Direct" with us means **direct from factory. Three Years Guarantee and 30 Days Free Trial**

before you close the bargain. We make the price just about half of others, and even after you have bought, you get your money back without cavil if you find a flaw in three years time. That's the advantage offered Progressive vehicle buyers. A couple "special bargains". Complete catalog tells it all. Don't fail to send for it.

THE PROGRESSIVE VEHICLE MFG. CO.,
Dept O, Ft. Wayne, Indiana.

PLOW REPAIRS FREIGHT PAID
Reversible Slip Point for Oliver Plow **10¢**



We carry a large stock of plow repairs, for all the leading plows, and sell them *freight paid* cheaper than your local dealer can buy them. Write for catalog and buy your repairs by mail, save time, trouble and money.

Ask for details of how we can save you \$150 to \$200 a year on your purchases—we have a plan it will pay you to know all about.

Co-Operative Society of the National Supply Co.,
Lansing, Mich. Chicago, Ill.

Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog A. The Seneca Falls M'g Co., 44 Water St., Seneca Falls, N. Y.



Foot
and Hand
Power

No Money in Advance

Vehicles and harnesses sold direct from factory at lowest factory prices.

**Genuine
Free Trial.**



No money, no note to sign, no deposit. "Anderton" Vehicles must sell themselves. Two years approval test, backed by \$25,000. bank deposit put up as a guarantee to make you sure of your money back.

Write for our free 110-page illustrated catalogue No. 21. It fully explains our offer.

THE ANDERTON MFG. CO.,

41 Third Street,

Cincinnati, Ohio.

THE NEW WAY TO LAY CARPET

Just out. The perfection of all carpet stretchers and tackers. Loads automatically; tacks are thrown in to a little hopper and the machine does the rest. So simple, simplicity is outdone. New Principle Stretcher. Impossible to tear carpet. Stretches heaviest Brussels or Moquette while standing erect. No more backaches, bruised knees or smashed fingers.

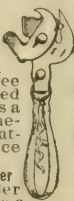
Faultless Carpet Stretcher and Tacker

Has perfect tack cutoff. Feeds one only, always point down. Carpet can be folded in two or three thicknesses, stretched and tacked securely as a single layer. It's a mechanical wonder. Greatest labor-saving device ever invented.

Special Advertising Offer. Send \$1.50 with order and we will include a combination tack puller, cork screw and can opener worth 25¢, free. Write today for descriptive circulars. Agents Wanted. Write quick.

**J. W. QUILLING
MFG. CO.**
1140 Hampshire St.,
Quincy, Ill.

IT'S
SO
EASY



I Want to Write You a Personal Letter

—Will You Send Me Your Name and Address on a Postal Card?

I want to tell you how Split Hickory Vehicles are sold direct to you from our factory—saving you about 40% on the cost of your vehicle.

I want to tell you of our thirty day free trial offer.

I want to tell you of our legal, binding guarantee for two years.

I want to tell you how we were able to build up the biggest mail order vehicle business in the world and of the great reputation we have made on the Quality of our work.

I want to tell you about Split Hickory—and why it is far superior to any other material used in Vehicle construction.

I want to tell you all about our new factory; how the great demand for our Split Hickory Special \$50.00 Top Buggy has forced us to equip an entire factory for its exclusive manufacture.

I want to tell you how we select every piece of material that goes into this buggy—and I want to explain, in detail, the 100 points of merit in the construction of our Split Hickory Special.

I want to tell you *why* it is to your advantage to order from us a buggy *made to your order*—a genuine, trade-marked Split Hickory Buggy—rather than to buy one from a factory making cheap buggies under contract to be sold by mail order houses. Such buggies may seem low in price—but in reality they are the dearest buggies a man can buy.

Our 1906 Split Hickory Vehicle Book is just off the press

I take great pride in the fact that it is the finest vehicle and harness catalogue ever issued by anyone. It contains 180 pages, and gives full description and price of over 100 styles of genuine Split Hickory Vehicles ranging in price from \$35 up.

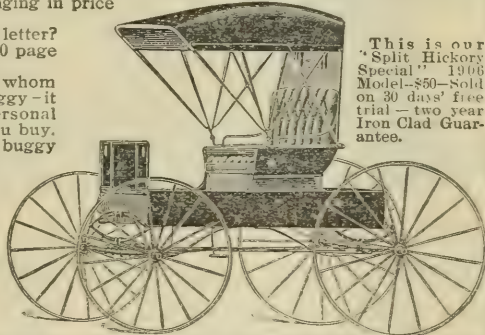
Will you let me send you this letter? Will you let me send you this 180 page book free?

It doesn't matter where or from whom you are thinking of buying a buggy—it won't do any harm to get my personal letter and our catalogue before you buy. You will then know what your buggy *ought* to cost you.

Split Hickory Vehicles are used everywhere. We have thousands of testimonials from every state.

Let me send you this letter, and this new book. Address,

H. C. PHELPS, President,
The Ohio Carriage Mfg. Company,
Station 293 Cincinnati, O.



This is our "Split Hickory Special" 1906 Model—\$50—Sold on 30 days' free trial—two year Iron Clad Guarantee.



No. 719. Bike Gear Driving Wagon with 2 inch Rubber Tires. Price complete, \$55.50. Good as sells for \$55.00 more.

to the consumer exclusively. We make 200 styles of Vehicles, 65 styles of Harness. Send for large free catalog.

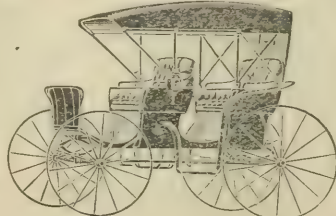
ELKHART CARRIAGE & HARNESS MFG. CO.,

ELKHART, IND.

33 Years Selling Direct

Our vehicles and harness have been sold direct from our factory to user for a third of a century. We ship for examination and approval and guarantee safe delivery. You are out nothing if not satisfied as to style, quality and price.

We are the largest manufacturers in the world selling



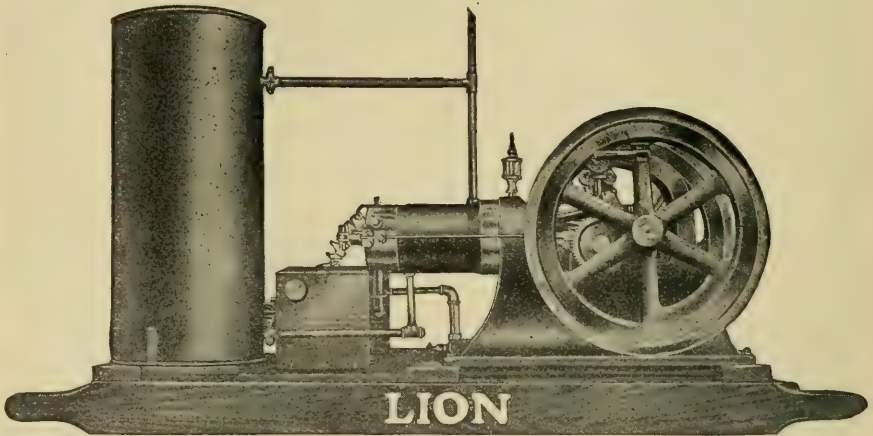
No. 326. Extension Top Surrey. Price complete, \$78.00. As good as sells for \$35. more.

YES! WE ARE SELLING GAS AND GASOLINE ENGINES.

DIRECT FROM FACTORY TO USER.

The secret of our success in this field, hitherto unoccupied, is the extraordinary pains we take in teaching the purchasers of "**Lion**" engines how to operate them intelligently.

THIS ENGINE IS NO EXPERIMENT.



The "**Lion**" Gas and Gasoline Engines are simplicity simplified; they are used for all purposes where power is required, and will be found the most economical in operation.

WRITE US A LETTER LIKE THIS TODAY.

LYONS ENGINE COMPANY, Lyons, Mich.

Gentlemen: I am about to purchase a gas or gasoline engine for..... purposes, and wish you to send me full particulars about your approval offer as advertised in "Gleanings in Bee Culture." Yours very truly,

Name.....Town.....
State.....Street No. or P. O. Box.....
R. F. D.....

When writing, please state definitely for what purpose you wish to use this engine, and whether gas or gasoline for fuel. This information is very important to us.

Send for descriptive catalog and further information in regard to our special "installment plan" of purchase. If you are thinking of buying a gas or gasoline engine, it will be worth your while to see how cheaply we can sell you a high-grade engine.

LYON ENGINE COMPANY, Lyons, Michigan

PLEASE REMEMBER WE SEND THE ENGINE, NOT THE ENGINE AGENT.

PAGE POULTRY FENCE



Keeps heavy stock out of your poultry yard, and costs less erected than common nettings. Made of the same strong quality of coiled wire as Page Stock Fences, woven in the same practical way—continuous cross bars securely knotted around every horizontal bar, and the whole fabric heavily galvanized. Requires few posts, and no top rail or bottom board; stretches up smoothly on uneven ground and never sags, bags or buckles. A complete line of Lawn, Park and Stock fences constantly on hand. Write for descriptions and comparison of costs.

Page Woven Wire Fence Co., Box 549, Adrian, Michigan.

COILED SPRING FENCE



Closely Woven. Can not Sag. Every wire and every twist is a brace to all other wires and twists full height of the fence. Horse-high, Bull-strong, Pig-tight. Every rod guaranteed. **30 DAYS FREE TRIAL** and sold direct to farmer, freight prepaid, at lowest factory price. Our Catalogue tells how Wire is made—how it is galvanized—why some is good and some is bad. Its brimful of fence facts. You should have this information. Write for it today. It's Free. **KITSELMAN BROS.,** Box 21 MUNCIE, INDIANA

FENCE Strongest Made

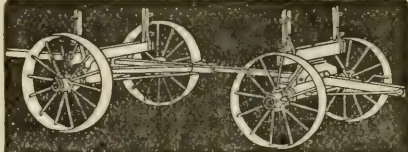


Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today. **COILED SPRING FENCE CO.,** Box 101 WINCHESTER, INDIANA

BROWN PAYS THE FREIGHT

HEAVIEST FENCE MADE

All No. 9 Steel Wire. Well Galvanized. Weighs $\frac{1}{2}$ more than most fences. 16 to 85c per rod delivered. We sell all kinds of fence wire at wholesale prices. Write for fence book showing 110 styles. **The Brown Fence and Wire Co.,** Cleveland, Ohio.



WHAT DO YOU SAY?

Several hundred thousand farmers say that the best investment they ever made was when they bought an

Electric Handy Wagon

Low wheels, wide tires; easy work, light draft. We'll sell you a set of the best steel wheels made for your old wagon. Spoke united with hub, guaranteed not to break nor work loose. Send for our catalogue and save money.

ELECTRIC WHEEL CO., Box 95 Quincy, Ill.



EXTENSION AXLE NUTS CURE WABBLES.

Make old buggies run like new. Quick sellers. Very profitable for agents. Exclusive Territory. Hardware Specialty Co., Box 535, Pontiac, Mich.

HERE IS A WINNER.

The Modern Farmer and Busy Bee.....	\$ 50
American Bee Journal (new subscribers).....	1 00
Farm Money Maker.....	50
Agricultural Epitome.....	25
And your choice of Langstroth on the Honey-bee, or A B C of Bee Culture.....	1 20

All for \$1.85.

\$3 45

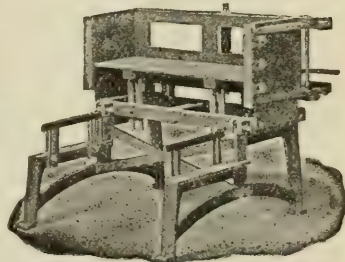
The American Boy, the Cosmopolitan, or Pearsons, may be substituted for A. B. J. Ask for other substitutes. We can save you money on any paper. Let us have a list of what you want. Address quick, **THE MODERN FARMER, 307 N. 3d Street, St. Joseph, Mo.**



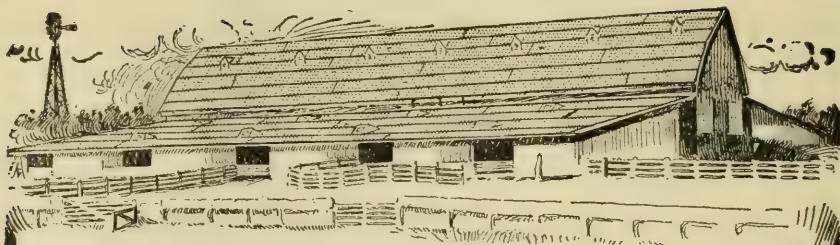
makes from 25 to 35 blocks. Write for descriptive circular and list.

These Blocks

were made on one of our \$50 concrete building-block machines. Prices range from \$50 upwards. Every machine complete with all parts ready to go to work, and guaranteed to give satisfaction. Two men make from 100 to 150 of these blocks per day. One barrel of Portland cement



Medina Concrete Company
Medina, Ohio



Roofed With Paroid Roofing

Many of the largest farm and poultry buildings in the country as well as government and railroad warehouses, factories, etc. are now roofed and sided with Paroid Roofing. The above illustration shows the largest stock barn in Minnesota, covered with Paroid. In spite of cheap imitations it grows in popularity, because every one who uses it finds it economical, extra strong, durable and thoroughly satisfactory. Make no mistake—get Paroid.

Light slate color; contains no tar; does not crack nor run, does not taint rain water. keeps buildings dry and warm, looks well, lasts long, spark, water, cold, heat, smoke and gas proof. That's why it's so popular.

Sample Free. To show you exactly what it is we'll send you a free sample and name of nearest dealer. Investigate now. For a 2 cent stamp we'll send book of building plans for poultry and farm buildings.

F. W. BIRD & SON, Makers.

Originators of Free Roofing Kit—fixtures for applying in every roll.

East Walpole, Mass.,

Established 1817.

Chicago, Illinois.

A Savings Account

Thousands of people are now doing their banking by mail with perfect safety. The U. S. mail, with its free city and rural delivery, brings the strong, liberal savings bank to the very door of every person no matter where they are. You can open an account with this safe bank by simply sending to us

One Dollar or More,

then add other dollars as you can spare them. Deposits can be sent by Postoffice or Express Money Orders, Check on Local Bank, New York Draft, or Currency by Express or Registered Mail. Your money will earn

4 PER CENT Interest,

compounded semi-annually, and will be secured by assets of over
ONE HALF MILLION
and the management of prudent and successful business men. . . . Write for particulars.

**The SAVINGS
DEPOSIT BANK COMPANY,**
Medina, Ohio.

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

The Big Two of the Poultry Press

go every week to thousands of exclusive readers who buy liberally in the desire to beautify their Rural Homes. . . .

The Feather ✂ ✂ ✂ ✂ ✂

The most conservative and instructive of all monthly journals devoted exclusively to the advancement of poultry culture in all its branches.

The American Fancier ✂ ✂ ✂

The great weekly journal devoted to the interest of the business in all its branches, goes continually on Saturday to those most interested in standard-bred poultry.

THE ADVERTISER looking for profitable returns can not afford to neglect the advantages to be gained from the use of the advertising pages of *These Two Journals*.

Begin Now, the Harvest is at Hand

For special rates send to publishers of this journal or to the home office of the two publications.

The Howard Publishing Co.
714 12th St. N. W., Washington, D. C.

BURPEE'S Farm Annual for 1906

"The Leading American Seed Catalogue."

Mailed FREE to all who want the BEST SEEDS that Grow!

This *Thirtieth Anniversary Edition* is a bright book of 168 pages and tells the *plain truth*. With Cover and Colored Plates it shows, *painted from nature*, Seven Superb Specialties in Vegetables of unequalled merit and Six Novelties in Flowers, including LUTHER BURBANK'S *New Floral Wonder*. **WRITE TO-DAY!**—the very day you read this advertisement. Mention this paper and address

W. ATLEE BURPEE & CO., Seed Growers, PHILADELPHIA, PA.



Cucumber

For flavor, uniform size, color, and productiveness it is absolutely unequalled.

In addition to this it comes into bearing very early, continuing right through the season until killed by frost. Always straight—*never turning yellow*. Best for the table, for market and for pickling. Large sample packet for only 5c or 1 oz. for 15c, including copy of our grand new

FREE BOOK

"Northern Grown Seeds"

Plants, Bulbs, Fruits and Trees. Contains all the *good things* for the Garden and Farm worth growing at the *right prices*. Don't fail to secure the *Book*. Write today.

L. L. MAY, St. Paul, Minnesota



A wonderful big catalog **FREE** Full of engravings of every variety, with prices lower than other dealers. The book is worth a dollar to any one who plants seeds.

Big Lot of Extra Packages Free to Every Customer.

Send yours and neighbors address.
R. H. Shumway, Rockford, Illinois.

PLANT OUR QUICK-GROWING NORTHERN SEED

You will gain from one to three weeks over your neighbors who plant home-grown seed. Think what higher prices this means. No more labor—no more land—but bigger, earlier crops, and larger profits.

Northern Seed grown in colder climate and shorter season matures much earlier.

POTATOES Our Extra Early Potatoes is a marvel. Large, fine, smooth, white. Big yielders; earliest of all. Try some this year and see for yourself. **Send 25c**, stamps or coin, and get one large seed potato and catalogue (worth dollars to any grower). Complete line hardy Northern Grown Seeds. Catalogue alone free. Write today, while you have this before you.

Darling & Beahan, 73 Michigan St., Petoskey, Mich.



THE KITCHEN GARDEN

JEWELL'S COMPLETE HORTICULTURAL ESTABLISHMENT. Our 5 FREE CATALOGS cover everything that is HARDY in the line of FRUIT TREES AND PLANTS and GARDEN SEED. The new Jewell Fruit Catalog is the most complete published—honest descriptions based on 38 years experience in Minnesota. 1906 Free Catalog of Tested Vegetable Seeds now ready. Remember we have a 1200 acre nursery here devoted to fruit and ornamental stock suited to the NORTH. Every tree guaranteed for 2 years.

RELIABLE AGENTS WANTED

THE JEWELL NURSERIES
Box 12 Lake City, Minn.

Trees, Plants & Seeds THAT GROW

Best quality. Good bearers. Low prices. Apple 4c; Plum and Cherry 12c; Peach 4c; all budded; Concord Grapes 2c; Forest Tree Seed. 1000 a 1000 on.

GERMAN NURSERIES
Carl Sonderegger, Prop.
Tested seeds very cheap. Freight paid on trees. Catalogue, English or German, free. Write for it today. Address GERMAN NURSERIES, Box 33 Beatrice, Neb.



HOW TO GROW CACTI

is fully explained in the new book just issued, "Cactus Culture for Amateurs," 80 pages, finely illustrated, describes 500 varieties. Tells where found, treatment to produce bloom, soil, how to graft, how to grow from seed, and where to get all rare Cacti and Succulents, price 25c. 40-page catalogue of Cacti, and nice sample Cactus (named) 10c. E. Texensis (like cut) 25c. Old Man (genuine) 50c. 10 nice Cacti, all different, \$1.00. Circulars free. The Callander Cactus Co., Dept. 48, Springfield, Ohio.

MR. GREEN SAYS

¶ It won't be long now before real spring weather commences.

¶ Now is the time to study my catalog, plan your garden, and buy your seeds. Don't put this matter off a day longer.

¶ I am sure every garden-maker wishes better success than last season. Better seeds and better care will bring this about. I can supply you the seeds. My catalog tells you why.

¶ A postal brings it.

E. C. Green & Son
Seedsman,
Medina, Ohio, U. S. A.

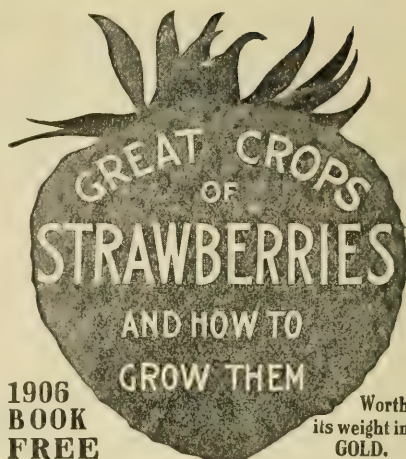


EVERGREENS AND FOREST TREES

That are Sure to Satisfy

I have been growing evergreens and forest trees for 31 years, always with one idea—trees that satisfy. When you buy Hill's trees you get honest value—highest quality. My catalogue is my salesman; it's free. Contains 48 pages illustrated with beautiful pictures; describes all kinds of nursery stock for all purposes—hedges, windbreaks and ornament. Also fruit trees, shrubs and vines. 50 Best Bargains over offered—\$1.00 to \$10.00 per 100 Prepaid. Everything first-class, guaranteed exactly as represented. Write for catalog today.

D. HILL, Evergreen Specialist
Dundee, Ill.



**1906
BOOK
FREE**

Worth
its weight in
GOLD.

The Book that beats them all because it tells how big crops of big fancy strawberries can be grown every year and how to pick and pack them for big prices. It keeps Experienced Growers posted on new discoveries in plant breeding and latest cultural methods. It takes beginners through a complete course of instruction; tells just when and how to do everything to get **Big Results**, and how to start a Profitable Berry Farm with little capital. Beautifully illustrated with photo-engravings. Don't order your plants until you read this book. It is free.

E. M. KELLOGG CO., BOX 400 THREE RIVERS, MICH



Strawberries

Grown by the pedigree system. **Biggest and Best Berries**, and lots of them.

\$2.00 a 1,000 and Upwards.

Strawberry plants by the 1,000,000, Raspberries, Blackberries, Gooseberries, Currants, Grapes. All the good old and many choice new varieties. Illustrated, descriptive catalogue giving prices and telling how to plant and grow them, **Free to all**. For 30 years a small fruit specialist. 250 acres in berries.

J. T. Lovett, Little Silver, N. J.

APPLE TREES 7c



**All
The Best
Hardy Varieties**

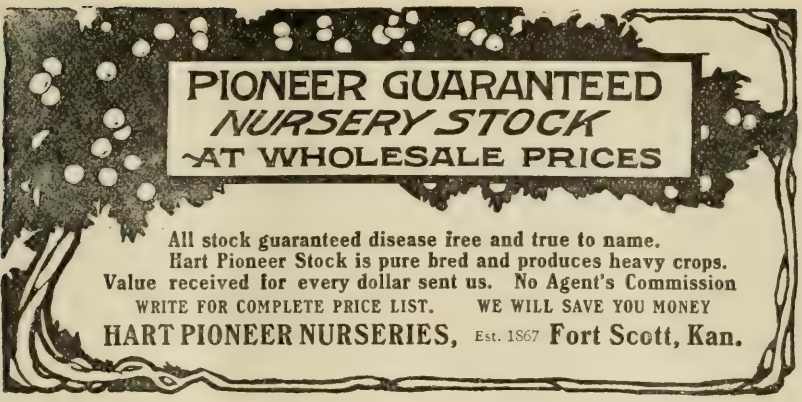
**Two Years
Old
7c to 15c Each**

POPLAR TREES AND ROSE BUSHES. TEN CENTS EACH

ASPARAGUS, the most popular vegetable, yields at the rate of \$400 per acre, two year plants 75 cents per 100; \$4.50 per 1,000. Grape vines and fruit plants at low prices. **POPLAR TREES** for driveways, shade and lawns. The most rapid growing trees, 10c to 17 cents each. **ROSES**. A large collection of hardy varieties, also our Live-for-Ever Pink Rose, 10c to 20c each.

BUY DIRECT FROM GROWER—SAVE 35 PER CENT

Let us price your list of wants. Green's 1906 Catalogue, also copy of Green's Big Fruit Magazine free. Send postal card for them today. **GREEN'S NURSERY COMPANY, 41 WALL ST., ROCHESTER, N. Y.**



**PIONEER GUARANTEED
NURSERY STOCK
AT WHOLESALE PRICES**

All stock guaranteed disease free and true to name.
Hart Pioneer Stock is pure bred and produces heavy crops.
Value received for every dollar sent us. No Agent's Commission
WRITE FOR COMPLETE PRICE LIST. WE WILL SAVE YOU MONEY

HART PIONEER NURSERIES, Est. 1867 Fort Scott, Kan.



20 HARDY PLANTS \$5.00

Shrubs and Running Vines

1 Syringa (Lilac)	1 Rhododendron
1 Japan Snowball	1 Azalia Mollie
1 Double Althea	1 Weigela
1 Double Flower Almond	1 Rose of Sharon
1 Hardy Hydrangea, 4 ft.	
1 Syringa Mock Orange	RUNNING VINES.
1 Ithue Purple Fringe	1 Japan Honeysuckle
1 Forsythia Beautiful	1 White Star Clematis
1 Lilac, white and purple	1 Dutchman Pipe
1 Deutzia	1 Ampelopsis
1 Bridal Veil	1 Boston Ivy

20 Hardy Plants from 4 to 5 ft. tall. This entire collection, only **\$5.00**. Send your order early and we will send this fine collection, worth twenty-five dollars, enough plants to beautify your home, for only \$5.00. It is a great bargain. Order quick and be sure of them.

NATIONAL PLANT CO., Somerville, Mass.

A WOMAN FLORIST

6 HARDY EVERBLOOMING ROSES On their own roots. **25^c**
ALL WILL BLOOM THIS SUMMER.

Sent to any address post-paid; guaranteed to reach you in good growing condition.

GEM ROSE COLLECTION

Burbank, deep rose.
Cardinal, bright red.
Killarney, grandest pink.
General McArthur, deep red.
Snowflake, pure white.
Bouquet of Gold, golden yellow.

SPECIAL BARGAINS

6 Carnations, the "Divine Flower," all colors, 25c.
8 Prize-Winning Chrysanthemums, . . . 25c.
8 Beautiful Coleus, . . . 25c.
4 Grand Orchid Cannas, . . . 25c.
8 Sweet-Scented Tuberoses, . . . 25c.
6 Fuchsias, all different, . . . 25c.
10 Lovely Gladiolus, . . . 25c.
10 Superb Pansy Plants, . . . 25c.
15 Pkts. Flower Seeds, all different, 25c.

Any Five Collections for One Dollar, Post-Paid
Guarantee satisfaction. Once a customer, always one. Catalog Free.

MISS ELLA V. BAINES, Box 25 Springfield, Ohio





HARDY EVERGREENS

12 FREE

grow them by the million. To prove they are healthy and vigorous we offer 12 Spruces and Pines 2 years old FREE to property owners. Mailing expense 6c, which send or not. A postal will bring them. Catalog with 42 colored plates of Hardy Fruits etc., free. Write today.

The Gardner Nursery Company, Box 748, Osage, Ia.



OVER FIFTY YEARS of square dealing entitles the dealer to the consideration of all who buy his sort of goods. Reliability and responsibility should always count. Our specialty is and always has been selling direct to the planter, who thus gets the best and pays but one profit. Everything of the best for Orchard, Vineyard, Lawn, Park, Street, Garden and Greenhouse. Rarest new and choicest old. We send by mail post-paid **Seeds, Plants, Vines, Bulbs, Roses, E. c.**, and guarantee safe arrival and satisfaction, larger by express or freight. An elegant 1-8-page Catalogue **FREE**. Send for it and see what values we give for a little money. You will be interested in our extraordinary cheap offers of over half a hundred choice collections, in seeds, plants, roses, trees, etc. 62 years, 44 greenhouses, 1200 acres.

THE STORRES & HARRISON CO.,
Box 189, PAINESVILLE, OHIO.

Strawberry Plants

Virginia and Chesapeake, winners of \$100 GOLD PRIZE offers; also Cardinal, Commonwealth, North Shore, Oaks Early, New York, Glen Mary, Stevens Champion, and 90 others; best list, good stock, fair prices. Dewberries: Lucetia and Austins.

Seeds Full line best new and standard old varieties GARDEN, FIELD and FLOWER SEEDS. **New 60 Page Catalogue Free.** It tells about good plants and seeds and where to get them Send now to **W. F. ALLEN, Dept. 20, SALISBURY, MD.**



SCARFF'S BLACKBERRIES

I grow millions of blackberry plants that yield luscious fruits. All true to name—full of life. They're money—coins that will yield **\$300 PROFIT PER ACRE**

My handsome, new catalog of small fruits, fruit and ornamental trees, farm and garden seeds and general nursery stock sent free. Get it—write today.

W. N. Scarff, New Carlisle, O.

300,000

PLUM TREES, two years old, on plum roots, 6 to 7 feet, 15c each; 5 to 6 feet, 12c; 4 to 5 feet, 7c; 3½ to 4 feet, 5c. 250 trees for \$10. Boxed free. Apple trees on French apple roots, 4c to 10c; on American-grown apple roots, 3c to 9c. Liberal discounts on early orders. Millions of Fruit, Shade, and Ornamental Trees. Small Fruits of every description. Secure varieties now, pay in spring. 80-page Catalog free to everybody.

SHEERIN'S WHOLESALE NURSERIES, Dansville, New York.



\$2.25 WORTH FLOWERS FOR 25c

We send you this grand collection of SEEDS and RULES for less than the cost of packing and postage, that all may have an opportunity to plant our SUPERIOR STOCK and become one of our yearly customers.

20 Pkts. Seeds 4 pkts. Pansy, Red, White, Blue, Striped
3 pkts. Carnation, Red, White, Variegated
2 pkts. Sweet Peas 1 pkt. Tree Aster
1 pkt. Giant Daisy, Novelty 1 pkt. Snow Ball
1 pkt. Sweet Violets, Hardy 1 pkt. Gladiolus, Hardy
1 pkt. Petunia, Fringed 1 pkt. Chrysanthemum, Double
1 pkt. Brilliant Morning Glories 1 pkt. Orchid Flower
1 pkt. Salvia, Red, White, Blue 1 pkt. Verbena, Sweet Scented

20 Bulbs 1 Begonia, 1 Gloxinia, 1 Hardy Lily,
1 Poppy Anemone, 2 Gladiolus, 2
Hardy Climbers, 1 Tuberose, and 11 other Bulbs for the
garden, such as Callas, Amaryllis, Montbretias, etc.

The above 20 PKTS. of SEEDS, 20 BULBS, our new
color plated catalogue and a FREE RETURN CHECK giving
you your money back, will be sent you by return mail for 25c

J. ROSCOE FULLER & CO., Box 12, Floral Park, N. Y.

Send Me 8 cents



and names of 2 flower loving friends,
I will start you with 4 packets of
pure, fresh seed—Dwarf Nastur-
tiums—20 kinds; Royal Show
Pansies—100 colors; Sweet Peas
—40 varieties; Asters—all kinds.
FREE—“Floral Culture” and
14th Annual Catalog, with big
list of rare seed bargains; also my
offer of \$100 cash prizes for pic-
tures of best lawns and yards sown
with the famous Lippincott seeds.
Write TODAY before you forget.

MISS C. H. LIPPINCOTT, 633 10th St., S., Minneapolis, Minn.
Pioneer Seedswoman of America.

A beautiful colored plate of our

**New Eaton
Red Raspberry**

and our strawberry catalog of valuable
information about varieties
with instructions for beginners.
Free to all.

**THE FLANSBURCH & POTTER CO.,
Leslie, Michigan.**



THE BEST STRAWBERRY

is Senator Dunlap—large, fine colored,
very productive. Catalog of Straw-
berry and other berry plants FREE.
L. J. Farmer, Box 608, Pulaski, N. Y.



THE BEST RASPBERRY

is Plum Farmer; early, large, enor-
mously productive. Catalog of rasp-
berry, strawberry and other berry
plants free. Write for it NOW.
L. J. Farmer, Box 608 Pulaski, N. Y.

“The THREE W”

Strawberry; the best for market or home; bears
abundantly five weeks; kept at World's Fair ten
days; perfect blossoms; large glossy berry; sweet-
est of all.

W. A. Mason, College St., Clinton, Ky.

Every Strawberry-grower

should have our catalog. It contains
information not found in any other.
It describes fifty varieties, some of
which will interest you. Free.

M. CRAWFORD CO.

Box C Cuyahoga Falls - Ohio

Sweet Potato Seed

Bright stock; straight from storage;
best varieties—old and new. Send
for my free descriptive price list.

— ADDRESS —

L. H. Mahan, Box 143, Terre Haute, Ind.

EAR SEED-CORN!

Four of the best varieties for sale. Tested,
and guaranteed to show good germination,
or your money back. Thirty choice ears for
75c or one bushel in crates for \$1.75. Same
price for graded if wanted. If you want
good ear seed corn write before it is all sold.

Yenn Brothers, Riverside, Iowa.

SEED POTATOES—Early Six Weeks, Early Ohio,
Cobbler, Carman, and others. Fine stock at
little above market price. List free.
McAdams Seed Company, Columbus Grove, Ohio.

SCHILDER BROTHERS - CHILLICOTHE, OHIO

We are extensive growers of
...ONION SEED...
Write us for our prices.

450,000 TREES

200 varieties. Also Grapes, Small Fruits etc. Best root-
ed stock. Genuine, cheap. 2 sample currants mailed for
10c. Desc. price list free. **Lewis Koesch, Fredonia, N. Y.**

FRUITFUL TREES MILLIONS OF FRUIT AND FOREST TREES

Small Fruits and Evergreens, Russian Mulberry
and Black Locust, \$1.00 per 1000. Carefully dug
and packed. Freight prepaid on \$10.00 orders.
Catalogue free. Fine trees guaranteed.
Vage County Nurseries, Box 647, Beatrice, Neb.

Fruit Trees—\$6.00 per 100 and up. Fine assort-
ment of trees, shrubbery, vines, plants, etc. Our ideal soil
and climate produce best trees. Well packed; guaranteed
against damage in transit. Catalog free.
CHATTANOOGA NURSERIES, Chattanooga, Tenn.

Write to
The Wood Co., Medina, O.
 for prices on CLOVER and TIMOTHY seeds. All varieties. Only selected seed furnished.

Long Island Cabbage Seed 
 Cauliflower and other choice Vegetable Seeds for gardeners. Catalog and samples free.
 Francis Brill, Grower, Hempstead, New York.

FREE Flower Seeds, 1000 sorts, new and old, for a big bed, also PARK'S NEW FLORAL GUIDE FREE. Tell your friends. GEO. W. PARK, La Park, Pa.

If You Want Root's Goods

I have them at Root's prices. Also A B C of Bee Culture—one of the best books printed on bees. Catalog free. Address as below.

D. Cooley, Kendall, Michigan

You Need It.

If you have only a few chickens;
 If you are at all interested in poultry;
 If you are breeding for fancy points;
 If you cater to the market trade;
 If you are in the business on large scale, you need

Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. a year, but we offer it **AT HALF PRICE** for a short time to introduce it to readers of Gleanings. Send only 25 cts. and get it a year; or, if you send us \$1 for a year's subscription to Gleanings in Bee Culture, we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.

\$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size 8x11 1/4 inches) of valuable poultry, pigeon, and pet-stock reading, costing us thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

Poultry Item : : Fricks, Pa.

DO YOU RAISE CHICKENS?

If so, you will find The Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cts. a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.



Greider's Fine Catalog

of Prize-Winning Poultry for 1906. This book is printed in several Beautiful Colors and is larger than ever. Contains a Fine Chromo of lifelike fowls. It illustrates and describes 60 varieties of poultry, ducks, geese, pigeons, etc. It shows best equipped poultry yards and houses—how to build houses; cure for diseases; **Best Lice Destroyer** how to make hens lay; poultry supplies and all kinds of information indispensable to poultry-keepers. Prices of eggs and stock within reach of all. Send 10 cents for this noted book.

B. H. GREIDER, RHEEMS, PA.

POULTRY PAYS

if you get the right start, the right eggs or fowls and the right materials to work with. Our complete poultry guide pictures and describes all breeds, gives incubating, brooding and feeding directions. It lists **Thoroughbred Fowls and Eggs**, incubators, brooders, poultry ration and everything need-d for profit. **All at lowest prices** and all guaranteed satisfactory or your money back. **Send for Free Book** for 10 cents postage.



American Incubator Co., Box 115, Freeport, Ill.

Poultry Magazine,



Monthly, 50 to 100 pages, its writers are the most successful Poultrymen and women in the United States. It is **The POULTRY TRIBUNE**, nicely illustrated, brimful each month of information on How to Care for Fowls and Make the Most Money with them. In fact so good you can't afford to be without it. Price, 50 cents per year. Send at once for free sample and **SPECIAL OFFER TO YOU.**

R. R. FISHER, Pub., Box 85, Freeport, Ill.



FREE! FREE!

Send for a copy of the **INDIAN POULTRY JOURNAL**, and receive a fine color picture free. Cost us \$400 costs you nothing. Our paper has the admiration of every poultry man. Have you seen it? Well do not miss it. Address **Inland Poultry Journal Co., 50 Cord Bldg., Indianapolis, Ind.**

BOOK ON POULTRY DISEASES FREE

Conkey's book on Poultry Diseases sells for 25 cts. Full of information on housing, feeding, sickness, and how to care for the flock. Will help you to make money. Send 4 cents to pay postage and the names of two other poultry raisers, and we will send you a copy of this illustrated book of valuable information free.

G. E. Conkey & Co., No. 80, Ottawa Bldg., Cleveland, O.

65c for 25 NAMES—For names and P.O. of 25 farmers and 15c (stamps taken) we will send for 2 years the Farmer's Call—regular subscription price, 40c a year. F. C. is a weekly, 25 years old; 1300 pages a year; sample free. **Farmer's Call, Quincy, Ill.**

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

BEE-KEEPERS' SUPPLIES

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.



WALTER S. POUDER



OTIS I. MASTEN



A. G. FIELDS



ROBERT R. WOLFE

These are the boys that ship the goods that were made in the house that Root built.

Conversation with Wilson

With Apologies to C. M. D.

"Good morning, Wilson; how are you this morning?"

"I am all right, Smith, except that I have a touch of that rheumatism that always attacks me about this time of the year. Well, Mr. Smith, I have only a few moments to spare this morning and I came over to ask your advice about getting a lot of bee-supplies. I have noticed that your supplies are always nicer than mine. Where would you advise me to, send?"

"Send to Pouder, at Indianapolis, by all means."

"But why do you prefer Pouder when I could get my supplies nearer home? You know the woods are full of supply-dealers, and have you noticed what a lot of them are advertising in the bee papers?"

"Yes, I have noticed all of that, but there are several reasons why I would send to Pouder. You know he handles The A. I. Root Co.'s goods, and you know that means finest quality and more for your money. He fills his orders promptly, and you get a very low freight rate out of Indianapolis. He carries a

very large stock of goods, too, and they are bright and fresh from the factory."

"I suppose he makes mistakes in shipping same as all of them do?"

"I suppose he does, but if he does he will make it right with no expense to his customer. That is the way he does business. If you wish, you can trade your wax with him for supplies and he will allow you 30 cents a pound for wax."

"What is his address?"

"Walter S. Pouder, 513, 515 Massachusetts Ave., Indianapolis. Drop him a card and you will get his catalog on return train."

"That is just what I will do, and then I will send in my order. I have heard of this man Pouder before, but we always called him Powder. I do like to have the best of every thing for my bees, especially when the cost is no more than I have been paying. Much obliged to you, Mr. Wilson, and now I will take my cane and hat and go home. Manda said to tell you and Mary to come over and eat dinner with us right soon."

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight; always be sure to attach name to package.

WALTER S. POUDER,

513-515 Massachusetts Ave.,

INDIANAPOLIS, IND.

PAGE & LYON

NEW LONDON, WISCONSIN

✿ Manufacturers of and Dealers in ✿

BEE-KEEPERS'

SUPPLIES

2 per cent Discount during March on all Orders Accompanied by Cash.

**Send for Our FREE
New Illustrated Catalog and Price List**

Dittmer makes a Specialty of Working Beeswax into Comb Foundation

Write for our price list, samples, and early-order Discount.
We would like to send them to you at our expense.
Our warehouse is full of bee-supplies.
Jobbing - Wholesale - Retail.
Beeswax always wanted.

CUS DITTMER,

--

AUGUSTA, WIS.



H. M. ARND, MANAGER

YORK HONEY AND BEE SUPPLY CO.

Not
Inc.

141 ONTARIO STREET : CHICAGO, ILLINOIS

CARRY A FULL LINE OF

Lewis Bee-supplies and Cornell Incubators and Brooders

and poultry-supplies at factory prices. Write for the 1906 catalog of either or both. Honey for sale. Beeswax wanted; 27 cts. cash, or 29 cts. when taking bee-supplies in exchange.

Early-order discount, two per cent for March.



Michigan Distributors

—FOR—

G. B. Lewis Co.'s Beeware, Dadant's Foundation.

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service. Regular discounts allowed.

SPECIAL. A quantity of Dovetail and Wisconsin hives, slightly discolored by water, in packages of five at \$1.25 per hive for 1½-story 8 frame; 10 frame, \$1.40 per hive. Satisfaction guaranteed.

ADVANCED BEE-VEIL. Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

A. G. Woodman Co.,

Beeswax Wanted.

Grand Rapids, Mich.

Southern Bee-keepers!

If you want bee-keepers' supplies of best quality and for the least money possible, you should buy them from the **WHITE MANUFACTURING COMPANY**. Situated, as we are, right near the great pine belt of North Texas, Louisiana, Arkansas, and Indian Territory, we can secure the best material possible at least cost, thus enabling us to give entire satisfaction. Catalog and price list free.

White Manufacturing Co. - **Blossom, Lamar Co., Texas**

Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

BEEES AND QUEENS—Orders booked now for spring delivery.

HONEY AND WAX—We handle honey and wax. Write for particulars.

The A. I. Root Co.

Northwestern Branch,
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

BEE - SUPPLIES

Distributing-house for Lewis' Goods,
Dadant's Comb Foundation, etc., at
Factory Prices.

Every thing the bee-keepers need. No order too large for us, nor none too small. Cash orders before February, 6 per cent discount.

FINE EXTRACTED HONEY

The best the world can produce. Sample sent, 8 cents. How much can you use? We always buy beeswax. Catalog and "Special" free.

C. M. SCOTT & CO.

1004 E. Washington St.

Indianapolis : Indiana

BIG DISCOUNT till April 1 ON ALL SUPPLIES

Dovetailed hives, eight-frame, 1½-story, \$1.80; 10-frame, \$1.45. No. 1 sections, \$3.75; No. 2, \$3.25. Foundation, smokers, etc., reduced. Berry boxes, crates, boxes, etc., kept in stock. Honey wanted. Twenty-four page list free.

W. D. Soper, Rt. 3, Jackson, Mich.

PURE ITALIAN QUEENS.—From red-clover and five-banded breeders. Untested, 75c; select untested, \$1.00; tested queens, \$1.50; select tested, \$2.50. Safe arrival guaranteed.

H. M. PARKER, JR., James Island, S. C.

Bee-supplies



We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at LOWEST PRICES, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. SPECIAL DISCOUNTS now. Write to-day. Address

Kretchmer Mfg. Co., Council Bluffs, Iowa

BINGHAM

Original
Direct Draft
CLEAN
Bee Smokers



Pat'd 1878, '92, '92 & 1903

Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and last; don't spit fire; don't go out; don't daub themselves all over. We are the most extensive exclusively bee-smoker makers in the world.

T. F. Bingham

Farwell, Mich.

Chico, California, October 28th, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.

J. M. RANKIN.

A Prosperous

Season is yours.....

if you take time by the forelock, and be prepared for the season when it comes. DON'T put off ordering your supplies until you need them. Order now, and get the discounts.

I have a full line of Root's Goods, and sell them at factory prices and discounts. Send me a bill of what you want and let me tell you what I will deliver them at your depot for. Send for my 36-page catalog—it will be sent free—also a full description of the Hilton Chaff Hive and Supers, with a comparison made by the Michigan State Agricultural College between the single and double walled hives. All free for the asking. Cash or goods in exchange for wax.

Geo. E. Hilton, Fremont, Mich.

WISCONSIN BASSWOOD FOR SECTIONS

We make them and the very best of Dovetailed Hives, Shipping-cases, and a full line of Bee-keepers' Supplies always on hand. We make very prompt shipments. Let us hear from you.



Marshfield Mfg. Company
Marshfield, Wisconsin

Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws apiaries, and double your crop of honey.

I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season. I also offer another car of bees the coming season.

PRICES: Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

W. H. LAWS, BEEVILLE, BEE CO., TEXAS.

Caucasian - and - Italian - Queens

from California

Prices: CAUCASIAN—One tested, \$3.00; one best breeding, \$6.00; one imported from Caucasus, \$7.00. ITALIAN—One untested, \$1.00, six for \$5.50, 12 for \$10.00; one tested, \$1.50; one best breeding, \$5.00. Caucasians bred from the best imported breeding queens. Italians bred from breeding queens we procure from principal breeders of this country who have the best honey-gatherers. Nuclei and full colonies of bees. Send for particulars, and see our adv. in GLEANINGS, February 1st.

A. E. Titoff, Ioamosa, San Bernardino Co., California

All the year round.

We are prepared to supply queens any month in the year. We have secured the services of one of the best breeders, and use select imported stock. Prices as follows:

Untested Italians	66
Tested	\$1 00
Select tested	1 50
Extra select	2 50

We do not guarantee impossibilities, such as sending queens to cold climates in winter, but for any reasonable distance and time we guarantee safe arrival. Write for further particulars.

A. COMES CASSERES,
15 Orange St., Kingston, Jamaica.

CAUCASIAN QUEENS!

Caucasian bees are the gentlest of the PROFITABLE HONEY-PRODUCERS. A trial will convince you. Have your queens, both Caucasians and Italians, bred and mated to order, and then you will have what you want. Address

Robert B. McCain, Yorkville, Ills. R. F. D.

Superior Stock

I make a specialty of long-tongue
Italian, Carniolan, and Caucasian,

Rearing only from best stock obtainable. My Italian queens are unequalled; my Carniolans and Caucasians from best imported queens. All races bred in separate yards to insure purity. A postal will bring my price list for 1906.

CHARLES KOEPPEN
Fredericksburg, Va.

Rose Lawn Queens

Leather-colored and golden Italians or Carniolans. Unsurpassed for beauty, gentleness, and honey-gathering. Our location insures absolute hardness and prompt shipment to any portion of the country. Our apiary is stocked with breeders from the choicest strains in America. Select queens, \$1.00; six, \$5.00. Tested, \$1.50; six, \$8.00. Few choice breeders, 1 yr. old, at \$3.00. Caucasians from imported breeders after June 1st.

Rose Lawn Apiary, Lincoln, Nebraska

Frank G. Odell, Proprietor

Queens by Return Mail

I moved from Ozan, Ark., to Beeville, Tex., to be able to fill all orders for my famous strains of three and five banded bees and queens. Am now ready to fill or book your orders. Untested queens, either race, 75 cts. each or \$8.00 per dozen. Tested, \$1.25 each, \$12.00 per dozen. Select tested, \$1.50 each. Breeders, the very best that money can buy, \$3.00 to \$5.00. Caucasian queens, \$1.00 each. Send all your orders to

J. W. Taylor, Beeville, Texas

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,

Box 18, Beeville, Bee Co., Tex.

ITALIAN QUEENS AND GLEANINGS.

For \$1.10 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

W. T. CRAWFORD, Hinston, La.

Queens! Select three or five banded, \$1.00; tested three or five banded, \$1.25. Ready for delivery April 1st. Write for circular. Daniel Wurth, 1111 No. Smith Street, San Antonio, Texas

BEES and QUEENS

The Three-banded Long-tongued Strain of Italians.

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

Superior Qualities.

Honey-gathering, size of bees, non-swarming, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price.

Quality Our Motto.

1300 colonies to select from.

Untested queens.....\$1.00; 6, \$5.00; 12, \$ 9.00
Select untested queens..... 1.25; 6, 6.00; 12, 11.00
Tested queens..... 1.50; 6, 8.00; 12, 15.00
Select tested queens..... 2.00; 6, 11.00.
Breeding queens, \$3.00 to \$5.00.

Yours for best service,

The Victor-Knolle Apiary Co.,
Hondo, Texas.

Pure Caucasian Queens!

Bred in their purity, 1½ miles high at the foot of the glaciers, by Etablissement d'Apiculture Mont Jovet, Albertville, Savoie, France, official breeder for U. S. Government. We supply, too, imported Caucasian queens. Safe arrival guaranteed. Select untested queen, \$2.00; six, \$11.00; twelve, \$20.00. Select tested queen, \$2.50; six, \$14.00; twelve, \$25.00. Full rates on application. English correspondence.

APRIL 1st

I will commence filling orders for queens. Send your orders early to avoid the rush. I will have nuclei for sale at the following prices, f. o. b. Charleston, S. C.: One-frame nucleus, \$2.00; two-frame nucleus, \$2.50; three-frame nucleus, \$3.00; one colony in Dovetailed hive, \$7.50. If queens are wanted with nuclei, add price of them to price of nuclei. See ad. elsewhere. H. M. Parker, Jr. James Island, S. C.

QUEENS.

Italian, Carniolan, and Carni-Italian Cross.

Can supply select untested queens at 75c each; three for \$2.00; six for \$3.50. I am now booking orders for early delivery.

George W. Barnes,

138 N. Pleasant St.

Norwalk, Ohio.

IMPORTED - CAUCASIAN - QUEENS
are the mothers of my stock. Tested queens, \$3.00 each; untested, \$1.50. Red Clovers, Carniolans, Carnio-Italians: Tested, \$1.50; untested, \$1.00; 6 for \$5.00, 12 for \$9.50.
Rev. J. G. Baumgaertner, New Memphis, Ill.

The Best Results

are obtained from the best queens. Be sure to have the best; it does not pay to have any other.

"Extra Honey Queens"

are the best and give the best results. They get the honey. Early orders a specialty.

Prices

One.....\$1.00 Six\$5.00 Twelve ..\$9.00

Francis J. Colahan
Bernardo, San Diego Co., Calif.

Red-clover Queens from Westwood Apiary

will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.

Henry Shafer Westwood, Ohio

MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, \$1.00; six, \$5.00; twelve, \$9.00. Tested, \$1.50; six, \$8.00. Best breeders, \$3.50. Safe arrival guaranteed.

W. H. Rails, - - - Orange, Calif.

H. C. Simpson, Catawba, S. C.

Dealer in

BEE - KEEPERS' SUPPLIES!

Breeder of Italian bees and queens.
Root's Goods a specialty.

A. H. REEVES

DISTRIBUTOR OF ROOT'S GOODS FOR

NORTHERN NEW YORK

Perch River, Jefferson Co., N. Y.

PLEASE TAKE NOTICE that we have purchased the Atchley steam bee-hive factory, and are now putting in up-to-date machinery for making Dovetailed bee-hives and supplies. We earnestly solicit a share of your patronage. We quote prices on two hives for comparison: One two-story eight-frame hive in the flat for extracted honey, complete ready to nail, \$1.25; one story and-a-half hive in the flat with sections, complete ready for comb honey, \$1.25; self-spacing Hoffman frames in the flat, \$15.00 per 1000. Remember these are standard goods and Dovetailed hives. Get prices on large lots. Dittmer's foundation at Dittmer's prices. We are headquarters in the South for bees and queens—untested, \$1.00 each; \$9.00 per dozen; tested, \$1.50. Full colonies nuclei and queens in large lots our specialty. Send for catalog. **THE BEE AND HONEY CO.,**
Will Atchley, Prop., Beeville, Bee Co., Texas.

FOR 14 YEARS

I. J. STRINGHAM

OF 105 PARK PLACE

NEW YORK

has been furnishing bees and apianary supplies of every desired kind to bee-keepers of the East. A very liberal discount is now allowed early orders.
Apiaries, Glen Cove, L. I. - - Catalog free.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell or exchange, white sweet-clover seed for yellow. R. L. SNODGRASS, Gordon, Ks.

WANTED.—Seventy-five colonies of bees in Penn. S. L. 136, care of GLEANINGS.

WANTED.—To exchange stock of groceries for bees or small homestead. A. E. SHAW, Boscobel, Wis.

WANTED.—To exchange 15 ten-frame Dovetailed S supers (new), for 600 T tins. E. EGGEMAN, Neillsville, Wis.

WANTED.—About 100 colonies of bees from Maryland or Carolina, located near the water. I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—To exchange Belgian, French, and Dutch postage stamps for Golden queens. J. VERLINDEN, Wasmes, Belgium.

WANTED.—Honey, wax, slumgum, or supplies, in exchange for standard-bred White Wyandottes. H. E. CROWTHER, No. Kingsville, Ohio.

WANTED.—Raw furs of all kinds. The highest cash prices paid. Prices on application. Goods held separate if you wish. O. H. MORLEY, Hector, N. Y.

WANTED. By a young man, bees in Northern Michigan to handle on shares; can furnish references. R. RASMUSSEN, 191 Dale Ave., Grand Rapids, Mich.

WANTED.—To correspond with parties having bees to sell in carload lots for May delivery. Quote prices and give particulars. H. & W. J. MANLEY, Sandusky, Mich.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price. OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—For delivery in Virginia, about fifty colonies of bees in Danzenbaker hives; must be free from disease. Prefer pure Italians. Quote lowest price with full particulars. H. G. L., care of GLEANINGS, Medina, Ohio.

WANTED.—Frames of bees and hatching brood; same to be on Hoffman frames, and delivered April 15, 1906. Could use some full colonies in ten-frame Dovetailed hives if located in Central Ohio. JAMES W. BAIN, Marion, Ohio.

WANTED.—Old books on bee culture, especially from foreign countries. Please state titles, authors, year of publication, edition, binding, condition, number of pages, and price wanted. A. L. BOYDEN, Medina, Ohio.

WANTED.—Small place in or near town suitable for bee-keeping, in Delaware, Sullivan, or Greene Counties, New York. Give full particulars of what you have to offer, with price, etc. Box S. T. 510, care of Gleanings.

WANTED.—Italian bees in the South for early Northern trade. Prefer them from some point near the ocean routes. State what you have to offer, with full particulars. Want also about 200 untested Italian queens. Box 10, care of GLEANINGS, Medina, Ohio.

WANTED.—Every bee-keeper who takes GLEANINGS to send in a subscription of one or more friends. For three new subscriptions at \$1.00 each we will give a copy of the 1905 edition of A B C of Bee Culture. Sample copies to show your friends will be sent upon request. THE A. I. ROOT CO., Medina, Ohio.

WANTED.—To correspond with any one that has, or can get me, a pair of black foxes alive. Will pay a big price for a pair.

JOHN R. BROWN, Route 2, Fall Creek, Wis.

WANTED.—Cleome, buckwheat, sweet clover, borage, mignonette, or alyssum seeds, for gladiola and dahlia bulbs, rudbeckia and aster plants.

MRS. PH. MUELLER, Richmond Hill, N. Y.

Help Wanted.

WANTED.—A young man who understands bee-keeping wishes a position in the Western States. F. W., care of GLEANINGS, Medina, Ohio.

WANTED.—A temperate and industrious young man to work on farm and help in bee-yards when necessary. State age, and wages desired. W. J. MANLEY, Sandusky, Mich.

WANTED.—Two young men to work in apiary and on farm of 80 acres. I am one of the largest producers of honey in this state. Will give my experience and fair wages. For particulars address HERBERT MANLEY, Route 3, Sandusky, Mich.

WANTED.—Competent bee-keeper to work 200 to 300 colonies of bees on shares; good location; two crops of honey in a season. Would hire a good man by the month. Give references, wages expected, and experience, in first letter. W. E. FORBES, Plainwell, Mich.

WANTED.—Last year my students helped to secure a harvest of 60,000 lbs. of honey from 296 colonies, spring count. I can take one or two young men, able-bodied, using neither tobacco nor liquor and of good habits (none other need apply). They must be willing to work right along. I will give board and washing; and if student does well and I do well, will give something more. R. F. HOLTERMANN, Brantford, Ont., Can.

Wanted, Situations.

WANTED.—Position as apiarist for season 1906. Best references. M. W. SHEPHERD, Wakeman, O.

WANTED.—Position by a young man of good habits, with some bee-keeping; N. Y. State preferred. W. NAAB, 718 Sixth Ave., Brooklyn, N. Y.

WANTED.—Position with a bee-keeper; have some experience; would prefer California. AMOS FELEY, Box 452, Palatka, Fla.

WANTED.—Young man to take care of an apiary of 300 colonies, and carefully pack supplies for shipping. TRESTER SUPPLY CO., Lincoln, Neb.

WANTED.—A bright boy of good habits to make his home with me; must be willing to bach; one who expects to make bee-keeping his lifework preferred. Protestant. State age, and send photo if possible. Reference given and required. JOHN VANDEN BERG, JR., Box 5, Mahwah, N. J.

WANTED.—Able-bodied man of good habits who is interested in learning the up-to-date practical work of bee-keeping, from the ground up; where most of the supplies are made at home with modern appliances and good machinery for the work. One who has had some experience with bees preferred, and one who does not object to doing farm work when bees do not require his time. O. H. TOWNSEND, Otego, Mich.

For Sale.

FOR SALE.—Fifteen Barred Rock eggs for \$1.00; 100 for \$4.00. MRS. W. L. BENNETT, Rt. 1, Crooksville, O.

FOR SALE.—Leaming corn, White Wyandottes, Barred Rocks, Queens. Circular. J. F. MICHAEL, Winchester, Ind.

FOR SALE.—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog. F. R. DANIELS, 117 Florence St., Springfield, Mass.

FOR SALE.—Italian queens at any time. Untested, 66 cts.; 50 and over, 10 per cent discount. THOMPSON BROS., Half-way-tree P. O., Jamaica.

FOR SALE.—Best land for bee-keepers, farmers, dairymen. Cheap. Write us. WRIGHT-ROBINSON, Cumberland, Wis.

FOR SALE.—White Wyandotte eggs for setting, \$1.00 per 15; \$4.00 per 100. Order early. CHAS. W. BARNES, 138 N. Pleasant St., Norwalk, O.

FOR SALE.—Forty-six stands of Italian bees in Root eight-frame hives; well painted and in good condition. Write for prices. FRED DONNER, Oakville, Iowa.

FOR SALE.—Or exchange for queens or bees, strawberry, raspberry, and blackberry plants of all leading varieties. JOHN D. ANTRIM, Burlington, N. J.

FOR SALE.—Eggs for hatching from a superior egg-producing strain of S. C. White Leghorns, \$2.00 for 16, \$3.75 for 30, \$10.00 for 100. J. F. RASCH, Marilla, N. Y.

FOR SALE.—P supers for eight-frame Dovetailed hives; well painted, and used one season. Will exchange for two-frame extractor or will buy extractor. A. J. MORSE, Plum, Pa.

FOR SALE.—Cheap, 32 colonies of Italian bees in eight and ten frame two and three story hives. Reason for selling, have no time to take proper care of them. N. O. PENNY, Vero, Indian River, Florida.

FOR SALE.—Rosecomb Buff Leghorn eggs, \$2.50 for 15, \$10.00 per 100; largest breeder and finest flock in the world; largest and best layers of all Leghorns. Gold Dust (original). F. BOOMHOWER, Gallupville, N. Y.

FOR SALE.—Root's bee-supplies at factory prices; full colonies Italian bees; queens in season (catalog free); Plymouth Rock chickens and eggs; incubators, brooders, poultry food, etc. H. S. DUBY, St. Anne, Ill.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to FRANK S. STEPHENS, (Root's Goods.) Paden City, W. Va.

FOR SALE.—100 colonies of pure Italian bees in eight or ten frame new Dovetailed hives with Hoffman frames; tested queen in each colony. Price \$6.00 each. In lots of ten, \$5.00 each. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Trees by mail; one-year-old peach and apple trees, 10c each; \$1.00 per dozen. Guaranteed true to name and free from disease. G. A. HAPER, Batchtown, Ill.

FOR SALE.—Cheap, a place of four acres in one of the best locations for bees in New York State. Have taken 300 lbs. of comb honey from one colony in a season. G. H. ADAMS, Box 976, Schenectady, N. Y.

FOR SALE.—Bees; the right kind, right prices. Safe arrival and satisfaction guaranteed. Ask for illustrated Outfits for Beginners, price list, and our hints on buying bees. MASON SUPPLY CO., Mechanic Fs., Me.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season. W. N. CANNON, Greenville, Ala.

FOR SALE.—Weed-process foundation business; a rare chance to buy a foundation business with good growing established trade; price \$800. H. F. HAGEN, Denver, Colo., Or The A. I. Root Company, Medina, Ohio.

FOR SALE.—150 colonies of bees, 30 in Danz, and balance in Root eight-frame Dovetailed hives, at \$3.50 per colony complete. In excellent condition for winter; heavy stores; a great bargain for the price. If interested, write for further particulars. W. M. BAILEY & Co., Spartanburg, S. C.

FOR SALE.—Forty-eight stands of bees in two-story ten-frame L. and Danz. hives, 25 empty hives, and 35 Danz. supers complete. The bees are J. P. Moore's red-clover workers, and are in Hamilton Co., Ind. Write me. J. E. HUGHES, Route 1, Foreston, Minn.

FOR SALE.—Three untested Italian queens for \$1.00 after July 1, if ordered now; warranted pure mated, 10 cts. extra. Satisfaction, or money back. Only 300 at this rate. All you want as long as they last. Orders filled in rotation. Particulars free. S. F. TREGO, Swedona, Ill.

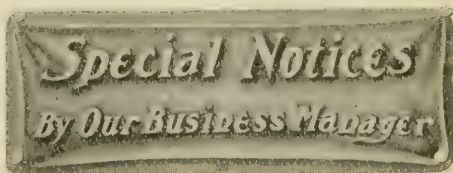
FOR SALE.—200 ten-frame supers; all nailed, and painted one coat, filled with 4x5 sections and full sheets of foundation ready to go in hives. These have never been used and will sell them cheap. Write for price and say how many you want. DANIEL WURTH, 1111 North Smith St., San Antonio, Texas.

FOR SALE.—Fine home in Glenwood, Wis.; one large house and two lots in the city, and two acres with large building 25x100 feet (very suitable for bee-supply factory), 150 colonies of bees all in good condition; one of the best white-clover and basswood localities for bee-keeping. Write for particulars. J. GOBEL, Glenwood, Wis.

COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.



BUCKWHEAT FOR SEED.

We have on hand a good supply of both silverhull and Japanese buckwheat for seed. The silverhull is especially nice seed. We offer either kind at the following prices, including bag to ship in without extra charge, but not prepaid: Peck, 35 cts.; ½ bushel, 65 cts.; bushel, \$1.25. 2 bushels, \$2.25; 10 bushels or more, \$1.00 per bushel. By mail postpaid, 4 oz., 5 cts.; 1 lb., 15 cts.

BEEWAX MARKET.

Market price of beeswax seems to grow stronger as the season advances. We have secured some very large lots during the past month, but are in the market for more. We are paying 23 cents cash, 30 in trade, for average wax delivered here or at our branch offices. We find it necessary to remind shippers again to be careful to mark shipment with their name so it can be identified on arrival; also to state number of pounds shipped, so we can tell whether any has been lost out on the way.

SWEET-CLOVER SEED.

We have had an unusual demand for sweet-clover seed, and our large stock of seed is exhausted. If any of our readers have any seed to offer, will you send us a sample, stating how much you have to sell, and the price you ask for it? Until we have a supply to offer we are obliged to withdraw all prices. If we secure a supply so that we can continue to sell at prices given in last issue we shall be pleased to do so; otherwise we will make as low prices as we can.



Everything for the Bee Keeper

will be found in our Illustrated Catalogue No. 40. It contains a full line of Hives, Supers, Followers, Sections, Section Holders, Frames, Extractors, Smokers, etc. All these and many other essentials are manufactured by us. Everything is guaranteed to be right and of best quality. Our prices are so reasonable that any bee keeper may afford the best supplies. We cannot tell you here of all the good things in this book.

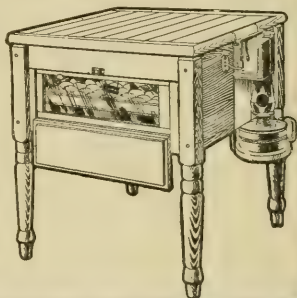
Better send for a copy today. We mail it free, together with a copy of the **Progressive Bee Keeper**, a splendid monthly publication devoted to bee interests. It will help you start right and keep you right after you are started. It is invaluable as an aid to every bee keeper. Ask for the paper and the book.

We Sell the Best Incubators and Brooders.

Delivered at your station, prices the lowest. Write us at once and save money. Address

LEAHY MFG. CO., 15 Talmage St., Higginsville, Mo.

Branches at Omaha, Neb. and East St. Louis, Ill.



Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

Bee-keepers, Co-operate!

We are Bee-keepers--Organized in the Interest of Fellow Bee-keepers
(No Matter where They Live)

Membership dues, \$1.00 per year.

Present membership—about 200 bee-keepers.

Our 1906 price list of bee-supplies, and a leaflet containing valuable information, are now ready to mail.

If you wish to assist in co-operation among bee-keepers write us now and send the names and addresses of all your neighbor bee keepers.

The St. Croix Valley Honey-producers' Association

Headquarters Until June 1, 1906
Glenwood, Wisconsin

PLEASURE AND PROFIT

A Premier Greenhouse will keep you supplied with flowers, fruits, and vegetables all the year round. Saves its cost in a season; gives tone to your residence, and creates a pleasant and profitable hobby.



The illustration shows a Premier Greenhouse—length, 12 feet; width, 8 feet; height, 8 feet. It has double walls, double-strength glass, plant-tables, etc., fitted complete; built in sections, and can be erected in two hours. The price is \$63.00.

George B. Clementson, Esq., Lancaster, Wis., writes: "The Premier Greenhouse is the most attractive proposition for the plant-lover I have ever seen."

Catalog and price list on application. Greenhouses from \$20.00. Conservatories, Garden Frames, Summer Cottages, Auto-houses, Poultry-houses, and Portable Buildings of every description.

Charles H. Manley,
Dept. B C, Premier Manufacturing Works, St. Johns, Mich.

If You Want the Bee-book

that "covers the whole apicultural field more completely than any other published," send \$1.20 to :: ::

Prof. A. J. Cook, Claremont, Calif.

FOR HIS

"Bee-keepers' Guide"

Liberal Discount to the Trade.

TO THE
BEE-KEEPERS
OF CANADA

WE ARE pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we are not able to offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers. Moreover, what we do list we propose to keep in large quantities, and will be able to ship promptly.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY

Deer Park

Toronto - Ontario - Canada

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

Root's ✨ ✨ ✨
Bee - supplies

You know what this means.

Four carloads of new goods on hand. Our business increased last year 100 per cent over 1904. This is proof that we are saving our customers money.

Why not let us do the same for you? **Low freight rates from Toledo. Large discounts.** It tells the story. **Two per cent discount this month on bee-supplies.** . .

Model Incubators. .
. . . . and Brooders

Made by Charles A. Cyphers. Poultry-supplies of all kinds. Eggs for setting and stock for sale. Our new eighty-page illustrated catalog describes all of these well-known goods. Sent free. Don't be without it. Don't delay. Send to day.

Griggs Brothers

523 Monroe St. : Toledo, Ohio

Bee-Supplies

For Southern

Bee-Keeper's

I have been over 20 years in the bee-supply business, manufacturing hives and fixtures, and raising bees and queens. With all this experience and the excellent facilities I have, I am able to fill your orders promptly, and give absolute satisfaction. Though I make my own hives I carry a complete stock of The A. I. Root Company's manufacture. Just specify "Root's Goods" and you will get them.

Bees and Queens

I breed with scientific, intelligent methods, from the best Imported and Long tongued stock. Cheap queens may be had elsewhere. My stock is worth every cent of the price. You will be pleased with it. I GUARANTEE IT.

64-page Catalog

of Supplies and Bees sent free. Tell me you saw my ad. in GLEANINGS.

J. M. JENKINS

WETUMPKA : ALABAMA

CENTRAL
PENNSYLVANIA

I am in an unexcelled position to furnish bee-keepers within a hundred miles of Williamsport with Root's bee-keepers' supplies. We have four railroads and three express companies — Adams, American, and the United States. Can deliver goods with great promptness, and save you freight charges. Wholesale or retail. Also can supply you with pure-bred Italian and Caucasian bees in season. Write for our price lists.

E. E. PRESSLER
WILLIAMSPORT, PENN.

SUPREME EXCELLENCE

is only another name for OUR Make of

BEE-KEEPERS' SUPPLIES

Have you ever used them? If not, give us a trial order this spring. We will do our best to please you. Our prices are as low as any; and if our goods aren't as we claim you'll not have to pay for them.

~~~~~

**We allow a discount of 2 per cent**  
for orders received in March

~~~~~

The W. T. Falconer Manufacturing Co.
Jamestown, New York

Dadant's

Foundation

It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!
No sagging; no loss.
Twenty-eighth Year.
We Guarantee Satisfaction.
Wax Worked into Foundation.

~~~~~

**Bee-supplies of All Kinds**

~~~~~

Beeswax wanted at all times.
Send for Our 1906 Catalog.

~~~~~

**Dadant & Sons, Hamilton, Ill.**

## New Goods-Big Stock

New Warehouse, Root's Goods,  
Prompt Shipment, Low Freight.

**Everything for the Bee-keeper at Savannah, Ga.**

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. . . . .

## BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog sent free. Correspondence solicited. .

## HOWKINS & RUSH

124 West Liberty Street

**SAVANNAH - - GEORGIA**

# GLEANINGS

## IN BEE CULTURE



THE A. I. ROOT CO.,  
MEDINA, OHIO.

Eastern Edition

Entered at the Postoffice Medina, Ohio, as Second-class Matter





**Our New Manager at Washington, D. C.**

**M**R. H. G. LA RUE is now the manager of our branch at 1100 Maryland Ave., S. W. Mr. La Rue is a bee-keeper of considerable experience. He is also a graduate of one of the best business colleges in Ohio. Our customers are assured of prompt and satisfactory treatment. Freight and boat rates from Washington to the South are very low.

**The A. I. Root Company**  
1100 Maryland Ave., S. W.  
Washington, D. C.

## MISSISSIPPI

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders. . . . .



**Bees and Queens**  
from Select Stock

Correspondence Solicited.

**GEO. A. HUMMER,**  
BRAZELIA, - MISSISSIPPI  
Shipping-point, Macon

## Root's Bee-supplies at Root's Prices

But f. o. b. Baltimore instead of Medina. Write for catalog I.

**Rawlings Implement Co.**  
Baltimore : : Maryland

## NORTHEASTERN & NEW ENGLAND BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

**J. B. Mason, Mechanic Falls, Maine**  
MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

## PENNSYLVANIA

Now is the time to send in your orders. Deduct 2 per cent from prices during March. Send name for catalog of : : : : :

## ROOT'S GOODS AT ROOT'S PRICES

I am jobber of these excellent supplies in Pennsylvania; carry large stock and ship promptly. . . .

**Frank W. Prothero**  
Successor to Prothero & Arnold  
DuBois, Clearfield Co., Pennsylvania

**C. H. W. Weber,**

Headquarters for

# Bee - Supplies.

Distributor of Root's Goods Exclusive-  
ly, at Root's Factory Prices.

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

## Two Per Cent Discount For Cash Orders Received in March.

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

## QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

**C. H. W. WEBER,**

Office and Salesroom, 2146-2148 Central Ave.  
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.



## Honey Market.

### GRADING-RULES.

**FANCY.**—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

**A No. 1.**—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

**No. 1.**—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

**No. 2.**—Three-fourths of the total surface must be filled and sealed.

**No. 3.**—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

**MILWAUKEE.**—Indications are that the stocks of honey in this market will be cleared off, both comb and extracted, as the demand for the past month has improved; and as receipts of new have been small, the orders have taken old; while values on old crop are low to sell, yet it is a satisfaction to have it move, and the prospect is good that the new crop will find the market in good order. If any shippers have fancy comb honey it is well to ship it now, as it is in demand. We quote: Fancy 1-lb. sections, 15 to 16; old crop 1-lb. sections, 8 to 11; extracted in barrels, pails, cans, white, 7 to 8½; ditto dark, 6 to 7. Beeswax, 28 to 30. A. V. BISHOP & Co.,  
March 3. 119 Buffalo St., Milwaukee, Wis.

**CINCINNATI.**—The demand for comb honey has brightened considerably since we last reported. In all probability, by the close of April the market will be bare of comb honey. This will be encouraging to the bee-keeper. Nevertheless, to advance the price is out of the question; therefore we continue to quote fancy white comb honey in 24-section cases at 14 to 15. The demand for extracted honey does not come up to our expectations. We are selling amber at from 5¼ to 6½, according to quality; fancy white honey in 60-lb. cans at 7; for choice bright yellow beeswax we are paying 30 cts. delivered here. THE FRED W. MUTH CO.,  
March 8. 51 Walnut St., Cincinnati, O.

**KANSAS CITY.**—There is a little better feeling in the honey market. Best white comb, 24-section, selling at \$3.25 per case; amber and other grades sell at 25 to 50 cts. per case less. Extracted, 6 to 6½.  
March 8. C. C. CLEMONS & Co., Kansas City, Mo.

**ATLANTA.**—Honey market is at a standstill with us, and there will be very little doing till the new crop begins to move. We quote: Fancy white, 12½ to 14; No. 1, 10 to 11. Beeswax firm at 30 for No. 1 stock.

JUDSON HEARD & Co.,  
March 10. Atlanta, Ga.

**DETROIT.**—Fancy and A No. 1 white honey, 14½ to 15; No. 1, 13; dark, 12 to 13. Extracted honey, white clover, 8 to 8½. Honey is in good demand. Beeswax, 28 to 30.  
March 9. M. H. HUNT & SON, Bell Branch, Mich.

**PHILADELPHIA.**—The call for honey is falling off; and, while the supply is not abundant, yet it equals the demand. We quote: Fancy white, 16 to 17; amber, 13 to 14; extracted white clover, 7 to 8; amber, 6 to 7. Beeswax firm at 28. We are producers of honey, and do not handle on commission. WM. A. SELSER,  
March 3. 10 Vine St., Philadelphia, Pa.

**SCHENECTADY.**—On account of reporting a scarcity of comb honey in our last market report we have received a number of shipments which have sold on arrival at full market prices as quoted in our last, and we do not look for any decline notwithstanding the lateness of the season. CHAS. MCCULLOCH,  
March 10. Schenectady, N. Y.

**CHICAGO.**—Choice white comb honey is not plentiful, and it sells upon arrival at 15. Other grades of comb are not in demand, and sell at uncertain prices of 10 to 14; choice white extracted honey, 6½ to 7½; amber grades, 5½ to 6½. Beeswax, 30. R. A. BURNETT & Co.,  
March 7. 199 South Water St., Chicago, Ill.

**CINCINNATI.**—The demand for comb honey is slow, and prices obtained are the same. Stock on hand seems to be sufficient for wants. Quote fancy white, 14 to 16; amber extracted, in barrels, 5¼ to 5½; in cans, ½ ct. more; fancy white clover in 60-lb. cans, 7½ to 8½; Southern, equal to white clover in color 6½ to 7. Bright yellow beeswax, 30. C. H. W. WEBER,  
March 3. 2146-8 Central Ave., Cincinnati, O.

**TORONTO.**—Although the crop of honey seems to be pretty well disposed of at the present time, the price remains about the same. A little better demand, however, exists for extracted. Our own stock of both extracted honey and beeswax is nearly exhausted. Comb honey is selling from \$1.50 to \$2.00 per dozen; extracted, 7 to 8 in large quantities.  
March 8. E. GRAINGER & Co., Toronto, Can.

**ST. LOUIS.**—The honey business continues to drag along slowly at the same quotation as in our last. We quote: Fancy white comb honey, 13 to 14; No. 1, 12 to 13; amber, 11 to 12; extracted, California light amber, 6 to 6½; outside price for liquid honey, Spanish needle, 6½ to 7. Southern, in barrels, 4¼ to 4½; in cans, 5 to 5½. Beeswax, 29 to 29½. R. HARTMANN & Co.,  
March 3. 14 So. Second St., St. Louis, Mo.

**FOR SALE.**—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage. O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

**FOR SALE.**—Fine alfalfa honey in 60-lb. cans. Send for sample and prices. DADANT & SONS, Hamilton, Ills.

## BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

### THE FRED. W. MUTH CO.,

51 WALNUT ST.,

CINCINNATI, OHIO.

**FOR SALE.**—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.  
HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

**WANTED.**—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT,  
199 South Water St., Chicago, Ill.

**WANTED.**—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. GRIGGS BROS., Toledo, Ohio.

**WANTED.**—Clover and basswood extracted honey; also No. 1 amber honey. Send sample, and state quantity and price, delivered at Preston.  
M. V. FACEY, Preston, Fillmore Co., Minn.

**WANTED.**—Comb and extracted honey. State quality, quantity, and price.  
JUDSON HEARD & Co., Atlanta, Ga.

**WANTED.**—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,  
265-267 Greenwich St., New York.

**WANTED.**—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.  
EVANS & TURNER, Columbus, Ohio.

**WANTED.**—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.  
THE A. I. ROOT Co., Medina, Ohio.

## Our Specialties

Cary Simplicity Hives and Supers,  
Root and Danz. Hives and Supers;  
Root's Sections, Weed Process Foundation, and Bingham Smokers.

*Bees and Queens in their Season.*  
*32-page Catalog Free.*

**W. W. Cary & Son,**  
Lyonsville, Mass.

## POTATO SEED OF THE FAMOUS GREEN MOUNTAIN VARIETY

**Raised in the North of Maine**

**WE** HAVE a few hundred barrels of choice seed which we offer at 75 cts. per pk.; \$2.00 bu.; \$4.00 per bbl. of 165 lbs. net, by express or freight at purchaser's expense and risk.

THE HALL CO., Box 437, Caribou, Aroostook Co., Maine

**SEED POTATOES.**—Early Six Weeks, Early Ohio, Cobbler, Carman, and others. Fine stock at little above market price. List free.  
McAdams Seed Company, Columbus Grove, Ohio.

## The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize  
**A GOLD MEDAL**  
at the World's Fair  
St. Louis, 1904



**UP-TO-DATE.  
STRONGEST,  
COOLEST,  
CLEANEST,**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool adding to its durability. It has no valves to get out of order or snout to clog with soot.

### Every Thing Guaranteed "Root Quality."

**ALL THAT IS CLAIMED.**—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Platteville, Wis.

**SURPASSES ALL OTHERS.**—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker." Grant Stanley, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

**F. DANZENBAKER, MIAMI, FLORIDA**

## \$500.00 FOR SHORT STORIES

This is the sum a Chicago young woman received last month from various publishers. A few years ago she was a schoolteacher. She loved to write, and was determined to succeed. She went at it systematically as she would any other calling. **SHE LEARNED HOW TO WRITE AND SHE LEARNED THE MARKET.** Naturally she has succeeded.

If you have a taste for writing and want a good income, easily earned, we will tell you how to develop this taste so that it will bring the income. We offer you no theory—nothing but facts, and the most severe criticism and personal individual help on your own stories. Your critic recently received **\$250 FOR ONE STORY.** You can do as well. There is a big market—stories are in demand. We will prepare you to write the kind that publishers want. As we can take only a limited number of promising pupils, write at once, and **SEND ONE OF YOUR STORIES** if you wish, with stamps for its return. We will tell you what we think of it—and all about our plan. Address

**PAGE - DAVIS SCHOOL**  
of Short-Story Writing

Dept. 383, 90 Wabash Ave., Chicago, Ill.



# Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

**E. R. ROOT**  
Editor

**A. I. ROOT**  
Editor Home Departments

**H. H. ROOT**  
Asst. Editor

Department Editors:  
**DR. C. C. MILLER,** **J. A. GREEN,** **PROF. A. J. COOK,** **J. E. CRANE,**  
**LOUIS H. SCHOLL,** **G. M. DOOLITTLE,** **W. P. ROOT.**

**J. T. CALVERT,** Business Manager

**A. L. BOYDEN,** Advertising Manager

Circulation 30,000. Reaches every State and 60 foreign countries.  
 Established in 1873. Sixty-four pages. Semi-monthly.  
 Published by The A. I. Root Company, Medina, Ohio, U. S. A.

Terms---\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.

**Postage is Prepaid** by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

**Change of Address.**—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

**Discontinuances.**—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

**How to Remit.**—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

**Agents.**—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

## Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

**Paris, France.** E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

**Kingston, Jamaica.** HOOPER BROS., 20 Orange St. *Per year, postpaid, 5 6.*

**Goodna, Queensland.** H. L. JONES. Any Australian subscriber can order of Mr. Jones *Per year, postpaid, 5/6.*

**Dunedin, New Zealand.** ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 6/.*

Other names will be added from time to time.

### THE A. I. ROOT CO., Medina, Ohio, Publisher.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....  
 Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY.....STATE.....

DATE.....

If you want Gleanings discontinued at expiration, check here ( )

# A Non-swarming Hive

has been talked about, pooh poohed, and the idea abandoned, but Mr. L. A. Aspinwall, of Jackson, Mich., has had one in successful use for a dozen years or more, with perhaps 50 colonies, getting big crops of comb honey, yet having no swarms. There was one drawback that was hard to overcome, and that was the tendency of the bees to store pollen in the sections; but this has now been overcome in a manner most novel, and unexpected advantages gained thereby. This hive was men-

tioned editorially in GLEANINGS for Feb. 15th; but, if you wish to see some beautiful engravings of the hive, showing all of the details of construction, and read Mr. Aspinwall's description, together with his methods of management, send ten cents for the March Bee-Keepers' Review, and the ten cents may apply on any subscription sent in during the year.

**W. Z. Hutchinson, Flint, Mich.**

## HERE'S YOUR CHANCE

to win a prize by doing a little work in  
obtaining subscriptions for Gleanings  
in our Second Subscription Contest.

Last contest EVERY contestant that sent in more than ONE subscription obtained a prize. It will doubtless be so in this contest, so that besides the regular commission you will receive a prize that will more than pay any effort made.

### Twenty-five Prizes!

|                                             |               |                           |                           |
|---------------------------------------------|---------------|---------------------------|---------------------------|
| (Variety of queen to be winner's selection) |               | Fourth Prize .....        | 3.00 queen                |
| First Prize .....                           | \$10.00 queen | Fifth Prize .....         | 2.00 queen                |
| Second Prize .....                          | 7.50 queen    | 6th to 15th Prize .....   | One cloth-bound A B C     |
| Third Prize .....                           | 5.00 queen    | 16th to 25th Prizes ..... | One Junior Corneil smoker |

### Conditions!

FIRST.—That subscriptions to be entered in this contest are to be obtained as results of work between February 15 and July 1, 1906.

SECOND.—To be eligible to any one of the first fifteen prizes, contestant must have at least five yearly subscriptions, or their equivalents, to his credit.

THIRD.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

FOURTH.—That subscriptions can be sent in any time, but must be plainly marked "For Second Subscription Contest."

CUT HERE

## Gleanings in Bee Culture

Subscription Contest Department.

Date .....

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Please send agents' terms and enter my name as contestant in Second Subscription Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions and agree to them.

Name .....

P. O. ....

I can use ..... sample copies of Gleanings. State .....



# CONTENTS OF THIS NUMBER.

|                                               |     |                                      |     |
|-----------------------------------------------|-----|--------------------------------------|-----|
| <b>MARKET QUOTATIONS</b> .....                | 334 | Morrison's Straws.....               | 361 |
| <b>STRAY STRAWS</b> .....                     | 343 | Wax Rendered Outdoors.....           | 362 |
| <b>EDITORIAL</b> .....                        | 345 | Flapjacks and Honey.....             | 365 |
| Death of Miss Laws.....                       | 345 | Climbing Trees in Cuba.....          | 364 |
| Report of Chicago Convention.....             | 345 | Swarming, Holtermann on.....         | 365 |
| Ferris, A. K.....                             | 345 | <b>HEADS OF GRAIN</b> .....          | 367 |
| Doolittle on Swarm Control.....               | 345 | Syrups, Adulterated.....             | 368 |
| Queens Reared Early in North.....             | 348 | Caucasians Recommended.....          | 368 |
| <b>GLEANINGS FROM THE PACIFIC COAST</b> ..... | 349 | Gardening in Florida.....            | 371 |
| <b>BEE-KEEPING AMONG THE ROCKIES</b> .....    | 350 | Section-cleaner, Morgan's.....       | 367 |
| <b>CONVERSATIONS WITH DOOLITTLE</b> .....     | 352 | Queen, Introducing.....              | 367 |
| <b>GENERAL CORRESPONDENCE</b> .....           | 354 | Flour Fed in Open Air.....           | 368 |
| Spring Management, Alexander on.....          | 354 | Grease to Remove Propolis.....       | 368 |
| Brood from Two Queens in One Hive.....        | 354 | Nominations for National.....        | 369 |
| Bees in Exhibition-cage.....                  | 355 | <b>OUR HOMES</b> .....               | 369 |
| At water on Starting Anew.....                | 358 | <b>HIGH-PRESSURE GARDENING</b> ..... | 371 |
| Manzanita.....                                | 359 | <b>SPECIAL NOTICES</b> .....         | 395 |

## INDEX TO ADVERTISEMENTS.

|                                    |     |                                    |            |                                        |         |
|------------------------------------|-----|------------------------------------|------------|----------------------------------------|---------|
| <b>Banking by Mail.</b>            |     | H. C. Simpson.....                 | 363        | Page-Davis Co.....                     | 335     |
| Savings Dep. Bank Co.....          | 373 | J. W. Taylor.....                  | 391        | Hardware Specialty Co.....             | 375     |
| <b>Bee Books.</b>                  |     | Henry Shaffer.....                 | 393        | Chas H. Manley.....                    | 380     |
| A. J. Cook.....                    | 389 | Victor-Knolle Apiary Co.....       | 393        | Seaboard Air Line R. R.....            | 341     |
| <b>Bee Smokers.</b>                |     | Daniel Wurth.....                  | 393        | <b>Poultry Supplies.</b>               |         |
| T. F. Bingham.....                 | 388 | <b>Buggies.</b>                    |            | G. E. Conkey & Co.....                 | 375-384 |
| F. Danzenbaker.....                | 385 | Anderson Mfg. Co.....              | 379        | B. H. Greider.....                     | 383     |
| <b>Bee Supplies.</b>               |     | Elkhart Carriage Co.....           | 379        | <b>Publishers, Agricultural-paper.</b> |         |
| Anthony Biaggi.....                | 392 | Ohio Carriage Mfg. Co.....         | 379        | Farmer's Call.....                     | 375     |
| Bee & Honey Co.....                | 389 | Progressive Vehicle Mfg. Co.....   | 379        | Rural Home.....                        | 373     |
| W. W. Cary & on.....               | 385 | Union Buggy Co.....                | 379        | Southern Fruit Grower.....             | 377     |
| D. Cooley.....                     | 388 | <b>Comb Foundation</b>             |            | <b>Publishers, Bee-Journal</b>         |         |
| J. H. M. Cook.....                 | 341 | Dadant & Son.....                  | Back Cover | W. Z. Hutchinson.....                  | 269     |
| W. T. Falconer Mfg. Co. Back Cover |     | Gus Dittmer.....                   | 386        | Modern Farmer & Busy Bee.....          | 373     |
| Geo. E. Hilton.....                | 388 | <b>Fences.</b>                     |            | The A. I. Root Co.....                 | 336-337 |
| M. H. Hunt & Son.....              | 340 | Brown Fence & Wire Co.....         | 380        | Geo. W. York & Co.....                 | 341     |
| Kretschmer Mfg. Co.....            | 388 | Coiled Spring Fence Co.....        | 377        | <b>Publishers, Poultry-paper.</b>      |         |
| Leahy Mfg. Co.....                 | 389 | Kitselman Bros.....                | 380        | R. R. F. sher.....                     | 384     |
| G. B. Lewis Co.....                | 342 | <b>Honey-buyers.</b>               |            | The Howard Pub. Co.....                | 384     |
| Marshall Mfg. Co.....              | 388 | See page.....                      | 334-335    | Inland Poultry Journal.....            | 384     |
| Minnesota Bee Supply Co.....       | 389 | <b>Household Specialties.</b>      |            | Ohio Poultry Journal.....              | 384     |
| Fred W. Muth Co.....               | 334 | Cleveland Desk Co.....             | 373        | The Poultry Gazette.....               | 384     |
| Walter S. Ponder.....              | 385 | O. L. Chase.....                   | 376        | Poultry Item.....                      | 384     |
| Page & Lyon.....                   | 389 | Co-operative Society.....          | 373        | <b>Seeds and Trees.</b>                |         |
| A. H. Reeves.....                  | 388 | The D. Co.....                     | 373        | W. F. Allen.....                       | 381     |
| The Root Co., Syracuse, N. Y.....  | 340 | Joseph Horne Co.....               | 373        | Bay State Plant Co.....                | 381     |
| The Root Co., St. Paul, Minn.....  | 387 | J. W. Quilling.....                | 377        | W. Atlee Burpee & Co.....              | 381     |
| C. M. Scott & Co.....              | 387 | Stromberg-Carlson Tel. Mfg Co..... | 377        | Callander Cactus Co.....               | 383     |
| W. D. Soper.....                   | 387 | <b>Incubators.</b>                 |            | Chattanooga Nurseries.....             | 341     |
| I. J. Stringham.....               | 387 | American Incubator Co.....         | 384        | Darling & Beahan.....                  | 381     |
| White Mfg. Co.....                 | 387 | Banta-Bender Mfg. Co.....          | 374        | L. J. Farmer.....                      | 381     |
| C. H. W. Weber.....                | 333 | Buckeye Incubator Co.....          | 375        | Flansburgh & Potter Co.....            | 382     |
| A. G. Woodman Co.....              | 387 | Cycle Hatcher Co.....              | 374        | Gage County Nurseries.....             | 373     |
| York Honey & Bee Supply Co.....    | 386 | Chas. A. Cyphers.....              | 374        | Gardner Nursery Co.....                | 383     |
| <b>Bees and Queens.</b>            |     | Cyphers Incubator Co.....          | 375        | German Nurseries.....                  | 381     |
| Aliso Apiary.....                  | 393 | M. M. Johnson Co.....              | 375        | E. C. Green & Son.....                 | 383     |
| The Jennie Athley Co.....          | 393 | Manson Campbell Co., Ltd.....      | 375        | Green's Nursery Co.....                | 382     |
| George W. Barnes.....              | 392 | J. W. Miller Co.....               | 374        | Hart Pioneer Nurseries.....            | 382     |
| Rev. J. G. Baumgaertner.....       | 393 | Prairie State Inc. Co.....         | 374        | D. Hill.....                           | 383     |
| J. B. Case.....                    | 391 | Racine Hatcher Co.....             | 374        | R. M. Kellogg Co.....                  | 382     |
| W. T. Crawford.....                | 393 | Reliable Incubator Co.....         | 374        | Jewel Nurseries.....                   | 380     |
| F. J. Colahan.....                 | 393 | Geo. H. Stahl.....                 | 375        | McAdams Seed Co.....                   | 335     |
| C. W. Day on.....                  | 393 | <b>Machinery.</b>                  |            | Louis Roesch.....                      | 380     |
| Etablissement d'Apiculture.....    | 392 | W. F. & J. Barnes Co.....          | 378        | W. N. Scarff.....                      | 381     |
| A. W. Griffin.....                 | 391 | Bateman Mfg Co.....                | 377        | R. H. Shumway.....                     | 382     |
| Chas. Koeppen.....                 | 392 | The Deming Co.....                 | 377        | Storrs & Harrison Co.....              | 383     |
| J. J. Jepson.....                  | 391 | Electric Wheel Co.....             | 378        | L. H. Mahan.....                       | 341     |
| E. E. Lawrence.....                | 391 | Lyons Engine Co.....               | 378        | W. A. Mason.....                       | 318     |
| W. H. Laws.....                    | 392 | Manson Campbell Co.....            | 375        | L. I. May.....                         | 315     |
| Robert B. McCain.....              | 392 | Medina Concrete Co.....            | 376        | National Plant Co.....                 | 317     |
| Ma'an Brothers.....                | 391 | F. E. Myers & Bros.....            | 375        | Geo. W. Park.....                      | 319     |
| L. E. Mercer.....                  | 391 | Rochester Spray Pump Co.....       | 377        | Schidler Bros.....                     | 318     |
| E. E. Mott.....                    | 393 | Seneca Falls Mfg. Co.....          | 375        | Sheerin's Wholesale Nurseries.....     | 318     |
| H. M. Parker, Jr.....              | 393 | <b>Miscellaneous.</b>              |            | Vaughan's Seed-store.....              | 380-383 |
| A. E. Titoff.....                  | 392 | H. H. Aultfather.....              | 381        | Yenn Bros.....                         | 380     |
| W. H. Rails.....                   | 393 | F. W. Bird & Son.....              | 378        | <b>Wants and Exchanges.</b>            |         |
| J. A. Rambo.....                   | 391 |                                    |            | See page.....                          | 394-395 |
| Roselawn Apiary.....               | 392 |                                    |            |                                        |         |
| H. A. Ross.....                    | 392 |                                    |            |                                        |         |

# ADVERTISING TALKS

## BY THE AD. MAN.

Beginning with this number we shall hereafter include this page in each issue of GLEANINGS. Here we shall make such introductions, our readers to our advertisers, as may be necessary. Here we shall tell some of our own aims—sort o' let you in on our secrets.

May be we shall undertake to make suggestions on how to advertise successfully, for the benefit of some of our bee-keepers and supply men who have asked for our help. Of course, we are willing to lend our aid to any of our readers or advertisers at any time should they wish to counsel us on this publicity question.

'Tis certain that there will appear on this page from time to time little notices or remarks that will greatly interest you, and we hope you will help us in making "Advertising Talks" another valuable feature of GLEANINGS.

It is our aim to insert in GLEANINGS advertisements of only such articles as are actually used by our readers. If at any time you wish to purchase an article or articles which you have not seen advertised in this paper, kindly let us know and we will try to publish such an advertisement. We can almost always tell such of our readers as desire the information where a certain article can be procured, and you may send your list of needs to us without hesitancy. We shall greatly appreciate your co-operation in this way.

Just now queen-breeders and bee-keepers who have bees and queens for sale are the most numerous among our advertisers.

We have followed our usual plan in accepting these advertisements—that is, we have investigated the facilities and business methods of each advertiser, and sincerely believe that any one of them is worthy of the confidence of our readers.

We have on file in our office a record from nearly every one of these advertisers, telling how many colonies of bees they keep, what their queen-rearing facilities are, and what experience they have had in this work.

We shall be glad to let you have this information at any time you may desire it.

Messrs. F. E. Myers & Bro., Ashland, Ohio, manufacturers of pumps, sprays, hay-tools, etc., suffered a loss of their shipping warehouse a short time ago, and were afraid that they would not be able to keep up with their orders. They tell us, however, in a letter to-day, that they solved the problem by increasing their force and working night and day. Now their new machine-shop is ready, and they are in a better position than ever before to give the needs of their many customers their most careful attention. Messrs. Myers will send a free descriptive circular if you will just let them know what you are interested in in their line.

We are not very familiar with the question of berry-baskets, crates, or other conveniences for conveying small fruits; but we know that it must be a great exasperation to have the baskets you have bought pull apart or break up very easily.

Mr. H. H. Aultfather, Minerva, Ohio, has just sent us a copy of his 1906 catalog and price list. From his description and the illustrations shown we do not think that his baskets are the kind that would give shippers trouble. They appear to be strong and well made. Mr. Aultfather, being a grower of berries, makes the baskets strong enough to satisfy himself, and there is no doubt that they would satisfy you. You can secure a price list by sending your name on a postal.

What do you do with an inquiry when you receive it? Answer promptly? How soon after the inquiry comes is your catalog mailed?

It is always a pretty good plan to figure that the man who writes to you for your catalog or prices has probably written to some other dealer at the same time; and you do not want to create the impression that your business methods are behind those of your competitor, do you?

One other point: When a man writes, and asks what you charge for queens, bees, or supplies, give him enough information to make him feel that you are interested in him—interested in your business. Tell him what your facilities are for carrying on the business in which you are engaged. If you are a leader in your particular line, and well known, only a slight reference to your experience will be necessary. But do not withhold one word of information that the inquirer's letter would indicate that he would like to have.

Don't throw the letter away as soon as answered. Write again after a few days, just to show that you are still seeking business.

Several years ago we ran small notices in GLEANINGS for bee-keepers who had black and hybrid queens for sale, free of charge.

Just now it seems to us that if we were to devote a small amount of space in the April and May numbers for such notices, that many of our subscribers would be glad to take advantage of this opportunity for getting in touch with a possible buyer of their old races.

We shall, therefore, be very glad to give one free insertion of a brief offer to several of our subscribers; but, as we formerly stated, we will assume no responsibility for any of these transactions. Only one notice this season without charge. We would advise that you state in your notice just what you have—the price for each and the price for the lot. Thus you will avoid correspondence. Let us hear from you quickly if you want your notice in April 1st.



# A Million Sections.

Who would think the busy bee will use these and more this coming season?

Order now, and fill them with full-size sheets of foundation, piling them up so as to be ready for the honey when it comes. The Daisy Foundation-fastener is what you need to fasten in the foundation. For a few sections we would recommend the Root Fastener, with lamp. For folding up a large number ready for the foundation use the Root Section-press.

*Catalog illustrating and describing the above-mentioned articles sent on request.*

**The A. I. Root Co., Syracuse, N. Y.**

# HIVES - HIVES



Now is the time to place your order for the hives you will need this year. By getting them now you will save the discount, and can have them nailed and ready for your bees in the spring. . . .  
We should like to quote you prices in any quantity on the following:

## The Root Chaff Hive

The best chaff hive made

## The Danzenbaker Hive

The comb-honey hive

## The Root Dovetailed Hive

Standard size and extra quality



Send for Catalog

# M. H. HUNT & SON, BELL BRANCH, MICH.

We Sell Root's Goods in Michigan

**WEEKLY**

**American Bee Journal X Gold Fountain Pen  
and Novelty Pocket-Knife**

**All 3  
for ....  
\$2.75**



**HOWARD M. MELBEE,  
HONEYVILLE, O.**

**NOVELTY POCKET-KNIFE**  
(Name and address on one side—Three Bees on the other side.)

Your Name on the Knife.—When ordering, be sure to say just what name and address you wish put on the Knife. The Novelty is in the handle, made of indestructible celluloid, transparent as glass. Underneath the celluloid, on one side is name and address of owner, and on the other side Queen, Drone and Worker, as shown here.

**The Material** entering into this celebrated knife is of the very best quality.

**Why Own the Novelty Knife?**—Is case a good knife is lost, the chances are the owner will never recover it; but if the "Novelty" is lost, having name and address of owner, the finder will return it.

**How to Get this Valuable Knife.**—We send it postpaid for \$1.25, or club the Novelty Knife and the Weekly American Bee Journal for one year—both for \$2.00. (Allow two weeks for Knife order to be filled.)

+ + +

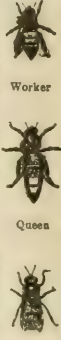
**SOLID GOLD FOUNTAIN PEN**

Finally, we have found a good Fountain Pen that is reasonable in price. The manufacturers of this Pen say that if you pay more than \$1.25 for other fountain pens, it's for the name. Absolutely guaranteed to work perfectly, and give satisfaction. The Gold Nibs are 14 kt., pointed with selected iridium. The Holders are Para Rubber, handsomely finished. The simple feeder gives a uniform flow of ink. Directions and Filler accompany.

We send this Gold Fountain Pen postpaid for only \$1.25, or for \$2.00 we will send it and the Weekly American Bee Journal for a whole year.

Sample copy of the Weekly American Bee Journal free; trial trip of 3 months (13 copies) for 20c; regular yearly price, \$1.00. Address all orders to

**GEORGE W. YORK & CO., 334 Dearborn St., CHICAGO, ILL.**



## GOLDEN Opportunities!

## Something New in Honey-jars...

**E**XIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

**J. H. M. COOK, 70 Cortlandt St., New York**

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

### J. W. WHITE

Gen. Indus. Agt., Portsmouth, Va.

## Seaboard Air Line Railway

**Fruit Trees.**—\$6.00 per 100 and up. Fine assortment of trees, shrubbery, vines, plants, etc. Our ideal soil and climate produce best trees. Well packed; guaranteed against damage in transit. Catalog free.

CHATTANOOGA NURSERIES, Chattanooga, Tenn.

## Sweet Potato Seed

Bright stock; straight from storage; best varieties—old and new. Send for my free descriptive price list.

— ADDRESS —

**L. H. Mahan, Box 143, Terre Haute, Ind.**



# The Survival Of The Fittest Is Bee-ware It Always Fits

**Lewis Bee-ware** always fits. Every part meets every other part accurately. It goes together like a watch. This means something, does it not? All parts can be assembled in a jiffy. Why? Because they fit. No loss of material; no loss of time; no loss of patience.

**Lewis Bee-hives** are made from clear white Wisconsin pine. No knots or other imperfections. Therefore different from other makes of hives. Absolutely clear, and when we say CLEAR we mean exactly what we say.

**Lewis Sections** are made from white Wisconsin basswood—the finest in the world. Lewis Sections are the best in the world. They ought to be. They are the most carefully selected and the most carefully made.

**Insist on Lewis Goods** Accept no substitutes. Look for the brand. Send for catalog today, if you haven't one. There are a score of our agents besides ourselves who can furnish you with LEWIS GOODS at factory prices. They are:

ENGLAND—E. H. Taylor, Welwyn, Herts.  
CUBA—C. B. Stevens & Co., Havana.  
C. B. Stevens & Co., Manzanillo.  
The Chas. H. Lilly Co., San Francisco.  
SOUTHERN CALIFORNIA.—  
Paul Bachert, Lancaster.  
Fletcher-Doyle Co., San Diego.  
Fallbrook Co-operative Association, Fallbrook.  
COLORADO—R. C. Aikin, Loveland.  
Arkansas Valley Honey-producers' Ass'n, Rocky Ford.  
Colorado Honey-producers' Association, Denver.  
Fruit Growers' Association, Grand Junction.  
Robert Halley, Montrose.

ILLINOIS—York Honey & Bee Supply Co., Chicago.  
Dadant & Son, Hamilton.  
IOWA—Adam A. Clark, LeMars.  
Louis Hanssen's Son, Davenport.  
INDIANA—C. M. Scott & Co., Indianapolis.  
MICHIGAN—A. G. Woodman Co., Grand Rapids.  
MINNESOTA—Wisconsin Lumber Co., Faribault.  
MISSOURI—E. T. Abbott, St. Joseph.  
OHIO—Norris & Anspach, Kenton.  
OREGON—The Chas. H. Lilly Co., Portland.  
PENNSYLVANIA—Cleaver & Green, Troy.  
TEXAS—Southwestern Bee Co., San Antonio.  
UTAH—Fred Foulger & Sons, Ogden.  
WASHINGTON—The Chas. H. Lilly Co., Seattle.

## G. B. LEWIS CO.

WATERTOWN, WIS., U. S. A.

# GLEANINGS

## IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests  
 Illustrated : Semi-monthly : One Dollar per Year  
 Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

MARCH 15, 1906.

No 6



"NATURAL COMB built below the starter will be built over the wires," p. 301. Yes, but the wire will not be in the septum.

THE NATIONAL Dairy and Food Show, Chicago, Feb. 14-24, among many speakers of national fame on its program had the name of G. W. York, with the topic, "Honey, its Dietetic and Hygienic Values." For once Editor York had a chance to practice what he preaches, "a propaganda of publicity."

R. F. HOLTERMANN, page 290, says that, with comb foundation and accurate spacing, "there is no need of a follower or the space for a follower," and this, as I understand it, with self-spacing frames. I wonder, I wonder, what there is about his locality or management that makes that so. I would not do without followers for money.

I WAS READING aloud, p. 304, about A. I. Root's tribulations with those cross bees, when an inquisitive female interrupted me: "What in the world does he want of a fur cap when it is warm enough to work with bees?" "I don't know," I replied, "unless it's because he's A. I. Root." [Well, yes; that is as good an answer as you could give. —Ed.]

BICYCLE pants-guards "can be bought anywhere for 15 cents a pair," page 298. Aren't you pretty well up in your prices, Mr. Editor? I paid 5 cents for mine, and in Montgomery Ward & Co.'s catalog they are 2 cents a pair. [It has been so long since I bought any bicycle pants-guards that I confess I have not been keeping track of their

price. In the days when I used to be riding a bicycle (I use a little auto, you know, now) I accumulated a large reserve so that I have had no occasion to buy any of late. —Ed.]

HERE'S another item, page 304: A. I. Root refers to the peculiar hissing that bees make when they attack any furry animal, which hissing seems a "signal for every bee in the hive to sally forth to war." Do the bees fail to hear that hissing, and on the moment spring a fresh brand of smell that calls to war? [See answer to another Straw on this subject. —Ed.]

THAT STRETCHER, or carrier, p. 279, is the same as used here for carrying bees, only here the two poles are fastened together by cross pieces. I wonder which is the better. An advantage of the cross-pieces is that the poles are always properly adjusted. [I am not sure but the cross-sticks would be an improvement. I will ask our boys to test them. —Ed.]

IT IS RECOMMENDED, p. 301, to clip queens differently each year. Do you really do that at Medina? I can't see the advantage. The record shows whether a queen is clipped or not; and if a different queen is found there she will be unclipped; so where is the advantage of any different clipping? [No, we do not clip at the queen-rearing yards, as some of our customers would object to thus spoiling her looks. Not every one keeps records as you do. As a matter of fact, I know that some keep track of the age of queens by the manner of clipping their wings in different years. —Ed.]

IN THESE days it seems all too common a thing for men high in the esteem of their fellow-men suddenly to betray their trust, and ignominiously fall from their high estate. G. M. Doolittle is a man whom thousands have followed as a trusted leader. Alas that at this late day he should be guilty of such false teachings as those on page 283. He there teaches that on Candlemas day the bear comes out to look for his shadow. How could he corrupt the youth who read GLEAN-



INGS by such utterly erroneous teachings? A careful study of history shows that the groundhog and not the bear is the beast that, on Feb. 2, makes observations on the weather. O Gilbert! how could you?

"IS IT NOT a fact that bees in that cellar inside of their hives have a temperature of nearly blood heat?"—footnote, p. 276. If I remember rightly the temperature of the cluster in the cellar when the bees are most nearly dormant is 50°. Suppose, Mr. Editor, you take a thermometer and test the matter as soon as you read this. [A temperature of 52 degrees inside of the cellar-wintered cluster—well, now, I will set our boys to taking temperatures, and report what they find. *Later*.—With a cellar temperature of 55 and outside temperature of 37 the temperature inside of a cluster of one colony was 84. We will test this out further. Where did you see that the temperature was only 50 F.?—ED.]

IT WOULD be hard to find any point in bee-keeping upon which greater variance of opinion prevails than upon that of taking bees out of cellar. Some say early, some late. Some say take out by installments, some say rush out in a bunch, each way being given as the one to prevent mixing. My practice has been to take all out together on a fine day. It has worked well, except, especially the last two years, a few colonies have become very strong at the expense of others. Might be worth while to try E. W. Alexander's plan of taking out in the evening. He says, "even if it takes not only all night but into the next day." Now, does he mean to keep on carrying in broad daylight? If it works all right to carry out the last in broad daylight, then it would be more convenient to carry out all then. [We have tried nearly all the methods for taking bees out; and my own conclusion is that the plan recommended by Mr. Alexander is the best of all. When Mr. A. speaks about taking the bees out at night, and keeping it up all night, you will not forget that he winters anywhere from 500 to 700 colonies, and that his helpers may have to make an all-night's job of it, even going into the day. For a small lot of bees I should suppose it would be just as well to take out the bees the night before, providing we could be assured of reasonable weather the next day.—ED.]

IT WOULD BE a good thing if the time and place of the next National convention could be soon announced. Unless lower rates can be obtained from all parts to Texas, St. Paul should be the place. There are objections to following the G. A. R., but they're overruled by the fact that the G. A. R. gets the railroad rates, and the rates bring the crowd. Even if rates are equal, one advantage in following the G. A. R. is that a number of good men are both bee-keepers and G. A. R. men, and they'll attend both meetings when they would not attend one alone. [San Antonio, Texas, the center of a great bee country, is making a strong bid for the next meeting of the National. Texas bee-keep-

ers feel that this is the third time that the convention talked of going to their beautiful city; and in view of the fact that it was scheduled to meet there last winter, and had to be held elsewhere owing to the yellow-fever scare, they feel that this year they have a right to expect it. They fully realize that the G. A. R. excursion rates are very low, and they are, therefore, making a strenuous effort to get the southern roads to make some important concessions in the way of rates. On the other hand, the Minnesota bee-keepers, where the G. A. R. is to go, meeting at St. Paul, are pulling very strong to get the convention to go their way. There is no doubt that, if the convention would go into that great northwest region, it would receive a most royal welcome. I understand that the executive committees of the National feel that the convention should not go to Texas unless railroad rates can be guaranteed.—ED.]

YE EDITOR, p. 277, thinks the smell rather than the sound may call swarming bees. Looks like a reasonable proposition. But with that hypothesis, there are some things hard to get over. There is the stubborn fact of the sound itself. Even the bee-keeper can hear it, recognize it, and differentiate it from other sounds. Why not the bees? If that sound does not call the bees, what is that sound for? There seem good reasons to believe that each colony has its individual smell, recognized by its own bees. We know positively that the call, whether by smell or sound, is recognized by any bees in condition to respond to the call. In many, many cases I have seen a returning swarm go to a hive other than its own, because the call was there, a swarm having just previously returned to that other hive. Has that colony all at once changed from its individual smell to a call smell, recognized by all bees alike? [Do not get the impression that I think bees do not hear. In my previous footnote I simply desired to bring out the point that the scent factor may have had something to do as well as the "call" in inducing those bees to follow your swarm. I have noticed this: In carrying clusters that have just been removed from a limb of a tree across the yard, if I did not walk too fast there would be several hundred hangers-on that would follow me like a flock of sheep. I attributed this following to the odor of the swarm rather than to the noise, because the cluster was perfectly quiet. On the other hand, when I have dumped a swarm in front of an entrance, and got them started to rushing in, it seemed to me that their roar or "call" set all the bees wild in a scramble to get toward that entrance. Apparently sound and not scent was the drawing card.—ED.]

YOU MISUNDERSTOOD, Mr. Editor, p. 276. For years I bred from imported Italian queens, not to get hybrids, but pure stock; the result, however, was hybrids. Quite possibly, if I were to start afresh it would be easier now to Italianize the neighborhood, and I may try it. I confess, however, that I don't feel any too sanguine about getting

pure stock, imported or otherwise, that will give me as much honey as the stock I now have. I want pure stock, if I can get it without too much sacrifice. I am on the fence in the whole matter. Let me place before you a rather troublesome question to which I hope you will give answer: Suppose I have pure stock, also hybrids, and I find a hybrid colony that gives 25 per cent more honey than the best Italian colony: would you or would you not breed from that hybrid stock? Bear with me if I put another question. What per cent greater yield over the yield of the Italian stock would you demand of hybrid stock before you would breed from that hybrid stock? [Doctor, you are asking hard questions, and I do not know that I can answer them; but I do not believe that you have any hybrid stock that will be superior in honey-getting to some pure Italian stock. Of course, you run chances when you buy a queen from some breeder that has a record for honey-getting, for not all daughters of these extra queens will come anywhere near equaling the work of the mother. But if you had tested queens from different queen-breeders I think you would have soon found one that would have equaled your hybrid stock. To answer your question more specifically, assuming it to be impossible to get pure blood that would equal the work of the hybrids, even if there were only 10 per cent difference in favor of the cross I would take the mixed stock, even with the stings and propolis; and I do not know but I would even if there was a difference of but 5 per cent, if I were running several out-apiaries. But I think you are wrong in believing that your hybrid stock will excel *any* pure stock that you can buy. It is much pleasanter to handle gentle bees; and, where other things are equal, or nearly equal, I would take the stock that is quiet to handle. —ED.]



WE regret to have to record the death of the seventeen-year-old daughter of Mr. W. H. Laws, of Beeville, Texas. She was just blooming into womanhood, and was her father's right-hand helper in his general correspondence, signing herself Alyce. We extend to Mr. Laws our sincere sympathy.

#### THE CHICAGO CONVENTION REPORT.

THE annual report of the National Beekeepers' Association for 1905 has been issued from the *Review* office. It contains something like 200 pages, 65 of which relate to the report of the General Manager, the constitution, and the list of members. The rest

of the pages are taken up with the proceedings of the big Chicago convention. The report is interesting and well gotten up, and, what is more, the work of the stenographer is practically without a mistake so far as I can see.

#### FLORIDA TRIP DEFERRED.

TO the many who have been inquiring regarding my projected Florida trip I may say that an attack of the grip confined me to the house for about ten days. Instead of being able to get my work ahead, as I had planned so that I could get away, this resulted in my getting behind. In addition to all this, our printing and publishing department has become so cramped by reason of the tremendous growth in our subscription list that I ought not to leave now owing to plans for newer and larger quarters. Whether I shall be able to go south before my parents return, I am not able to say at the present writing. But I expect to be able to go next fall or the following spring.

#### A NEW LIGHT ON THE APICULTURAL HORIZON.

THE portrait on the outside cover page of this issue shows a new light on the apicultural horizon. He has been a bee-keeper only since 1902; but prior to that time he was a successful florist and market-gardener. Finding it necessary to get some bees to fertilize his vines he embarked in bee-keeping in a small way. The results were so satisfactory that he procured books and journals; and now, although only three years in the business, I believe him to be competent, from some facts in my possession, to instruct some of the Gamaliels in the business. When I heard A. K. Ferris, of Madison, Wis., for that is the man of whom I have been speaking, talk at the National convention in Chicago, I became impressed with his ability, and engaged him to write for us two or three articles. This he has done, and they will be given to our readers in later issues. I trust he is a man we shall hear from more in the future; for indeed he has some ideas worth giving.

#### DOOLITTLE'S NEW METHOD OF SWARM CONTROL WHEN RUNNING FOR COMB HONEY.

BEGINNING April 1 we expect to begin a series of articles from that veteran, G. M. Doolittle, detailing a new system of swarm control and comb-honey production that he has been quietly "digging out," as he says, for the last 16 years. He now believes he has solved the problem of swarm control at out-apiaries when running for comb honey, and yet make only a few trips in the season, bees at other times being left entirely to themselves. I think it is generally conceded that last year was the poorest for white honey in the clover and basswood regions that we have had for many years; yet Mr. Doolittle was able, with the system he is about to describe, to secure 114 lbs. per colony without a swarm. While it may not work in



all localities with all bee-keepers, yet it will cost nothing to carry out the plan, for the bee-keeper will not have to change his hives or plans one iota; and right here is where the value of the system lies. If it should fail to work, there will be no extra cost for outlay for the plan; but if it does work, he will be immensely ahead. We hope to publish each article in time so that the method can be put into effect this season.

#### THE EDITOR TO BE PRESENT AT THE PENNSYLVANIA STATE CONVENTION.

I EXPECT to be present at the Pennsylvania State Bee-keepers' convention, at State College, Center Co., Pa., on the 29th and 30th of this month. I have never yet had the pleasure of attending a meeting of the Pennsylvania bee-keepers, and it will, therefore, give me great pleasure to meet our friends there.

#### A 9½-LB. SWARM IN MARCH.

UDO TOEPPERWEIN, one of the leading bee-keepers of Texas, writes us that he had a 9½-lb. swarm a few days ago in the form of a baby boy. He reports that both mother and boy are doing well. Although this swarm was a 9½ pounder, yet it was a second swarm; for, be it known, Mr. Toepperwein is the proud papa of two boys. GLEANINGS extends its congratulations and best wishes.

By the way, that last swarm in Rootville is prospering finely. The youngster is a genuine little A. I. Root, although we are not permitted to call him by that name. Many a time when I go home tired and perhaps somewhat cross, "that tired feeling" is banished utterly by a smile that will not come off—from the small boy.

#### MOVING BEES SHORT DISTANCES.

WE are often asked how to move bees a short distance, say from front to back yard, or to some other point within a quarter of a mile if more desirable. As is well known, it is difficult to move bees such short distances in midsummer without a considerable loss of the old flying bees that go back to their old location. In the case of cellar-wintered bees, *when they are first set out and before they fly* they can be placed anywhere after their long winter's sleep or confinement; and right now is the best time of all the year. When the winters have not been too mild, outdoor bees can be similarly moved. It all depends, of course, on whether they have had a flight within six weeks or two months.

#### A GOVERNMENT BULLETIN ON QUEEN-REARING.

THE United States Department of Agriculture, Bureau of Entomology, has issued Bulletin 55, entitled "Rearing Queen-bees," by E. F. Phillips, Ph.D., Expert Apiculturist at the government apiaries. It contains 30 pages of matter, detailing some of the best methods of rearing queens, particularly those adapted to the average bee-keeper. Dr. Phillips has selected the best methods

and practices from several of the best breeders in the country, including those of Swarthmore. The work is clearly and concisely written, and is one of the best if not the best short treatise on queen-rearing that has ever been issued.

Dr. Phillips spent a part of two seasons at Medina doing some scientific investigation work. During that time he could not but become familiar with all our methods, and, what was more, he taught us a number of new tricks of the trade as he had gleaned them from Swarthmore.

Since Mr. Benton's absence he has had entire charge of the queen-rearing work at the government yards; and this, together with his scientific training, makes him eminently fitted to prepare the work he has.

#### OUR \$1000 REWARD OFFER FOR SO-CALLED MANUFACTURED COMB HONEY.

THIS offer, originally offered some 17 years ago, and broadly advertised through all the bee papers, and many of the magazines and newspapers, is still good. In all these 17 years no one has attempted to take up with these conditions of the reward except one party. He sent us a sample of what appeared to be a cake of paraffine with boles melted or bored in it. These he filled with glucose, then smeared over the top a thin film of frosting sugar. When we received it we did not know what it was—neither would any one else. Of course, such a specimen did not fulfill the conditions of the offer. It required that the bogus article should have some semblance to the genuine product from the hive.

We will cheerfully mail cards containing the conditions of our offer, just as we have been doing for 17 years, to any one; and those conditions are not exacting except that they require that the manufactured article shall be so nearly perfect as to deceive the ordinary purchaser. A bungling imitation that will fool nobody can not be offered as proof that there is such a thing as manufactured comb honey on the market.

#### THE HEPBURN PURE FOOD BILL PASSED BY THE SENATE.

THE unexpected has happened. Year after year the lower House has passed a pure-food law; but when a measure of that kind reached the Senate it would either be killed in committee or by a direct vote on the floor. That this august body should now pass a good pure-food bill almost unanimously is a matter of no little surprise. The measure has not yet become a law, because it will have to go to the House and afterward receive the signature of the President. While it is presumed, of course, that the lower body will pass it, it may amend it, so we would request our subscribers to write to their Representatives, asking them to support the Hepburn pure-food bill as passed by the Senate, without amendment. If amended it will have to go back to the Senate where it may be killed. Perhaps it will be well to

explain that the Senate bill just passed is supplemental to the State pure-food laws. It forbids the importation from one State to another, or delivery, of any article of food, drugs, or liquor which has been adulterated or misbranded. In short, one writer characterizes it as "an act to compel manufacturers to tell the truth about their products."

Prof. H. W. Wiley, Chief Chemist of the Department of Agriculture, has for years advocated a national pure food law; and it must be no little satisfaction to that official to see the national Senate get into the bandwagon, and well they may; for unless these dignified Senators stop their tactics of obstruction of measures demanded by the people and by our good President, those same dear people will see to it that new Senators are elected by popular vote, as they should be and will be.

#### THE RAPID INCREASE IN THE SUBSCRIPTION LIST TO GLEANINGS, AND THE DON'T-TAKE-A-BEE PAPER BEE-KEEPER.

It may be interesting to know that we are taking in new names at the rate of 800 per month on the average, in excess of those who drop out. We never made such a gain as this before. We attribute this result to the improvements we have been making in the journal, to the increase in the amount of reading matter as well as to the more vigorous policy of advertising. There have been thousands and thousands of bee-keepers who took no bee-paper, who are not in touch with the great outside bee-keeping world, who knew nothing of the price current on honey, and would sell their goods "at any old price." Our increased subscription-list is going to be the means of educating a large percentage of these people into an intelligent co-operation that will result in the betterment of the product as it goes to the market and to the betterment in price. The large non-reading public has been a powerful factor in making prices on honey unstable. It is the "don't-need-a-bee-paper" bee-keeper who has done a good deal of harm to the industry because he does not know and can not know what is going on, and therefore pursues a policy inimical to himself as well as to the better posted of the same craft.

#### A NEW PRINTING AND PUBLISHING HOUSE FOR GLEANINGS.

OWING to the rapid increase in our circulation, and to the further fact that our printing department has been strained to its utmost capacity, presses running night and day, and still behind, we are now making our plans for putting up a large building, somewhere about 60×100, two-story, to take in the office and publishing department. This will segregate this feature of our business away from the fire hazard of the wood-working, machine-shop, and packing departments.

We shall probably put in one of the most improved type-setting machines at an aggregate cost of over \$3000, and another fast printing-press, in addition to those we already

have, at an aggregate cost of \$3000 or \$4000. The new press will nearly double the capacity of our present GLEANINGS press, and, what is more, it will do nicer work.

The new building will probably be made of concrete, and be practically fire-proof. The lower floor will be made up entirely of the printing and binding departments, and the upper floor will be devoted to the office and composing-rooms.

#### THE TWO CITIES THAT ARE PULLING FOR THE NEXT MEETING OF THE NATIONAL BEE-KEEPERS' ASSOCIATION.

TWO cities are making a strong pull for the next meeting of the National Association—St. Paul, Minn., and San Antonio, Texas. Both are centers of a fine bee country. St. Paul urges the extremely low railroad rates of a cent a mile because of the G. A. R. meet in that city. It is conveniently situated to take in all the great Northwest, including the territory adjacent to Chicago. But whenever the convention follows the G. A. R. there is almost sure to be a congestion at the hotels, and poor accommodations. San Antonio was to have had the convention a year ago, but feels it was cheated out of it by the yellow-fever scare, and has been making most strenuous efforts to meet the railroad rates promised by St. Paul. Some of the leading bee-keepers, including Director Toepperwein, have finally secured a home-seekers' rate, which is three-fourths of the cost of the fare one way. This will make the extremely low rate of \$20 for the round trip from Chicago to San Antonio, with corresponding rates from other points.

San Antonio is in the center of one of the bee paradises of the United States, and I presume it would make an aggregate showing of bee-keepers at the convention, if the season happens to be favorable, that would surpass that of any previous meeting anywhere.

I understand the Executive Committee of the National are taking the two points into careful consideration, and no doubt will soon be able to announce the time and place of the next convention.

#### AN EFFECTIVE OHIO FOUL-BROOD LAW AT LAST.

It will be remembered that, two years ago, the bee-keepers of this State succeeded in getting a county foul-brood law; but it lacked one important word to make it effective. It appears that the original draft of the bill stated that, on petition properly signed, "the county commissioners shall, within five days," appoint a person as bee-inspector. The expense of such inspector was to be paid out of the county funds. It appears that the bill would have failed of passage because of its mandatory clause; and the friends of the measure finally consented to have the word *may* substituted in place of *shall*, in order to get something rather than nothing at all.

When it came to putting the law into ac-



tual effect it was found that the average commissioner could not see any need of having an inspector; that he would complain that the funds were low; and because he was not *compelled* to make such appointment he would vote to do nothing. As a result the law was a farce. A number of the bee-keepers of the State, especially those in the vicinity of Cincinnati, went before the legislature this year and complained that the law was ineffective, and submitted an amendment substituting the word *shall* in place of *may*. I am glad to report that, during the past week, this amendment passed both Houses; and if Gov. Pattison signs the bill it will become a law.

I might explain that in the amended bill that was presented was a further provision providing for a tax of ten cents per colony in the State. As the last census showed there were 150,000 colonies, this would provide an annual revenue of \$15,000. Evidently the person or persons who framed the bill did not know the number of bees in the State. We put in a vigorous protest from this office, knowing the bee-keepers over the State would make a big kick, and we accordingly suggested that the tax be made five mills, or at most not to exceed one cent per colony. This would provide a fund of \$750 on the smaller amount, or \$1500 on the larger.

But it appears that in the bill as it passed both Houses this tax on the colonies was stricken out entirely. The amended law now stands, therefore, that the commissioners *shall* appoint, when a properly signed petition is presented, and *shall* draw from the county funds to pay the expense of such work. Considering that foul brood is bad only in spots in the State, it would seem as if it were hardly necessary to tax all the bee-keepers just for the bad spots.

#### A SCHEME FOR REARING EARLY QUEENS IN THE NORTH.

THE problem of rearing early queens in the North has always been a difficult one to solve, and possibly the plan I am about to propose may be a foolish one — something, perhaps, that has been exploited before; but whether new or old, we are going to try it and give our readers the benefit of it so that they may test it and send in their report. If there is any value in it, it will result in early young queens, and this will mean honey later in the season. To describe it I will tell what we are doing:

We are selecting four or five of our best colonies from the cellar, and stationing them in front of available windows of some of our warmed-up factory rooms that are kept warm days and nights and Sundays. These will be given an entrance through a slotted board under the window-sash, said entrance being provided with a slide or shutter, so to speak, that can be closed off at will.

From this time on we shall be having nice warm fly days, at least one a week, and probably one to two days a week. On un-

favorable days we will shut the bees in. The colonies will be rendered queenless, and after they start building cells so as to give a supply of royal jelly we shall graft artificial cups and start them in real earnest to building out cells, for these colonies will be the strongest and best we have. The laying queens removed will be put in baby nuclei before some other windows. If we can get the cell work going then, we will distribute some baby nuclei, each with a cell, around some of the factory windows — perhaps two at a window. All of these will have entrances of the kind already described. On warm fly days all the bees will be permitted to fly. On other days they will be shut in.

There, now, don't you see the conditions are practically the same as they might be in a cold May or June, when there might be only one or two fly days in a week, the other days being too chilly for the bees to go out?

The factory rooms are maintained at a temperature of about 70 degrees, so that there will not be the least trouble about keeping the bees and brood warm.

But how about the drones? We have about 150 colonies outdoors, and, like all outdoor-wintered bees, they will have a scattering of drones. If we can find a drone-laying queen among the cellared bees, we will give her and her colony a window.

This whole scheme is on paper only, save that we have a few colonies that have already been dequeened that are now starting cells. It remains to be shown yet how far the plan can be made a success. But our readers can test it on a small scale in one of their living-rooms. With a hard-coal stove the heat could be maintained at a practically uniform temperature night and day. In localities where there are no fly days during March or April the plan could not be made a success, of course; but I do not see how it can fail, if we have now and then a fly day.

Now, then, you see if we can make it work we shall have cells and virgins galore during April, when there will be a good many nice fly days; and when May finally arrives we shall have steady weather, and queen-rearing will be at full blast. Heretofore it has taken nearly a month after the first of May to get started. We propose, if possible, to steal a march on old Father Time by at least 60 days.

There, now, friends, do not poke fun at the idea, but let us try it together, then compare notes later on. If it does not seem feasible, just remember that we are supplying all the conditions of a rainy or chilly spring, when we know we can raise queens, with the additional advantage that the hives will never be subjected to a chilly atmosphere of 50 or 60 degrees every day or night. An always warm brood-nest and an occasional fly day, it seems, ought to enable us to gain practically two months of time. If we Northern chaps should get ahead of A. I. R. away down in Florida, it would be a good joke; but may be he will have the laugh on us about next May. We'll see.



In our journey upward in the great insect realm we have looked upon and admired the gauzy-winged neuroptera; stood appalled before the whilome ravages of the locust order; studied sympathetically the bugs, everywhere regarded with pitying contempt; wondered that such tiny creatures as thrips could work such colossal mischief; wished that the mallophaga—bird lice—with their piercing jaws in lieu of the sharp beaks of the true lice, might have been omitted from the program of creation; and now we come to the largest order of all—the

#### COLEOPTERA, OR BEETLES.

These are often called bugs. This is a pity, for beetles are very different from bugs. We know them in the common destructive potato-beetles, the valuable lady-bird beetles, and the common robust, brown May or June beetle ("June bug"), which, in ante-window-screen days, used so frequently to enter our rooms in the evening twilight after the lamps were lighted. The name, *Coleoptera*, means *sheathed wings*, and shows Linnaeus' genius at naming, for, as we all know, these beetles, except a few wingless forms like the female firefly beetles, all have their front or upper wings thickened, and so made to serve as protection for the under or secondary wings, which, of course, alone do service in flight. These thick upper wings or wing-covers are known as *elytra*. They alone are enough to betray the identity of any beetle, except the few that have no wings at all. These apterous insects are to be found in all orders. It is usually an acquired condition. The insect ceases to use its wings; they shrink from idleness, and soon, or after a time, disappear. California, when it became arid, ceased to grow trees in great part, so the beetles elected to walk rather than to fly; and hence many beetles in California are wingless. These run on the ground, and so are often black, that mimicry may aid them in the fight that all animals—yea, all life—must perforce wage in this world of contention and conflict.

Beetles have good strong biting mouth parts, as will soon become evident if we pick up a large ground-beetle. He is not slow to try his jaws upon us. He is usually set free! The jaws are often quite effective. I have known them to eat through lead pipe, and they are reported to have eaten through an iron canister. This feature separates beetles from bugs. Beetles bite and eat: bugs pierce and suck.

Again, beetles pass, as do bees, through a

complete metamorphosis. The larvæ, called grubs, usually have six legs. A few have none at all, and are long, slim, or wormlike, though some, like the grubs of the potato-beetles, are not so long. Some, like the wire-worms, larvæ of the spring beetles, or elaters, are very long and slender. The common white grub (larva of the May or June beetle, which we so often see in the spring as we dig in our gardens) is the most familiar and best-known example of the beetle order.

While many beetles, like the common rose-chaffer, do immense harm as adults, the most do their mischief as grubs. Some of these, like the white grubs and wire-worms, are often alarmingly destructive, and vie with the very worst insect pests in the mischief they cause.

Beetles are excessively abundant—certainly the largest order. I have seen the statement that they outnumber all other insects, which is doubtless true. That they exceed in numbers all other animals combined is also affirmed; and I have heard it said that they exceed all other forms of life—plant and animal—in number of species. Both of these latter statements need confirmation—especially the last.

A few beetles interest the bee-keeper much, for he sees them in his depopulated hives and among the combs in the honey-house. Such are the flour-beetle, *Tenebrio molitor*, and the bacon-beetle, *Dermestes lardarius*, both of which are illustrated in my "Bee-keepers' Guide." These beetles are there for the pollen and dead bees, and are not a serious menace at any time. If combs are not exposed they will not harbor these coleopterons.

As beetles eat, rather than suck, the sovereign remedy is some arsenite like Paris green, London purple, etc. Millions of dollars have been saved to our country and people since the advent of the Colorado potato-beetle in the potato-growing regions by fighting with the arsenical poisons. In some cases mechanical means are effective in this warfare. This is exemplified in the common jarring method of fighting the plum-currulio. When the grubs eat under ground, like Fuller's rose-beetle, bisulphide of carbon is found to be a very effective remedy, and not expensive.

#### LANDWIRTSCHAFT.

I have attended this week a monster agrarian rally from all sections of the twenty-six German states. There were more than 2000 members present, and they represented 371,000 farmers, organized for business. They feel that America is crowding them to the wall, and demand of the government a high tariff that will protect them against foreign competition. They cheered to the echo every reference to the Kaiser, whom they regard as a staunch supporter of their cause. William II. was once opposed to the so-called agrarian laws, and referred to them as "bread usury." He has now wheeled about, and says that the farmers are the



"backbone of the country," and should be protected. It seems to me that now is the time for wise diplomacy. There is very little honey in this city. It could be brought here greatly to our gain, and to no detriment to the producers here, while the people in general would be immense gainers. The reciprocity scheme should be brought to the front. I believe it could be so handled as to aid greatly both America and Germany, and injure neither. It is a subject worthy our biggest men. A great brainy man could formulate a plan that would help both countries immensely, and would, at the same time, cement a friendship that would be a great blessing not only to the bee-keepers of America but to all classes in both nations.

#### KAISER WILLIAM II.

The present Kaiser is doubtless one of the greatest men of the world. He is a great advocate of learning, and even more enthusiastically in favor of Christ's gospel. He has not only won the enthusiastic admiration of his own people, but the profound respect of the entire world. Under the influence of his reign Germany has made gigantic strides in all productive and commercial enterprises. She is rich and prosperous—only 35 years old, and yet in some ways—many ways—she has distanced all competitors in the race for what makes a people greatest. Yet in his surcharge of faith in the army, in his distrust of the people—socialists—who are, for the most part, true, worthy, and patriotic, he is very wide of the mark. The American student of Germany has no call to be envious or covetous.

Berlin, Prussia.



#### HOW THE BEES ARE WINTERING.

As I predicted before, bees are wintering badly here. In one apiary I was asked to look at, 35 per cent were dead by Feb. 10, with a strong probability of a number more dying before spring. In another apiary, where I made only a hasty and superficial examination, I think fully 75 per cent were dead at the same date. As bees usually winter here with very little loss, this heavy mortality, following a season of total failure, will come as an unpleasant surprise to some who have looked upon the possession of bees as a sure road to wealth.

#### DOES FOUL BROOD AFFECT THE MATURE BEES?

We are accustomed to look upon foul brood as a disease of the larvæ only. It is hard to

explain the only practical methods of cure on any other basis. Some of the scientists claim to have discovered the bacilli of the disease in the bodies of mature bees and queens. Practical men generally have not adopted their views, and some of them have questioned whether the bacilli found by the microscopists may not be the result rather than the cause of the disease, the real cause being yet undiscovered. I have been somewhat inclined to that opinion myself; but there is one thing that looks favorable to the theory that the adult bees may be diseased. This is that a colony that is even slightly affected with foul brood, only a few cells showing the disease, is much more likely to die in wintering than a colony that is perfectly healthy. On this account it is decidedly unsafe to attempt to winter over such colonies, as they are quite liable to die, be robbed, and so scatter the disease. [I note that the scientists have stated that the germs have been found in the virus of the queens and in the alimentary tract of mature bees. I should be inclined to believe that those colonies that had a cell or two of foul brood did not winter-kill because of any direct effect of the disease, but, rather, because, like a colony without a queen, they were discouraged. You know that a queenless colony will perish much quicker than one having a queen, long before there is any chance of brood being reared or eggs being laid.—ED.]

#### QUEEN-REARING BULLETIN.

I am in receipt of Bulletin No. 55 of the Bureau of Entomology by E. F. Phillips, Expert Apiculturist. This is entitled "The Rearing of Queen-bees," and is a very readable and practical presentation of some of the latest and best methods of queen-rearing. This bulletin may be had free by addressing the Department of Agriculture at Washington, and it will pay every bee-keeper to have it. It is evident that no mistake has been made in selecting Dr. Phillips to have charge of this department during the absence of Prof. Benton.

#### WHICH IS THE TOP OF A SECTION?

There has been considerable discussion in the bee-journals as to which side up a section should go. I have always been accustomed to see sections with the lock corner down, and it came as a distinct surprise to me when another bee keeper asked me in sober earnest why I put my sections in the supers upside down. It seemed that he had always been accustomed to the other way, though he could give no reason for it further than that somebody had told him that the lock corner should go on top. To me a section with the lock corner up has a curiously ungainly and one-sided look, though that is perhaps only a matter of education. Perhaps the ordinary person would not notice the matter at all, though I think that the greater symmetry of the section that has the joining down is one of those fine points that add to the attractiveness of an article, though it may seem unimportant and almost

unnoticeable in itself. I have never heard more than one good reason for having this corner up. Possibly there are two. One is that, in taking the section out of the super, the bottom is sometimes pulled loose, causing the comb to leak. It is assumed that this damage would not be done if the section were the other side up. But if sections are removed in so rough and careless a manner as this, there is likely to be more or less cracking of the comb along the bottom of the section, even if the section remains whole. A better form of super, or more care taken in removing the sections, will obviate this trouble entirely. Any form of super that requires the section to be removed from the top is defective. A section should never be pulled loose from its supports, but always pried loose. If you use section-holders, insert a knife between the bottom-bar and the corners of the two inside sections, which will spring the bottom-bar away from the sections. Pry the separator loose in the same way, and your sections can be readily removed without damage. The other reason given is that, if the comb is not attached to the bottom, subsequent handling may pull the bottom loose. To this I would only say that you should have your combs attached to the bottom of the section. If your combs are not built down to the bottom, adopt better methods, so that your combs will be attached firmly to all four sides.

#### THIN SECTIONS WITHOUT SEPARATORS.

Dr. Miller thinks he would like to try sections less in height than in width, two beeway, 1½, and without separators. I saw some honey to-day, in very much such sections, only higher than wide, and three beeway instead of two. Four beeway would be better in most respects. The producer of this had put the closed side of the section on top, making the super tight on top. While this would do very well for the first super it would interfere with tiering up afterward. As I take it, the advantage of the three-beeway section used in this way is that the closed side of the section may be placed next the end of the super in order to prevent propolizing to the super or section holder. The center section would better be four beeway. These combs, so far as I could tell from the few I saw, were unusually straight for un-separator sections. They had been shipped in from another part of the State, so I could not learn who the producer was. I wish he would stand up and tell us how he likes them and how many of them he has used. I can see some very considerable advantages in them over the ordinary style and width. As to having the sections shallower, I think the bees would take to the shallow ones better than the tall ones, and they would be better adapted to doing without separators. One objection to a shallow section is that, if the comb is not well built down to the bottom, there will be a greater proportion of unfilled space than with a narrower section. However, this is easily obviated by using a bottom starter or a full sheet of proper size.

Besides, with these thin sections there would not be as great a tendency to leave combs unattached as with the thicker sections in common use. [Another reason that has been advanced is that the bottom of the section, or what is the bottom while the honey is being stored, will, when turned over, be clean of travel-stain. This would be true only of such cases where the sections rest on supporting-slats like the section-holder device, but would not, of course, apply to T supers.—ED.]

#### THIN COMBS VS. THICK ONES FOR TABLE USE.

W. K. Morrison, page 85, is quite right in saying that thin combs cut up much better at the table than thick ones. The individual portions are secured in much better condition, and with much less daub and waste of the liquid honey than when cutting up thicker comb. This is true not only where honey is cut up into individual portions at hotels and boarding-houses (which places are, unfortunately, very rare); but it is also true of the private tables, especially those where neatness and nicety of appearance are regarded as important. Such combs are more satisfactory and economical to the average housekeeper. Ask any observing woman, especially one who is accustomed to daintiness in her table furnishing, and she will tell you that she would much rather put no more of an article on the table than will be eaten up entirely at that meal. If any is left over it is more or less mussy and unattractive, and is not eaten with the same zest by those who are particular with regard to the appearance of their food. Any attempt to improve the appearance of the remnant by transferring to another plate is sure to be more or less of a failure, and results in considerable waste. With many families, honey that is not quickly eaten lies around until the housekeeper throws it away in despair and will not buy any more because she concludes they do not like honey very well anyhow; whereas, if it had been eaten at once they would soon have been ready for more. This is another side to the story of those who argue that people will buy large sections because they are more economical for the consumer. They do not realize that, for many people, it is real economy to pay a high price for exactly what they want. Furthermore, it is not true, as some have argued, that it is always to our interest to sell two pounds of honey rather than one, or a full pound rather than a three-quarter-pound section. Our best interests lie in giving the consumer exactly what he wants; and if he does not know what is best for him, it is our business to find out and then supply it. I know there are some who will deride the idea of paying any attention to these minute details; but I tell you, my friends, there is nothing that will pay us better than to give our serious consideration to these things. I have more than once before given it as my belief that we as a class pay entirely too little attention to the final



disposition of our product, and consider that, if we once get it off of our hands, we have no further interest in it. In other lines of business, and especially in those that supply the higher classes of food products, the most successful are those who pay the most minute attention to the wants and the convenience of the consumer, and then set themselves to supply exactly what will suit him best. I listened the other day to a talk by a man who has made a success of potato-growing on a large scale. He has a contract, at highly profitable prices, to supply all the potatoes used by one of the largest systems of railway dining-cars in the United States. He secured this because he had the business acumen to grade his potatoes carefully with regard to quality, size, and smoothness, and then show them that they would not only add to the attractiveness of their service, but actually *save money* by paying him the higher prices he asked for his product. Now, if this can be done with an article so commonly used and produced as potatoes, why are not the underlying principles still more important in the case of an article like honey, that is not a staple, but a luxury that most people feel they can do perfectly well without?

#### HOW EARLY DOES BROOD-REARING BEGIN?

This is a question that has been somewhat discussed of late. Heretofore I should have been compelled to confess that I did not know, as I never believed in handling bees very early in the spring. It chances, however, that I know something of how early they began this year. I had some bees at an out-apiary that were rather light, and concluded to bring them home so that I could look after them better. On opening them Feb. 3, several days later, I found brood in them. Thinking it might be that the disturbance of moving had caused this, I looked into some that had not been disturbed and were in a normal condition. Most of them, though not all, had begun brood-rearing, and good colonies had a patch of brood about the size of my hand. The weather had been warm and pleasant for some time — bright sunlight every day for nearly two weeks. The question is, have they begun too soon? We are liable to have cold weather in the latter part of February, or even in March, which may result in chilled brood and “spring dwindling.”

WE regret to learn of the death of James F. Wood, of North Dana, Mass. He died at his residence on Feb. 15, of heart trouble, at the age of 44 years. Mr. Wood was a well-known bee-keeper and queen-breeder, having worked in the apiary of W. W. Cary, of Colrain, Mass., for several years when a young man, and, understood the handling of bees, also the breeding and shipping of queens. At Mr. Cary's suggestion he was employed at the Massachusetts State Agricultural College at Amherst, Mass., as instructor in apiculture, for some years.



#### WORKING AN OUT-APIARY.

“Good morning. Is this Mr. Doolittle? Oh! perhaps I mistake; for I am told that both Doolittle and his partner, Mr. Clark, are fat men.”

“No mistake, then. But you don't expect that all fat men bear the name of either Doolittle or Clark, do you? Mr. — what's the name?”

“My name is Lesser, from Syracuse, N. Y.”

“Oh, yes! Happy to meet you, Mr. Lesser. By the looks, I judge that Lesser means lesser than Clark or Doolittle — that is, not so fat.”

“Well, it has been some time since I looked in the glass; but I judge that Doolittle, if that is whom I am now looking at, has more avoirdupois than Lesser.”

“Yes, this is Doolittle. Now, joking aside, what can I do for you, Mr. Lesser?”

“I want to know something about working an out-apiary, as I expect to do something along that line next summer. Do you still practice putting brood over a swarm, as you wrote about a year or so ago?”

“I presume you refer to what I wrote, which was published in the February 1st issue of GLEANINGS for 1904.”

“I guess so. That was where you told about putting brood from colonies made to swarm, by shaking the bees from their combs over colonies which had not swarmed, was it not?”

“Yes. Colonies that were about to swarm were shaken from their combs of brood into hives containing combs on the old stand, having sections over them, and the beeless brood was then placed over another colony that was not quite so far advanced, a queen-excluder being placed between the two hives so as to confine the queen to her own combs of brood.”

“And this prevented the swarming of both colonies?”

“No; only of the shaken colony.”

“What about the other?”

“The brood given it, together with its own brood, made it very strong in a week or ten days, so that it would swarm soon after, did I not look after it; so in a week or two those two hives of brood had the bees all shaken off from the combs into a hive prepared with combs and sections, as was the first.”

“Oh, yes! I remember now. What a colony that last shaken swarm must have been!”

“Yes; such colonies are very strong in bees; and if this swarming, by the shaking

plan, can come just in the right stage in the honey-flow, they will do great things in section honey."

"I should judge so. I intended to try the plan last summer, but my hives all have tight bottoms."

"I hardly think you can make it pay to use hives with tight bottoms."

"Why?"

"Because much can be obtained with hives all of the same size, without either bottoms or tops nailed fast to them, by way of tiering up for honey, doubling up of colonies, brood, etc., that can not be obtained in any other way. You would hardly tolerate a hive whose cover was nailed fast, would you?"

"No. Who ever thought of such a thing?"

"Well, no progressive bee-keeper of today, surely. But I never saw a hive, when I was a boy, that did not have the top nailed as fast to it as are the bottoms of yours."

"Can that be possible?"

"Certainly. And as the progressive bee-keepers of forty or fifty years ago knocked the tops all off those old hives, putting on movable tops, so the progressive bee-keepers of the twentieth century are all knocking the tight bottoms off and using movable bottom-boards. Why? just the trick of turning the bottom board over in the spring, so that all the winter dirt and filth of a winter's accumulation from the bees, can at once be disposed of. This leaving every thing sweet and clean, for the immediate prosperity of the colony, alone pays for knocking the bottoms off every hive you have got."

"But if I have them loose, how am I to handle my hives in carrying to the cellar, etc., without having the bottom-board fall off?"

"Easiest thing in the world. Drive in a crate-staple, one on each side of the hive, having one point go into the hive, the other into the bottom board. You can get enough for 100 colonies for less than 20 cents."

"I had not thought of that. But let us return to the swarming matter at out-aparies again."

"Very well. What next?"

"My best results last summer, from colonies which got the swarming fever, were from those which were shaken on starters, and the bees from the old hive shaken in with the swarm every six or eight days, until all were hatched. But this plan makes a great deal of work when all one's bees are in outyards."

"Yes, that is right. But this work can be dispensed with by using a queen-excluder over the hive of starters and putting a sheet of enameled cloth over the sections to keep them clean, the same having a hole in it at a certain place to let the bees pass down from the old hive to be set on top of all, as the emerging bees grow old enough to do so."

"Is that what is meant by 'chuting' bees down into the shook swarm, or running the hatching bees down below through a chute?"

"It is something on that plan; only where a chute is used it is generally by means of a hollow space going from the old hive down near the entrance of the swarm, on the outside. In this way the bees, as they come from the brood in the old hive, for their first flight, or play-spell, mark the end of this chute as the doorway to their home, and on returning fail to find the hole in the chute from which they came, so they run in at the entrance with the swarm. In this way all the brood, when it is turned into bees, is 'chuted' into the swarm, as you express it."

"Well, why is that not a better way than the one you propose, by means of the enameled cloth?"

"With me, when using the chute plan, very much of the brood perishes, from the lack of nurse bees and heat. But with the enameled-cloth plan there is a little communication between this brood and the swarm below, or enough so that the brood is properly nursed, warmed, and fed. This matter can be regulated by the size of the hole made in the enameled cloth."

"But won't the bees enlarge the hole you make by gnawing at it?"

"Yes, if no precaution is taken. Cut a hole in a piece of tin, the size you wish, and lay this piece of tin over the hole in the enameled cloth, and you have that part of the matter proof against the mandibles of the bees."

"Well, that is certainly much better than the work of moving hives or shaking the bees off every few days."

"But there is a part about this matter wherein the chute is better. That is the drone part. The chute will run the drones down through it as well as the workers, while the queen-excluder will not 'chute' out the drones."

"Why is it necessary to use the queen-excluder?"

"To keep the queen down on those starters of foundation you shake the swarm on. Were it not for this she would go right up through the sections, and through the little hole you have left for the bees to pass up and down through; for where there is brood above starters in frames the queen will make a great effort to reach it, though not so strong a one where sections and a sheet of enameled cloth are between."

"Well, how do you provide for those drones?"

"I have worked in two ways: Enlarge one of the holes in the queen excluder, near the front of the hive, or immediately above the entrance, putting a West queen-cell protector under this hole, point end down. As the drones come down on the queen-excluder and run toward the entrance, they find this hole, run out through the point of the cell-protector, and so are out of the way. The queen runs along the under side of the excluder, trying to get up; bunts her head against the cell-protector, and turns away, trying to squeeze through the holes about there, never knowing that there is a hole in the cell-protector and an inch or two below."



"I see. That is a scheme, surely. But how about the other plan?"

"That is simply the boring of a hole in the front of the old hive, so that the drones can go out from the same; but as the workers will soon learn the way in and out here, and establish a colony there, to a certain extent, and as the hole mars the hive, I consider the first way the best."

"One question more, and I must be going. Do you not think that more honey could be obtained by having a nucleus for each colony that swarms, and putting with the nucleus the brood from the colony that swarms, thus having no after-swarms and no more manipulations?"

"If your honey yield is from buckwheat, probably yes. If from clover and basswood, I doubt it, and especially not where you run bees down as I have told you about. Besides, the nucleus plan would double our colonies each year — a thing the most of us are not desirous of having."



### SPRING MANAGEMENT.

Some Valuable Hints Concerning Stimulation to Induce Early Breeding; How to Save the Weak Colonies; an Excellent Plan for Uniting in the Spring.

BY E. W. ALEXANDER.

This is one of the most important seasons of the year to the honey-producer, for if he neglects his bees at this time it is almost impossible for him to obtain any surplus from his early harvest. We should care for our bees so as to gain two or three weeks' time instead of losing any precious days. First, I wish to call your attention to the importance of keeping your bees as warm as possible all through the spring. If you can try to have them set where they will have a natural windbreak of some kind. This is very essential to protect them from the cold northwest winds; and at all times of the year avoid shade. There may be some places where shade is necessary in the apiary, but I have never seen a colony do as well in the shade of a tree as those out in the sun. During early spring I advise by all means contracting the entrance until it is quite small. We allow an entrance only  $\frac{3}{4}$  inch, and sometimes still less; then when a warm day comes we enlarge it according to the needs of the colony; then toward night close it again if it is likely to turn cold. Also cover your hives with tarred building-paper. This is an excellent thing to retain

the heat from the sun during the day, and in this way you can, with the natural heat of the colony, keep the whole hive so it will remain nice and comfortable all night.

Then if you will do as I advise in the above, so far as keeping them warm is concerned they will gain fully three weeks' time over the way they are generally cared for.

Now we will take up the next most important part of spring management, that of stimulative feeding. This, with its twin brother, keeping them warm, is the magic word that unlocks the door to a successful summer. I care not how much old capped honey a colony may have, there is nothing that can be done to your bees during early spring that will pay like keeping them warm, night and day, and feeding a little warm syrup daily, made very thin from honey or granulated sugar, or both. If fed in the feeders I invented a few years ago a very little will answer the desired purpose. Two cents' worth per day, or about 50 cents' worth if judiciously used, will be enough to carry the colony through the whole spring, and will, many times, be the means of giving you a large increase of colonies long before your harvest for surplus honey commences.

### HOW TO GET BROOD FROM TWO QUEENS IN ONE HIVE.

Next the rearing of early queens is very important; also early drones. This is something we must not neglect. This part of our business has been made very easy and plain by such men as Pratt, and I will pass it for the present. But here is one thing I must describe to you all, and that is the proper and best way to care for our little weak colonies after taking them from their winter quarters. It is this: As soon as they have some uncapped brood in their hives, take them to a good strong colony; remove its cover and put a queen-excluder in its place, then set the weak one on top of the excluder and close up all entrances to the weak colony, except what they have through the excluder, down into the strong colony below. Leave them in this way together four or five weeks; then separate them and you will have two good colonies and will have saved yourself all worry about these weak colonies being robbed, chilled, or starved. When we are feeding the other colonies we usually give these a few spoonfuls of the warm syrup in a comb next their brood. This encourages them; and if there is not more than a cupful of bees they don't get much from the feeder under the strong colony. I have explained at bee conventions this way of saving these little colonies, and have received very complimentary letters afterward from prominent bee-keepers, saying that this idea was worth more than \$100 to them.

This is something we have been practicing for more than twenty years. Some seasons we have a large number of weak colonies on top of strong ones during early spring, and we don't lose five per cent of them. I am sure it goes a long way toward preventing spring dwindling. I will quote what my

friend J. A. Pearce, of Grand Rapids, Mich., says in the April *Review*, 1905, on this subject: "In regard to putting light swarms on top of heavy ones in the spring, I believe it is a great thing; in fact, I look upon it as one of the best things brought to light in modern bee-keeping. Last spring I had 16 swarms marked heavy, and just 16 marked light—in fact, so light that I almost despaired of getting them up to the honey harvest by any process; but when that article by Mr. Alexander came out in the April *Review*, telling us how to save weak colonies by setting them on top of strong ones, I concluded it would work, so I placed the whole 16 weak swarms on top of the 16 strong ones. I examined them some three weeks afterward, and such a change I never saw. Those weak swarms had built up so they were as strong as if not stronger than the ones below, and had more honey because of the tendency to store above. I could scarcely believe that such results were possible. Then, again, instead of detracting in any way from the strong swarm below, it really seemed to be the reverse, as though they had been stimulated by it to greater activity. Having the two queens depositing eggs instead of only one, the bees went out with a rush on all occasions when they could get out. It also proved another thing, which is that the upper queen is all right, only she was handicapped for want of bees and warmth; and as soon as these conditions were supplied she proved herself to be as prolific as her sister below, instead of being the worthless thing that she had been supposed to be."

I think I have shown you how we can keep our bees warm and comfortable through the sudden changes of early spring; also how we can stimulate them to early breeding by keeping them warm and feeding a little thin syrup every day. This is very important; and how you may save those little weak colonies and have them ready for your early harvest.

Delanson, N. Y.

[It should, perhaps, be stated at this time that Mr. Alexander will illustrate and describe his special form of feeder in a future article. For the present I will simply state that the device in question is a Simplicity trough feeder put under the bottom of the hive, and flush with the back end, the bottom board being shoved forward sufficiently to accommodate it.

I wish to draw attention particularly to Mr. Alexander's method of uniting a weak colony to a strong one, whereby both queens are preserved and *both do duty at once*. In the event that either queen is not quite up to the standard, the two will more than make up for the deficiency. That two queens *can* do duty at once in one colony after uniting, being separated by a perforated zinc, each in a separate brood-chamber, would have been deemed some years ago impracticable; but if it be true that the bees recognize their queens largely by colony odor, then the two queens in the hive at the

same time, so long as they can not get at each other, will be tolerated by the bees because they smell alike. Queen-breeders have been familiar with the fact that two queens can be maintained in one hive, separated from each other by perforated zinc. Occasionally, however, the queens will fight through one of the perforations, with the result that one will be stung to death by her opponent. In that case, possibly the bees will take a hand in the fracas. But these cases seem to be rare.

When I visited Mr. Alexander last summer he showed me a hundred or so colonies where he had two queens in at the same time. At the time, he had an upper entrance so that the bees in the upper story would not be compelled to go clear down through the upper set of combs. He explained how it was possible, in connection with his feeding, to get a large amount of brood through the agency of two queens, and yet none of that brood would suffer, as would be the case where the weak colony had to depend entirely on its own body heat on its own stand. Yes, here was the evidence or proof of the pudding, right before my eyes. It could not be gainsaid.

We should be glad to have our readers test this method of uniting, and report the results. The suggestion comes right in the nick of time for most northern localities.

Mr. Alexander does not say that the uniting takes place shortly after or at the time of taking the bees out of the cellar. If the bees of the weak colony had been out for two days, and had marked their location, many of them would be lost in returning to the old stand; but the fact that Mr. Alexander speaks of the uniting taking place as soon as they have uncapped brood would indicate that the bees had had a flight or two, and that their weak condition had been discovered after they had been set out.

He will doubtless cover these points more fully in a subsequent article; but for the present, at least, I see no reason why a very weak colony could not be united to a strong one, putting perforated zinc between at the time of taking them out of the cellar. As we have tested this principle of dual queens only in a queen-rearing way in summer, there may be some practical reason why uniting bees just out of the cellar would not work.—ED.]

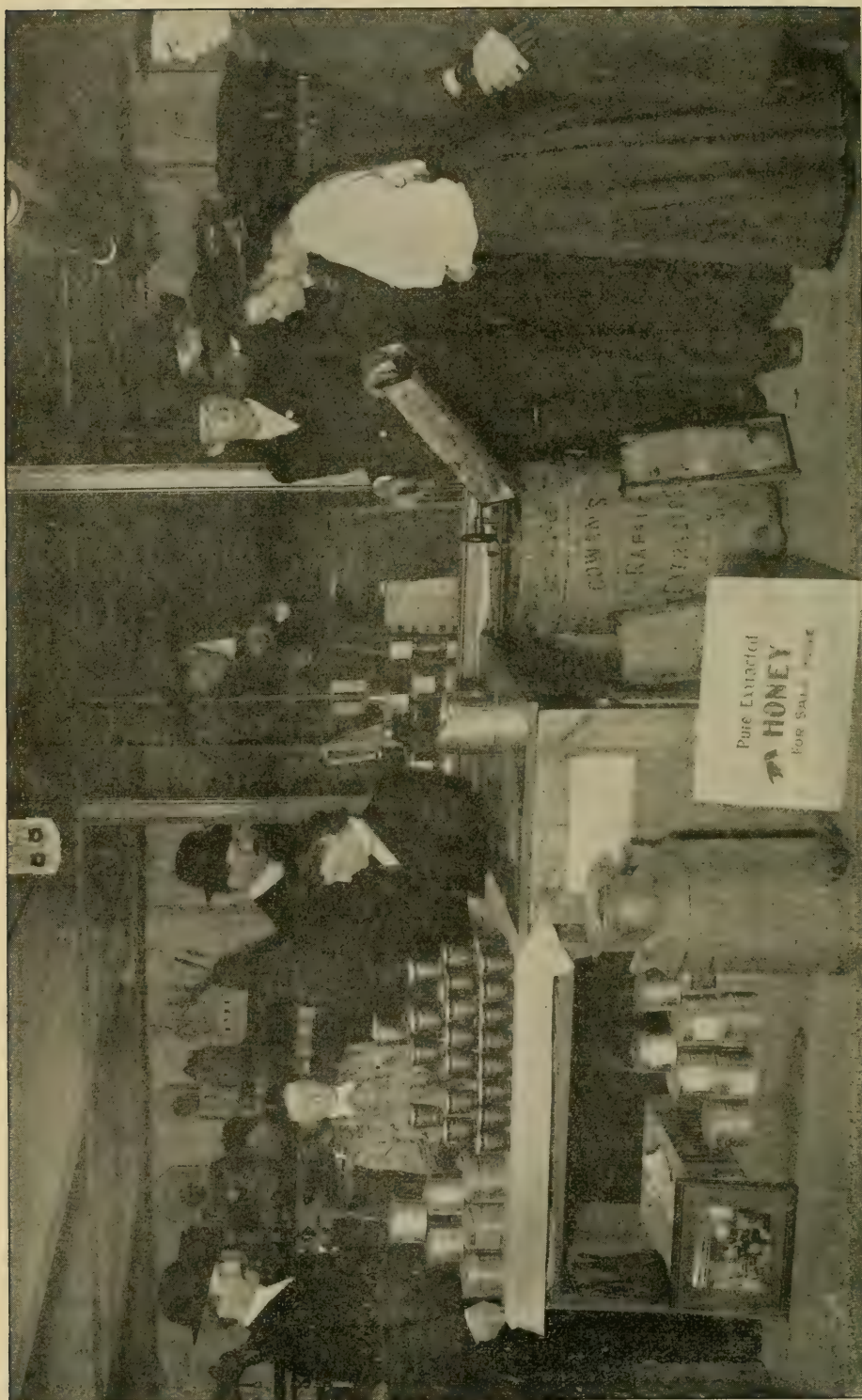
#### HANDLING BEES IN A CAGE FOR EXHIBITION PURPOSES.

##### A Practical Method of Advertising Honey and Establishing a Name.

BY L. F. WAHL.

From Oct. 19 to 28, 1905, I conducted a demonstration of a swarm of bees in a wire-cloth cage in the basement of one of the largest department stores in Western New York. This was, I believe, the first demonstration of the kind ever held in a store, and the





L. F. WAHL'S LIVE-BEE DEMONSTRATION AND HONEY-SALES DEPARTMENT IN ONE OF THE BIG STORES OF WESTERN NEW YORK.

first ever held by the aid of artificial heat and light.

Mr. S. D. House, of Camillus, N. Y., was the originator of the cage. I first saw him at our New York State fair, a year ago, and he very cordially invited me into the cage while he went to lunch. I very quickly accepted this invitation, and ever since then I have been anxious to make a similar demonstration myself.

I was handicapped at the start in finding a place in which to make the demonstration, as it was getting so late in the fall that it was too cold to handle the bees outdoors. I tried first to get a vacant store, but failed, so I went to one of the drygoods stores, thinking that they might regard my demonstration as a good drawing card. The proprietor said he could not think of such a thing, for he said the bees would get out and sting the girls, etc. He walked away then, and left me standing. Then I went over to another store, where, after a good deal of talk, I arranged for a suitable space at \$25 a week. This space was on a landing leading to the basement. I gave him some fine honey before I left, and told him I would be back in a few days and let him know when I could come. There were several things that I had to think about. I didn't know what the bees would do without any brood. I was afraid they would be cross; and then the question of the electric-arc light bothered me. I expected the bees to come out and crawl or fly all over the cage toward the light. But I was willing to give the matter a test, so I began to make the necessary arrangements. I first ordered 3000 business cards with the picture of a straw skep, and over it the words "*Our toil doth sweeten others*," and, "*The healthiest sweet is obtained from the hive. I sell it pure. Extracted honey a specialty.*" This was followed by my name, address, and telephone number. I then ordered 115 dozen tumblers of such a size as to hold just  $\frac{1}{2}$  lb. of honey; and 2 and 4 lb. tin pails were used also. I also ordered 3000 labels giving facts about candied honey and how to liquefy it. Two ladies were to sell the honey, because I supposed I should have to stay in the cage most of the time. Finally the following advertisement was put in all the daily papers by the drygoods firm:

### A Swarm of Bees.



—immune to stings practically.

It is an interesting exhibit. Pure honey to take home with you at reasonable cost.

Did you ever have a chance to observe honey bees closely? There is a swarm of them on rear Basement landing. Caged of course, you won't be stung. The apiarist enters the cage and mingles with the bees with impunity.

The appointed day came. The cage was set up, and bees put in and let loose about 11 A.M. To my surprise they clung to the hive and combs as though they were in a bee-yard in the height of the season. They

were very gentle, and all was favorable. I had my No. 15 Cowan extractor and some combs, and showed the people how honey is really extracted from the comb. My two forty-quart milk-cans, fitted with the Root honey-gate, were also there to show what I draw honey from when I deliver it around town. I shall have more to say about this in another article soon. One of these cans was filled with buckwheat honey, and the other with white-clover honey.

When my week was up the superintendent came to me and wanted me to stay another week, saying that it was the best demonstration they had ever had in their store. I told them I would stay three days longer if they would let me have a picture of the cage taken, and give me another advertisement in the five dailies of the town. This picture is the one here shown. It was taken after working hours, so that is why you don't see great crowds. Mr. Archie Coggsall, inside the cage, is holding up a bunch of bees clustered on his hand, similar to a cluster on a tree in swarming time. During the rush on the last Saturday night we were there, the two ladies sold \$30.00 worth in three hours.

I would let a crowd come up around the cage, and then tell them a short story before letting them go to the rear of the cage where they could see how honey is extracted. At another corner they could get a taste of the honey, just drawn from the can, on a piece of paraffine paper. From this corner they would be pretty sure to go over to the counter where they could buy it. In this way we kept them on the move.

It was amusing to hear the different sums of money that people said they would refuse before they would go into the cage. Some said five dollars, and some a million. One of our noted Western New York bee-keepers, when asked to come into the cage and get away from the pickpockets, said, "Do you want me to jump from the frying-pan into the fire?" A man who has made a life-study of rattlesnakes, and is able to handle them like kittens, said he would not dare go into the cage with me. This shows that, to the average person, the sight is wonderful.

In addition to advertising and establishing my name as that of a honey-dealer, I sold a good deal of honey, as shown by the following list of sales:

Oct. 19, \$4.30; 20, \$7.19; 21, \$28.95; 23, \$11.69; 24, \$15.49; 25, \$18.46; 26, \$13.21; 27, \$13.37; 28, \$14.34. Total, \$157.00. Less \$25 and work, \$37.50. Total net, \$119.50.

Chili Center, N. Y.

[Before we tried the live-bee demonstration inside of a cage we felt very doubtful, not to say dubious, of the result; but when the bees behaved just as they do outdoors in mild summer weather, our fears soon gave place to confidence.

Say! it is surprising how the average person, not a bee keeper, regards this feat of handling live bees. All, without exception, regard it as more daring than the trick of handling lions and tigers in a cage, and right



here is the advertising value. One tells his neighbor of the wonderful sight, and so on the news travels like wildfire, until sometimes there will be great crowds to see the stunt. *Then is the time to advertise and sell honey.* Every bee-keeper who retails his own honey should avail himself of this means of advertising, for it can be practiced at any time, winter or summer. — ED.]

IF I WERE TO START ANEW, WHAT  
STYLE OF FRAMES, SUPERS, AND AP-  
PLIANCES WOULD I ADOPT?

Prefers a Ten-frame Langstroth Hive, Hoffman Frame, and Beeway Sections; has tried Heddon, Danzenbaker, Jumbo, and Dadant Hives, Plain Sections, and Fences, and has Discarded them All.

E. F. ATWATER.

In discussing this subject my experience indicates that, for extracted honey, a ten-frame hive of standard size is as good as any, and the one which I would adopt for that purpose. I admit that the ten-frame hive is not wholly satisfactory to me, and not in every way the best adapted to my system and locality; in fact, a larger hive would be better; but if I adopt a twelve-frame Langstroth the full-depth supers are too heavy to handle all day, and a queen-excluder would be fully as necessary as with the ten-frame hive, as the queen often prefers to go up into the super rather than spread the brood-nest out over nine or ten frames in width. If I adopt the ten-frame Draper barn for a brood-nest I encounter several snags—frames above and below are not interchangeable, and more wires are required in the deep frame of the Draper barn to insure satisfactory combs.

The feature of interchangeable combs above and below is *exceedingly valuable* in all the newer manipulations for swarm control, making increase or mating queens by the Alexander or other methods, etc. If the colonies in Draper barns could be relied on not to swarm when supplied with plenty of combs in the extracting-supers, one season with another, then I would adopt the Draper barn; but when it is necessary to prevent swarming by shaking or any of the later methods, then the Draper barn is not the most desirable. Colonies in any hive with any amount of comb *will* swarm some seasons here, if not subjected to radical manipulation.

I have one shallow extracting-super, filled with worker combs, for nearly every colony in the extracting-yards; and I find that, in this locality, it is usually best to winter a large share of the colonies with such a shallow case, perhaps half full of honey on each hive. An outyard so wintered bred up *better* than the home yard which was fed with the Alexander feeder, and gave a larger crop. Here we see that the best results came from the yard with large hives, abun-

dant stores, and strong colonies, rather than from the home yard, which "received the best care." I have enough *full-depth* extracting-supers, the same as the brood-nest, to make, with the shallow cases, the equivalent of 20 Langstroth frames in the extracting-supers for each colony. If the combs are *capped*, the bees are readily driven from the shallow cases by the Coggshall method, and are removed from the hives much quicker than the deep frames, which must be handled singly, while the shallow cases are lifted off entire. If the combs are *not* largely capped, the deep frames are more rapidly removed for extracting, as in the latter event even the shallow combs must be handled singly.

With shallow supers above a ten-frame brood-nest of standard size there is far less need of an excluder. The need is still less if the brood-nest be a Draper barn. We use excluders largely after June 10 to 20, each season.

For a bottom-board I find nothing anywhere near so satisfactory as the old thick non-reversible board of a few years ago. If you wish more ventilation it is easier and quicker to pry up the hive and insert blocks or wedges (Pettit), than to reverse the bottom-board. Then when the blocks or wedges are removed the entrance is again mouse-proof.

The lid on our extracting-hives is a plain flat one in three narrow pieces of cheapest lumber, end-cleated. We cover the boards with several thicknesses of newspaper, and cover all with roofing tin painted white on top, and painted any color beneath to prevent rust.

Hives for this western climate (any arid region) must be made with a bee-space both *above and below*; then when they shrink (as they always do) they will still be  $9\frac{1}{2}$  inches deep. Like Dr. Miller, we now prefer an end-cleat  $\frac{1}{2} \times 2 \times 16$  clear across the top of the hive-ends to reinforce the only weak place on the Dovetailed hive.

For comb honey we have three yards, mostly in eight-frame standard hives, and Hoffman frames with followers. If starting anew, and intending to produce both comb and extracted honey, I would probably use the ten-frame hive throughout, using the full ten frames in brood-nests in the extracting-yards, and eight or nine frames with one or more  $\frac{3}{4}$ -thick followers in the comb-honey yards.

If I were to start anew as an exclusive comb-honey specialist, then the eight-frame hive would be my choice. The eight-frame hive for comb honey suits us very well; but when producing both comb and extracted honey the feature of complete uniformity is very desirable; and with careful selection of prolific Carniolan and Italian queens I feel sure that the ten-frame hive, used as above described, would be all right for comb honey.

The lid which we prefer on our comb-honey hives is called the "Acme," and resembles the metal-covered shallow telescope lid. Under this lid we use either a quilt or an in-

ner cover, and it would be difficult to say which is preferable.

The Acme lid, as we make it, has a rim to telescope the hive, 2 $\frac{3}{8}$  inches deep, of  $\frac{1}{8}$  stuff, roofed with  $\frac{3}{8}$  boards, and a cleat  $\frac{3}{8} \times 1 \times 14$  across ends inside. The whole is covered with roofing tin with paper between tin and boards. When a quilt is used this lid telescopes the hive or super nearly two inches, and does not blow off.

Our choice of supers for comb honey is a super 5 $\frac{1}{8}$  inches deep, sides only  $\frac{3}{8}$  thick, making this super  $\frac{1}{2}$  inch wider inside than usual while the exact outside dimensions are retained. On one side is a cleated separator to provide a layer of bees (Pettit), then scalloped section-holders with top bar (single-tier wide frame). The bottom-bar is  $\frac{3}{8}$  thick, to do away with the sag which always appears with the  $\frac{1}{2}$ -inch bottom-bar. The top-bar is only  $\frac{1}{4}$  inch thick, and fastened with only one small short roofing-nail in each end, so as to be readily loosened, if necessary, to remove the sections.

These wide frames keep the sections far cleaner than any other arrangement. All the stain is at the edges, where it is easily pared off from the wood. We use the old scalloped separators, and all are pressed firmly together with follower and springs or wedges. I would use more springs if I could have them two or three times as strong as any yet sold.

We admire the plain section; but as our market demands the other kind, and as the fence separator is a failure in our hands, we have adopted the above super as the best yet before the bee-keeping public. We have been all through the fence fad, and are seriously the losers thereby. With us the honey produced with the fence is not anywhere near so uniformly salable. We get no more of it, and it is not so readily sold. The reason that the honey is not so uniformly nice is that the bees too often build out above or below or between the slats; many fold more combs are attached to the fence than to the old solid separator, and often the cappings are fastened to the upright cleat of the fence. The 4 $\frac{1}{2}$  square plain section, for some reason, gives much better results than the 4 $\times$ 5; but we don't want them until both plain sections and cleated separators are so perfected in their mutual adjustments that they will give good results *all the time, under a variety of conditions, everywhere*, as does the 4 $\frac{1}{2} \times 1\frac{1}{8}$  beeway section and scalloped separator. My 4 $\frac{1}{2} \times 1\frac{1}{8}$  sections of honey have always averaged *heavier* than the 4 $\times$ 5.

Neither the Hoffman nor the plain unspaced frame is so bad as represented by enthusiastic advocates of the other style; but I do think that the Hoffman is the best for our yards and for nearly all purposes. Nor is it a fact that a satisfactory Hoffman frame can not easily be made at home or at any good mill. We prefer a top-bar 19 long,  $\frac{3}{8}$  thick, and 1 $\frac{1}{8}$  wide clear to the ends, so that the projections from which the frame hangs will not break off; end-bars  $\frac{3}{8}$  thick, bottom-bar  $\frac{1}{8}$  thick. All frames that may ever find

their way into the extracting-supers should have a bottom-bar at least  $\frac{5}{8}$  thick. All our frames have a staple in the *lower* ends of end-bars, for end spacing. When you can supply a cut-off top bar frame, end-spaced by some simple metal device on the frame projection, and so made that they will not drop off the rabbets, even though the hive is a little too long, then we will use them, for they can surely be handled more rapidly; but we need the full length of projection for shaking, etc.

Whether the hives and appliances used were to be home or factory made would depend entirely on my ability to make a satisfactory hive (or have them cut near home) at a substantial saving. If I could earn as much or more at some other work I should much prefer to buy the hives; if not, make them. We have had quite an extensive experience, either in our own yards or yards which we have handled on shares, with perhaps 100 regular Heddon hives, about 100 Heddon style, 9 frames wide, and having a six-inch *comb*, a few Draper barns, a hive with 13 frames 12 $\frac{3}{8} \times 12\frac{3}{8}$  inches inside measure, the hive advised by Louis Scholl, of the size used by L. Stachelhausen (two or more cases of ten shallow frames 5 $\frac{1}{8}$  deep); and last, and best of all, hundreds of eight and ten frame standard L. hives. In addition I have had a more or less extended opportunity to see the results in large yards near by, where a ten-frame hive of Danzenbaker depth is used; another yard where the regular Danzenbaker hive is used; twelve-frame Langstroth hives; thirteen-frame Dabant hives, and an eight-frame hive of standard size with frames like the Hoffman, but closed ends all the way down. Briefly, then, for comb honey either the eight or ten frame L. hive, single-tier, wide-frame super, for 4 $\frac{1}{2} \times 1\frac{1}{8}$  beeway sections, old-style floor, Hoffman frames and Acme lid. For extracting, ten-frame L. hive with Hoffman frames, old-style floor, tin-covered flat lid and one shallow super to each colony; then enough deep supers to make a total super capacity equal to 20 L. frames would be my preference if starting anew.

Meridian, Idaho.

#### THE MANZANITA OF CALIFORNIA.

Something about the Locality of Placer Co., Cal.

BY ENOCH PENN.

I send you some manzanita blossoms, thinking you may never have seen any. These flowers, I believe, are peculiar to California. In "Cook's Manual" they are mentioned, but little is said of their honey-producing quality. In this immediate vicinity they seem to be our best honey-yielders. As you see, the blossom is shaped like a tiny vase. The color varies from pure white to a full pink, and there are "millions of them." They never open out wide—in fact, not much more than an ordinary bottle. Last winter, the weather being especially mild, they be-



gan to bloom about the middle of December. The plant grows as a close-limbed bush, up to twelve feet high, and as much in diameter. It continues to bloom for several weeks, the length of time depending upon the weather. Ordinary freezing nights do not appreciably affect the blossoms. The word "manzanita" is Spanish, meaning "little apple," for each

Last Sunday, Feb. 4, I was surprised to see my bees (Italians) carrying in pollen. At one time they were alighting at the rate of nearly one a second, and each seemed to have a fair load. This caused me to look about for flowers, with the result that I found the manzanitas and the almond-trees beginning to bloom. I have but four colo-



THE MANZANITA OF CALIFORNIA.

blossom results in a little berry about the size of a pea which is in shape like an apple, and, when green, tastes remarkably like a green apple. The botanical name for these is *Arctostaphylos*.

nies. Three of them are in three eight-frame hives, each piled one on top of the other. One is in two eight-frame hives. These last are my lazy ones. I have kept them piled up so all winter. Last year I obtained but

160 pounds of honey, partly because I am a beginner and partly because this is a poor honey country; for in spite of the fact that our earliest flowers are now blooming (almond-trees here bloom usually about the middle of February), yet we always have our winter weather in March—cold freezing nights—which frequently kills the peaches. The coldest weather we have here freezes about half an inch of ice on a wash-basin full of water set out of doors all night; so, although last February my hives were chock full of new manzanita honey, the bees barely managed to get through March, for the early honey-flow starts brood-raising in earnest; and after the congenial weather sets in, while we have oceans of wild flowers there is comparatively little honey, and that quite inferior. After May we have little or no rain or dew for six months.

Applegate, Cal.

#### STRAWS FROM THE WEST INDIES.

A Uniter; Swarm-catcher; Ants in South America; Bees in Africa.

BY W. K. MORRISON.

The man who goes in for wax production as a profitable business has no time to waste on fussing and mussing with old dirty combs. The right way is to have none but new "virgin" comb, and thereby make a short cut to success. It is one of the finest things a tropical bee-keeper can learn.

Some who oppose the use of perforated zinc in tropical locations do not realize its value as a queen preserver. When it is not used too often, queens get lost during the honey harvest. While the combs are being withdrawn, queens are apt to get excited, "lose their heads," and get hopelessly lost. This is a condition, not a theory, with me.

Some are expecting great things to happen in San Domingo, that bee-man's paradise, as a result of President Roosevelt's interest in the affairs of that unhappy republic. It owes its value as a bee country to two great bee-plants—logwood and mahogany. It also has a rich flora. The country is healthy, but it is better not to say anything about the social, religious, and educational facilities. It may be added, too, that there are good bee locations in Porto Rico, canal zone, and Hawaii, that are going a-begging.

If one wishes to keep well informed on the prices of all tropical produce, including honey and beeswax, the best thing to do is to subscribe to the *Public Ledger*, of London, England. Two or three live bee-keepers might club together if the price is too much for one pocketbook. It pays to keep well posted from a reliable disinterested source. It constitutes a sort of commercial education to study such a publication from

week to week. It serves also to give confidence to a bee-keeper when he sees what others can obtain for their produce, and makes him more determined than ever to get similar prices.

A railroad is in course of construction in Ecuador from Guayaquil to Quito, a distance of 300 miles. It will in all probability be constructed in three years. This will help on a solution of the stingless-bee problem, as it runs through a region rich in insects, animals, and plants; moreover, each valley down there has its own individual species. This is due to the lofty ridges which separate each valley just as effectually as one island is separated from another by the ocean.

There is no more useful apicultural tool than a swarm-catcher, yet many get along without one. Some think it isn't practical, as it won't hold a full swarm; but that is unnecessary. The largest swarms can be corraled all right, and that is all it need do. A good way for the tropical bee-master is to invest in three or four catchers, and mount them on bamboo poles of different lengths, say 15, 25, 35, and 50 feet. It is a comforting thing to know one is ready for any emergency in the way of an unexpected swarm beyond one's easy reach.

I wonder why no one advertises a bee-uniter. Mr. Danzenbaker describes one in his "Facts About Bees;" but so far no one seems to have thought it worth while to make one for sale. A uniter is a very useful contrivance when used rightly, particularly in holding down increase, and having a few on hand saves time; besides, every bee-keeper is not mechanic enough to make such things offhand; also the necessary materials are unprocureable in most parts of the tropics. [We would be glad to have you describe the one you have in mind. Perhaps you refer to the one described by Mr. Danzenbaker.—ED.]

Africa has all sorts of bees belonging to the genus *Apis*. Nearly all the modern explorers, from Mungo Park to Emim Pasha, have referred to them. Schweinfurth seems to have paid more attention to them than most of the great explorers. Some of the lesser explorers paid considerable attention to the large apiaries in East Africa. The bees in northern Transvaal and beyond resemble our hybrids. Reunion and Madagascar have distinct species. Possibly some are better than ours. Many will, like the writer, appreciate the very excellent articles on Southwest Texas, by Mr. Scholl. He in part shows the immensity of the United States. Mr. Scholl does not say it, but the coast of Texas is famous for its fish, oysters, and game, quite equal to any thing the world can show. The Aransas Pass section is celebrated all around the world as an angler's paradise. But the whole coast of the



United States, from Chesapeake Bay to the Rio Grande, is one vast fish and oyster preserve (see what A. I. Root says about Florida), affording luxuries unknown to inland people. The climate being mild, fruit, truck, stock, and bees do well; and the American people, enamored of the golden West, have overlooked a very attractive country. The writer has seen the whole coast from New York to Galveston, and can, therefore, bear this testimony. Furthermore, there are many Americans looking all over the tropics for locations who can find just about what they want in the United States.

In the countries of South America, with the exceptions of Chili and Argentina, ants are a great worry and annoyance to bee-men, and bee-hive benches should be always constructed to circumvent them. Northern folks have no conception of the wonderful ability of these tropical scourges. They can destroy a good-sized apiary in one or two nights. The writer has had to nail up the entrances to his hives every night to protect his bees from annihilation. The bees fight a battle royal in self-defense, but succumb to superior numbers. These ants have been known to construct a tunnel under a river as wide as the Thames at London. The carnivorous species are extremely fond of bee larvæ—a precious tit-bit. They can not do any thing against the stingless bees. How many people realize the fact that *Apis mellifica* is a tropical animal? Many seem to think and act as if it were a native of northern latitudes. *Apis* still retains all its tropical habits, though the newspapers are fond of saying the honey-bee learns to be lazy in the tropics. *Apis* is “at home” in the tropics. It can stand much less cold than most tropical animals. A temperature of 60 degrees Fah. seems to put it *hors de combat*.

#### TOP ENTRANCES.

Top entrances are seemingly great novelties to many bee-keepers. In *Stray Straws* (March 1, 1905) appears the following: “Top entrances are said, in *Apiculture*, to increase the yield of honey 20 per cent. I can imagine that there might be some increase over hives with the entrance at bottom, and that too small for hot weather. For years I’ve had piles four or five stories high, an entrance to each story, and an entrance at the back of the cover. I can’t say whether they stored more honey; but I can say that none of them ever swarmed. But it doesn’t work for comb honey.” For my part I can add but little to this except to say auger-holes bored with a Fostner bit answer very well. The holes are best half way up the honey-chamber, not too near the zinc. Don’t make the mistake of making too many holes, always remembering the lowest entrances should be largest. In hot weather a cover entrance is necessary. Some one asks if top entrances are practical. Yes, decidedly. I don’t see how an extracted-honey producer

can very well get along without them, and I didn’t know there were many bee-keepers who didn’t use them.

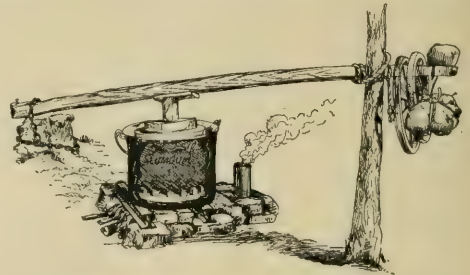
#### GLUCOSE AS A FOOD (?)

The distinguished chemists who advocate glucose as an excellent food should be compelled to take some of their own medicine by taking a reasonable amount every day. I don’t mean sugar coated glucose—the straight goods. Their wives won’t allow it on their tables—not if they know it. The time has come for all honey-producers to join hands with the makers of real fruit jelly and jam, and suppress this fraud. The case is precisely similar to that of the dairy interest and oleomargarine. One of the oddest things that ever reached the West Indies is an extensively advertised table corn syrup. It owes all its flavor to a small proportion of cane syrup. The cane sugar men want to know what’s the matter with putting in more cane syrup, say 99 per cent, and letting the public have something real nice. Every bee-keeper who comes in contact with fruit-growers should use his best endeavors to show them the great loss to the fruit industry by the substitution of glucose for real fruit jelly. Owing to the fear of adulteration, housekeepers all over this broad land are compelled to make their own jellies. Were it otherwise they could buy ready-made jelly cheaper than their own.

#### RENDERING WAX OUTDOORS BY THE HOT-WATER METHOD.

BY ARNT ARNESON.

Not having the ready cash last spring wherewith to buy an up-to date wax-press, and yet seeing the need of doing something to convert the accumulating slumgum into good marketable wax, I devised the appliance shown in the illustration. The cash outlay was nothing, as I had a kettle already. The time actually spent in construct-



ing it was about three hours. The outfit consists of a 40-gallon copper kettle placed on a strong foundation, an 18-ft. ironwood lever, anchored to a stump; one large block of wood, and several smaller ones for fulcrum; two mower-wheels for weight; a gunny sack to hold slumgum, and the customary slotted affairs to go under and over the sack containing slumgum.

When using the press I go to work as follows:

Put in enough water to cover the slumgum completely, and allow for evaporation, and then build a fire. When the water is hot, place one slotted affair in the bottom of the kettle; place the gunny sack with the slumgum on top, being careful to fold the top of the sack so there will be no leakage. Place the other slotted affair on top of this; then a block of wood, or several, to get the right height; then place the lever squarely on top, and weight it with a couple of mower-wheels. More iron can be added if needed.

I tie the lever to the tree loosely, to prevent it from gliding off sideways as it otherwise would be apt to do. Move the rope down as the lever descends.

kettle would do the work equally well, and the cost would be only one-third.

I will say in conclusion that this method is hard on gunny sacks; but as long as it gets practically all the wax, we do not care, as it is the latter that costs money. Gunny sacks cost only a trifle.

Rice Lake, Wis., Dec. 4.

[From the experimenting that we have done, we should think that you might be able to get the wax out quicker, and perhaps cleaner, if you removed the weights from the lever once in a while, raised it a few inches, and then tied it firmly. In about ten minutes you could loosen the tie, put on the weights, and press again. This would allow the "cheese" to become thor-



RENDERING WAX OUTDOORS BY THE HOT-WATER METHOD.

As to quantity of wax that could be rendered in one day, I have never kept account. I start the fire some time in the forenoon; keep it going all day, and next morning remove the wax, which is then hard, from the surface of the water. Then I fire up and put in another quantity of slumgum.

Of course, these cakes are melted over again, as more or less impurities are bound to rise to the top of the water with the wax. When all the slumgum is rendered I put all these cakes into a galvanized-iron wash-tub; place the tub in the kettle; melt without the press; skim both top and bottom with a sort of dipper made of wire screen; then dip the remainder into another tub.

I do not know, but presume that an iron

oughly saturated with the hot water so that, when you applied the pressure again, the wax would be washed out. This, of course, would mean more work; but we believe you could, by so doing, secure the wax in a shorter time, and probably get more of it from a given amount of comb. You might press two lots in a day, but it would be more convenient to use a fresh lot of water each time, for almost all the water would have to be dipped out anyway, in order to get all the wax. If some wax were left on the water, it would almost all be absorbed by the cheese when taken out. So the best way, then, is to press but one lot at once, and it would not take more than half a day to get all the wax.—ED.]



## FLAPJACKS AND HONEY.

The Superiority of Honey over Glucosed Syrups.

BY EUGENE SECOR.

Eating is both a necessity and a luxury—the latter according as we gratify our tastes for the good things of life. Plain fare, with nothing to please the appetite, may be sufficient for our bodily needs; but the luxury of living is in having things to eat that are both wholesome and enjoyable. Honey is not a necessity. Millions of people live to an old age without tasting it—indeed, without tasting any sweet as we understand the word. Sugar-eating is largely a habit, but such an established habit in this country that Americans regard it as a necessity. Eating honey is in some degree a habit. People who have it every day look for it with the same longing that others do for other things they like. At our house, pancakes would not be quite the luxury they are without the ever present honey-dish. Nothing else so satisfies. The syrups now on the market are so largely glucose, and so insipid compared with honey, that we soon tire of them.

One can eat more honey without distress or future bad consequences than he can of commercial sugar. Another thing, when we get our own honey from our own hives we know we are eating the distilled excellence of God's sweetest flowers put there for our use and enjoyment—a product obtainable in no other way, and a luxury excelling any thing that man can manufacture. If people like the insipid corn syrups on the market they are welcome to them so far as I am concerned; but give me the nectar of the gods distilled in the alembic of Nature and brought to my door by my servants, the bees. I know that is pure and healthful and nourishing.

Did you ever try honey and cream on your pancakes, instead of butter? If not, spread some honey on the cake and then pour cream over them—Jersey cream, if you have it, but I use short-horn. That's good enough for me.

Forest City, Iowa.

[Our older readers will remember Mr. Secor as one of the former managers of the National Bee-keepers' Association. During that time he attended many of the conventions.

He has also been called the poet laureate of bee-dom. His excellent verses have appeared in one or more of the bee periodicals. His most recent contribution in that line appeared in GLEANINGS for last year, page 601, entitled "The Bees are in the Clover."

It is a pleasure to note that Mr. Secor has not lost his interest in bees, nor his taste for good honey. What he says concerning the suitability of honey for flapjacks in lieu of some cheaper and less wholesome sweet, is entirely true. Those who do a business in retailing extracted honey would do well to emphasize the points brought out by Mr. Secor.—ED.]

## HOW CUBANS CLIMB TREES.

BY F. W. HALSTEAD.

*Mr Root:*—In GLEANINGS for Jan. 15, 1905, page 85, you speak of the palm-climbing by the Cubans, and that you had forgotten just how the ropes were used. At my request our official photographer, Mr. C. F. Potter, took the pictures I send you. These give a very good idea of the use of the ropes, of which there are two, each one having a stirrup of "yaqua" (the petiole of the royal palm). The ropes are placed around the tree as shown; the left foot is placed in the stirrup of the lower rope, and the stirrup of



A NATIVE CLIMBING A CUBAN PALM.

the upper rope is put above the right knee; then the ropes are alternately loosened and raised, the man steadying himself with his bare feet while his hands are engaged.

The Cubans who make palm-climbing a business become very expert at it, and will climb and cut the fruit or leaves from 100 trees in a day if the trees are fairly close together. In cutting the leaves the man has to climb up past the fruit; and as the bunches of berries make it impossible to use the ropes he leaves them just below the



IN THE TOP OF THE PALM.

THE NATIVE METHOD OF CLIMBING PALMS  
IN CUBA.

fruit, and simply *climbs* the rest of the way. An expert hand will denude a tree of leaves so rapidly that a dozen leaves will be in the air at once on their way to the ground.

Santiago de las Vegas, Cuba, Nov. 6.

### SWARMING.

What this Means to the Progressive Bee-keeper;  
the Value of a Hive Large Enough to  
Give a Brood Space Unobstruct-  
ed by Honey or Pollen.

BY R. F. HOLTERMANN.

For some time I have seen that swarming in the life's history of a colony of bees is a calamity, even if the colony is in the hands of an intelligent producer. Mr. L. A. Aspinwall has still better expressed it, and in language none too strong, by saying, "It is the bane of modern apiculture." Swarming is to the honey crop what the rearing of calves is to the cheese and butter crop. This is a fair comparison, and the two are very closely parallel. To swarming can be traced in ordinary bee-keeping the majority of cases of queenlessness, robbing, weak colonies in the fall and spring, loss of honey crop, and foul brood. It means divided energy, often two to lift two loads when it takes the two to handle one, therefore nothing or little is accomplished. That this has in the past been acted upon without thoughtful recognition in my case and in many others is shown by our admission that large swarms are expected to give us yields of honey when the small oft divided we set no task in that direction. We have sought to prevent swarming, largely as a matter of convenience, by not having to watch them, and sometimes so as not to have the trouble of hiving them. This alone makes non-swarming a goal worthy of our effort. When I look upon the many hours and days spent in hot summer weather watching issuing swarms and hiving them, it seems to me I would almost sooner go out of the business than return to these probably antediluvian methods.

While not completely master of the situation, as I am inclined to believe Mr. Aspinwall may be, yet I have put together a system of non swarming very satisfactory to me, and I have very largely worked it out for myself, and consulted no one about it. As stated at the Chicago convention, certain similar lines of thought and certain conclusions, one independent of the other, have been followed out by Mr. Aspinwall and myself. This is to me only added evidence of their correctness. My methods can be of use, and applied to almost any modern hive, the advantages being greater or less—more or less complete in its application. The smaller-hive man can use it to advantage, but not with best results.

Some of us may be accused of being large-hive men, and that we are booming large hives. There is no patent on the size of a hive. I have been compelled to become a large-hive man against my will; and, had I



not always sought to be reasonably open to conviction, early teaching, prejudice, and past conviction would probably still hold me in the ranks of what we now look upon as baby honey-nuclei. I have sold to my own profit eight-frame Langstroth hives for what I could get for them, afterward replacing them with the twelve-frame. In the non-swarmering method I use, we must consider the hive, the bees, their location, and the method of manipulation.

A ditch which I was willing to concede to the enemy of large hives was that the smaller hive was better for comb honey. This, too, has been fought for, and, in my estimation, has, by solid reason, been vanquished and taken. Which builds up more rapidly in the spring—a two-frame nucleus or an eight-frame hive? This is easily answered. To put it as favorably as possible to the small-hive advocate, "Which multiplies in bees the more rapidly—a hive with 3000 bees or one with 12,000, other things being equal, so long as they are not crowded? The larger number will double first. On the same ground, a colony which never swarmed in 1905 (and filled its twelve-frame brood-chamber in the fall as well as another an eight-frame), winter and other conditions being equal will build up faster in the spring. I have had lots of colonies in the spring, filling their twelve combs just as well as eight-frame; in fact, not having swarmed they are more uniform. Strong colonies is what we want every time and all the time providing you give them room. We are told colonies may be too strong; the moderate pull ahead in the end. With a great big magnified laugh people have told me they tried large hives and they were the first to swarm. I grant colonies may be too strong if improperly managed. Room not being given in the brood-chamber, and it being allowed to be honey-clogged, the strong colony, when willow, maple, or fruit bloom comes, will crowd with honey the brood-chamber and curtail the brood-nest, and swarm or fall behind for lack of brood room, when the weaker, not storing surplus, but with enough for stimulation and immediate requirements, gains upon the stronger and outstrips it. For such a condition no allowance need be made in intelligent modern bee-keeping. We may all allow this at times; but the system is not at fault—our management is.

To those who laugh at the early swarms from larger hives, the above applies; in addition, the fact that, having a larger force to begin with, they build up faster, and will swarm unless properly managed. If contraction is practiced, the large hive has no greater need (if as much need) of contraction than the smaller, and is even better for comb honey than the smaller.

There are far more queens able to use a twelve-frame brood-chamber than bee-keepers realize. Because a queen is not keeping an eight-frame brood-chamber full of brood is not always a reason for "pinching her," and is far from proof that she could not fill a twelve if given a chance. It is quite as

often proof that the bee-keeper needs pinching. What I mean is that brood-chambers are often allowed to be honey and pollen clogged, and in a condition where there is not proper room. Here lies a foundation truth in successful bee-keeping; and how a more uniform yield per colony could be secured, straight evenly spaced combs, not so old that the bees are waiting for a "rainy day" to chew them down and make them fit for brood. Seeing that there is plenty of honey, but not too much, and that if the colony has been queenless through swarming, or otherwise, and has become honey and pollen clogged, see that the new queen has ample room to lay without the bees making the room at a loss of time to bees and queens. To keep a laying queen in the hive all the time, as can be done when not swarming, is a valuable simple way of gaining some points in the system. Some varieties of bees, especially strains of Italians, are more apt to pack honey about the brood, and must be watched more, and this trait properly directed. Bruise honey so as to bleed; uncap honey so as to bleed; and if there is too much in the brood-chamber, put it elsewhere; either give to colonies not so well provided, or, if strong enough and seasonable, give a super with one or more combs, or remove entirely. I took about fifty combs, for this reason, from the brood-chambers last season. I was too much rushed to attend to them, and the moth destroyed them. That is bad enough; but it paid better than to cut down the capacity of my twelve-frame Langstroth brood-chambers.

There is a great difference in bees as to swarming. I am not prepared to say that, if I ran only one apiary, it would not be Carniolan bees I would keep. If Mr. Aspinwall's hive proves to be a non-swarmer it is Carniolans I shall have; but in running out-yards and with the busy season we have, bees are sometimes allowed to crowd even our large hives, and then the Carniolans resent the restricted energy more than other varieties. I admit they are too much for me in their purity at present; but I aim at having them about one-third blood Carniolan. Some strains of Italians doing good work too, but probably not the best, are easily kept from swarming. Begin with strong stocks in the apiary, and you have a difficulty in preventing swarming the badly wintered and weak colonies do not give. Have a long flow with but little of break between blossoms, and you have a difficulty those with short and sharp flows do not experience. The condition of many of my colonies and the conditions under which they are placed are most trying as to swarming, and more is accomplished than many will realize who are not similarly placed. As soon as the brood-chamber is crowded, and the bees require room, supers are put on; a queen-excluder, with only a wooden rim and two cross-pieces, is put in place. I grant there may be a greater tendency to swarm with queen-excluders, but not much if the perforations in the metal are obstructed as lit-

tle as possible, and *there is drawn comb above.*

In the Holtermann hive there is a ventilator, J, see page 290,  $\frac{3}{8}$  inch deep and 6 wide. This is made of three staples in which slides a piece of galvanized iron. This can be used whenever the bees are likely to be uncomfortable. I keep them pretty well open during the honey-flow, and it gives the bees fresh air in the super. Just now I will simply mention this as a factor in the prevention of swarming.

As the bees multiply, and require more room, another super is added. The bees require, in a fair honey-flow, to keep them contented, more super room than a brood-chamber. Less than two when a good flow is on for some days will not be safe to satisfy them. The field bees live eight weeks or so, and spend the greater part of their life gathering honey; also a certain proportion of young bees keep coming on, and a certain proportion of old bees keep dropping off, and it requires more than one super to strike a balance near enough to satisfy the bees. As soon as a good honey-flow is on, and the weather is warm, the entrance to the hive is enlarged  $\frac{3}{4}$  in depth. This can be done by means of the S. T. Pettit wedges or a drop bottom. I do not like simply raising the brood-chamber on blocks; the bees can then fly in at all sides—an inconvenience in manipulation, and confusion to the bees when, at the close of the season, the brood-chamber is let down. It is not necessary to resort to this. The double door in my hive can be half raised, and then it affords a fine shade to the front of the hive.

The cover is used as protection against heat and cold. I am quite satisfied, from many years of observation, that, to have the hives shaded by trees which are in leaf as hot weather comes, and that lose their leaves in the fall, is a great preventive of swarming, and, properly, trimmed they are no obstruction.

When all the above has been attended to we watch proceedings and the season and fields. If more room is needed it is given. Properly managed there is no trouble in keeping a hive almost always contented and building them up so strong that, with four supers the same capacity as the brood-chamber, all will be crowded with bees from top to bottom. In swarming, honey is often left unripe in the supers. Colonies divide in proportion to suit their sweet whim. Many hives are only partially occupied; the same with combs. Naturally the swarm is running down to a point of less yield, and the old colony is like a bee-keeper getting off a sick-bed at the beginning of the honey-flow, hoping he will be able to gain sufficient strength from day to day to get to a condition before the season closes where he can do a day's work. Broadly speaking, in the one case it is a struggle between man and bee—shall the bees run the man (they certainly will at times), or shall the man run the bees with at best a compromise? In the other the man runs the bees.

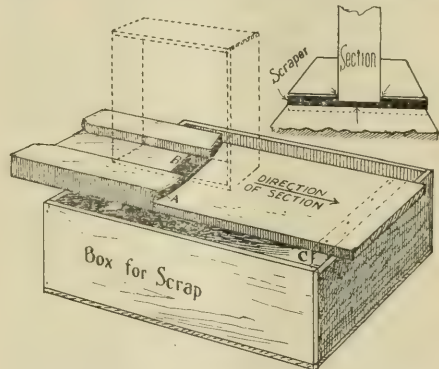
This article may not be accepted by all. To be frank, however, logical reasoning, sticking to the point at issue, is not feared. Statements without reasoning, and shifting from one point to another when about to be taken, is what I fear. Such discussions are of profit to none.

Brantford, Canada.



#### MORGAN'S SECTION-CLEANER.

This is one of the best section-cleaners I ever saw or used. It will clean only the plain sections. When you pull the section through four times it is thoroughly clean of propolis. When it is necessary to use it get a small box, set it on your work-table, put



- A.—Metal scraper imbedded at bottom in saw-cut.
- B.—Stop to allow refuse to fall through to box.
- C.—Hole to prevent slipping.

the cleaner on it as shown in the cut (the box is to catch the propolis), and then you are ready to go to work. The manner of using is sufficiently explained by the illustration.

W. F. MORGAN.

Gatesville, Tex.

[Your device looks as if it might work very satisfactorily; but I see no reason why beeway sections could not be cleaned in the same way, ail but the beeways, which could be scraped later in the regular way with a knife.—ED.]

#### SOME EXPERIENCE IN INTRODUCING QUEENS.

I read two short articles on introducing queens last year, in GLEANINGS, which I think had much merit. Although the editor at the time did not ask for reports, I should like to give my experience. The plan is as follows: Open the hive to which you are going to introduce the queen. Take



out the old queen and remove one extracting-comb; or if the super is filled with sections, take out one of them. Lay the cage containing the new queen in an open space, with the wire up. If the colony has no super, remove one frame; place the cage between two frames, wire down; now close the hive; let it be for 48 hours. Most likely she will be out laying at the end of that time. If not, make a hole through the candy a little smaller than a worker bee. Lay the cage back, and close it. They will let her out in three hours or less. Now, Mr. Editor, I have introduced 26 by this plan, and did not lose a single queen. By this plan the colony will not be without a laying queen over 54 hours. Perhaps I had better state these queens were all laying ones.

I use the Benton cage with the pasteboard over the candy-hole. J. M. FOWLER.  
Campobello, S. C., Jan. 13.

[Why, friend F., your plan is practically the same as the one in general use, except that you remove a brood-frame or a section to accommodate the queen-cage. In our experience we have very few failures; but we do not find it necessary to move either a frame or a section; for all that is required is to space two of the center frames a little further apart, so that the cage can be placed face downward where the bees can get at the wire cloth and see the queen, the two edges of the cage coming in contact with the sides of the two top-bars of the adjacent frames.—ED.]

#### FEEDING FLOUR IN THE OPEN AIR.

I have fed my 20 colonies 100 lbs. of sugar, and 15 or 20 lbs. of flour. I feed in the open, from a five-gallon can with faucet. I place the can on a ten-foot grooved piece of flooring, with the pan at the lower end. The bees do the rest. My colonies all have brood in all stages, some hatching; but for the last two weeks we have had frost each morning; but by 10 A.M. the bees are ready for feed. At night I contract the entrance to one inch. Am I right in this?

It will be a month yet before bees can get anything from bloom. Do you think it best to encourage brood-rearing, which we can do by feeding? Have I fed too much flour? I use graham and fine flour, half and half.  
Adna, Wash. B. W. BLAKE.

[Years ago we used to put out on flying days in early spring artificial substitutes for pollen to stimulate brood-rearing, but in later years we have abandoned it. Then the substitutes are not nearly as good as pollen from natural sources; and when stored in combs they are liable to be neglected, and left in favor of natural pollen. If we give it two or three weeks ahead of time, brood-rearing will be stimulated to a point where the bees will not be able to take care of it. Their efforts to cover this premature brood result in many lost bees in cool weather. Your particular climate, however, may be mild enough so that the practice

might be a decided advantage. Yes, I should say you had given your bees enough and probably too much flour. If you will look through your combs you will find some of it that will be packed in the combs where it will remain all the season.—ED.]

#### LARD OR GREASE FOR REMOVING PROPOLIS FROM THE HANDS.

I have known for years that tallow, lard, or any of the oils will remove propolis from the hands, or will prevent its sticking if well greased at the start. One should keep oil or grease at hand, and use a little once in a while. I learned this by using grease when grafting in the spring.

W. I. GREENOUGH.  
Mechanicsburg, Ohio.

#### A RESOLUTION CONCERNING THE ELECTION OF NATIONAL OFFICERS

The Fillmore County Bee-keepers' Association, at a session held at Preston, Minn., Feb. 8, passed the following resolution, and instructed me to send it to GLEANINGS for publication. We are also members of the National.

*Resolved*, That the nominations for officers of the National Bee-keepers' Association be made by a referendum vote—the man having the largest vote being considered the nominee for election. P. B. RAMER, Sec.  
Canton, Minn.

#### A CORRECTION.

On page 82 I am made to say that we sold broilers from 14 to 15 cts. per lb. This is an error, and should be from 14 to 35 cts. per lb., the highest price being received in May and June. Fr. G. Fox.

Erwinna, Pa., Feb. 10.

[The mistake seems to be on you, friend F., for on looking up your manuscript, we find that you say 14 to 15 cts. per lb.—ED.]

#### CORN SYRUP STILL ON THE MARKET.

Mr. S. N. Green, in a late issue of GLEANINGS, seems to think that — corn syrup is seldom seen on the market. If he will go into the groceries in this county he will find plenty of it. There are piles of it in every one of them. I heard one woman telling what nice thick syrup it was. I believe most of the grocers in this part of the country sell it, as I see it when delivering honey.  
New Hampton, N. Y. E. D. HOWELL.

#### CAUCASIANS WELL ADAPTED FOR TOWN AND CITY BEE-KEEPING.

I have one pure Caucasian swarm, one Carniolan-Caucasian, and one Italian-Caucasian. All are extremely gentle, and I have had no difficulty in feeding them. As I live in town I expect to make all colonies Caucasian next year to avoid trouble with my neighbors, and shall be glad to report my success to you.

Marshall, Mo. LAWRENCE C. GRIFFIN.



"WHAT TO DO, AND HOW TO BE HAPPY  
WHILE DOING IT."

I have been young, and now am old; yet have I not seen the righteous forsaken, nor his seed begging bread.—PSALM 37: 25.

Years ago I wrote a book with the above title, and ever since then it has been to me a great pleasure to point out to the unemployed the various means of obtaining a livelihood that God in his loving kindness has provided for his children.

Once while traveling, a real estate vender who had been rather inquisitive finally asked if he might inquire what I was really seeking in going over the world so much. I told him I was looking up "God's gifts." He stared at me, evidently wondering if I was not some new sort of crank. I tried to explain, but I think he decided I was not the chap he was after.

Well, dear friends, I am still finding much happiness and reward in looking up God's gifts; and during the past few weeks I have found something in this southern clime that, while it amazes me, it fills my heart with joy to think it is my privilege to share the good news with you or many of you. On p. 236 of GLEANINGS for Feb. 15, 1906, I mentioned friend Shumard's 150 Buff Leghorn fowls; and before I give them a write-up I think we had better have a heading something as follows:

POULTRY-KEEPING ON THE FLORIDA KEYS.

My eye caught on to the poultry almost the minute I landed; and as I took a shine to them (and they to me, evidently) at once ("love at first sight"), and have studied and loved them every day since, I think I know pretty well what I am writing about. Now, the wonderful secret (it is a very "open secret") I am going to give the poultry-keepers of the world is this: Friend S. has never invested one penny in buildings or structures of any sort for his chickens, and yet they are the healthiest and handsomest flock of fowls I ever saw in my life. At night they roost in the trees, and during a storm they find shelter under the tropical foliage all around them. Their greatest lack seems to be a place to lay their eggs. It is true they can make nests in the dense underbrush all around them; but they have a great fancy to get near the two dwellings on the island, possibly because of the coons and some other enemies that bothered them before Mr. S. with his gun and steel traps banished the foes, and here is one advantage of an island. It is not a very big job to "clean out" the "varmints." I mentioned their preference for our tool-house as a place to

lay. We thought at one time it wouldn't do any great harm to let them use it; but Mrs. R. soon declared that she would go crazy if they must keep up such an everlasting "celebrating" every time one of the 150 laid an egg. The cackling was "crescendo," "staccato," but never "diminuendo" until it had been echoed and re-echoed by every one of the dozen males, and then given with "variations" by all the females. I myself had to admit I never before saw so much enterprise and new "quirls" in the cackling line. I suggested to my wife it was simply their method of "praising God" for giving them this beautiful clime in which to be "fruitful and multiply;" but she insisted the "praise service" was altogether overdone, especially as many of the young pullets started all that cackling when they left the nest without laying an egg at all.

Now, I once had the "hen fever" when I was a boy, and such cackling makes me happy yet. The nice clean red-combed and bright-eyed pullets seemed to "catch on" to the fact that I admired them, and they accordingly took greater liberties and cackled harder yet. If any kind of box was put on the porch or brought on the premises, one of the roosters, with a "delegation" of hens, marched into it. Stoddard, in his "Egg-farm," had some complicated machinery to get his fowls to "take exercise." If he would just come down here he would throw all his "machines" on the junk-pile. As scratchers, I am sure they can challenge the world. There isn't a green thing, scarcely, unless it is fenced up, nor a live thing within an eighth of a mile of us in any direction. When our good friend Poppleton wrote that piece about "ants" he did mention poultry; but why in the world did he not say, "If you have chickens *enough* there will never be an ant, little or big, black or red, or any other color, anywhere in that region"? I could hardly believe it until one day I found a nest of ants between two bottom boards that, some way, were put under a hive. One of my feathered friends that are always near saw them as quickly as I did, and the whole "outfit" was gobbled up with a speed and precision that can come only with long practice. Not a bug, moth, nor any thing in the way of insect life can escape the keen eye and swift foot of these 150 eager explorers. I have greatly feared they would get after the bees, but Mr. Shumard had his five colonies up on a bench with legs to guard against ants before he had so many chickens, and the fowls can not well reach them. Every thing in the line of garden stuff must be fenced in with netting, for they eagerly devour tomatoes, beets, Irish potatoes, and everything except sweet potatoes. It is the young tender shoots they seem to care for most; and, although he has half an acre or more of garden inclosed, he has cleared and gotten ready to plant nearly an acre on the other side of the house. My own garden (one-eighth acre) is fenced with two-foot netting; and this so far answers every purpose. Of course, a two-foot fence



will not *confine* fowls; but it does very well to keep them *out* of any small enclosure.

The grain for feeding them twice a day is kept in the fish-house on the dock. They don't seem to fancy going out over the water; but when the hour approaches for feeding-time the whole crowd gradually gather down by the water; and when Mr. S. with a bucket of grain calls "chuck, chuck, chuck," there is a regular stampede from the woods and jungles and everywhere else; and then such a scrambling and quarreling to see which will get the most! Why, *football* "isn't in it," at all.

Well, when he was ready to plant out an acre of tomatoes, friend S. said the chickens *must* be fenced off to the north side of the island. You see it takes less fence than to surround this acre. When all was ready, he, pail in hand, took the whole flock through the gate, and Mrs. Root began to rejoice that the daily "jubilee" was to be at least a little further off; but toward noon first one and then another of our "*particular friends*" made their appearance at the "old stand," and, with great rejoicing, began celebrating their return from captivity. It seems some hunted holes in the fence; others climbed trees and flew over; but one wing was clipped—the fence made better, and then we tried to call them back as before. Not much! Corn and wheat were very good things; but when it came to robbing them of their old hunting-grounds, like the patriots of former days they, the dozen or more who stood out, held a caucus and made a declaration (of independence)—"Give me liberty or give me death;" and instead of running after the pail, as of yore, they "legged it" for the dense thicket over on the south; and the way they made the rich black woods dirt fly was a caution. Neighbor S. declared he would "starve them to it," but they boarded themselves, and slipped up silyly and laid some eggs in their old nests near the house besides. Of course, they do and will steal their nests off in the woods where even *Clara* and *Flossy* can not find them; and along in December one hen marched up to the house with ten pretty chickens. The family seemed to think them of not much account (as they were rather out of season) but after three had died from the effects of the cold storms I decided to try my old and sure "*chicken medicine*." Shall I tell you what it is?—a *pocketful of wheat*. For small chickens, "give a dose every two or three hours." I began watching the chickens, made friends with their mother, and no more died except one that fell into a tub of water while trying to get a drink.

In January another hen brought out ten chickens, and every one is alive now. In February a third mother came out with twelve. All the care I give is to give them a handful of wheat out of that pocket whenever they chase after me. The day they came from the nest they didn't take any wheat; the second day, a little; and the *third* day, when their mother called, they came with such a "hop, skip, and jump,"

flopping their pretty little wings to show how *they* thanked God for giving them life, that all my boyish enthusiasm for poultry returned, and I decided then and there that I wanted to "live and die with chickens" (and *bees*).

After they were two weeks old they had learned to scratch to such an extent it was a most comical sight to see them make the dirt fly. Plenty of good water was provided automatically by an accident. I placed one of our rainwater-barrels upon a block of wood so Mrs. Root could dip it up without going up and down the doorsteps. Well, this elevated barrel leaked a little, drop by drop; and after Mrs. R. placed a large clamshell under the dropping it was, most of the time, full and running over. Plenty of nice water is almost as important as plenty of wheat. I presume cracked wheat would have been better when the chicks were only a few days old; but we didn't have it, so they had whole wheat from "start to finish," or until they could eat corn.

Yesterday I was so busy nailing up nucleus hives I did not heed the mother and her twelve expectant ones until she hopped up on the workbench, where she could look me square in the face and tell me her story. In "hen talk" it was about as follows:

"Look here, Uncle Amos, can't you see us right here before you? We have been away off in the woods scratching and working hard. We are tired and hungry. I have the whole twelve yet, and aren't they *beauties*? Won't you *please* give us some wheat?"

After they had eaten all they needed, and had taken copious drinks from the clamshell, they made my heart glad with their antics.

Of course, I can't tell how well it pays to raise chickens by feeding wheat at \$1.40 per bushel until they can eat corn, or say cracked corn; but some of our expert poultry-breeders can doubtless tell. Broilers are worth here from 30 to 50 cts., and full-grown pullets are never less than 50 cts. each. There are some incubators around here, but I hardly think I should want one where Nature is accommodating.

Anywhere in the world, besides Florida, 150 full-grown fowls right around the house would make the ground untidy and unpleasant under foot; but not so here. This porous sandy soil and their incessant scratching keeps the ground clean; in fact, our yard all around the house can be and is swept clean with a broom; and even under the trees where they roost, the black woods dirt is worked over, and so it is never in any condition like such places in the North. The chickens go off an eighth of a mile in the woods, and are now never molested.\* There

\* I have just questioned Mr. S., and he says the first year he came on the island he shot and trapped 56 coons, 3 wildcats, 4 foxes, and one skunk; so you see this ideal spot for poultry was secured only by some energetic work. Besides the value of the skins, he cut up the carcasses and fed the meat to the chickens. During his largest yield of eggs he kept grain where the laying hens could help themselves, and really had an "egg-farm" where the labor part was almost reduced simply to gathering the eggs.

were, I believe, foxes and wild-cats at one time on the island; but Mr. S. cleaned them all out when he commenced with poultry.\*

Well, I have told you at considerable length the wonderful *advantage* of this region for poultry; but to be fair we must take up the other side. The one great obstacle is the high price here of Northern grain that must be purchased. Wheat costs here at the country store from \$1.35 to \$1.40 per bushel; corn, about 90 cents. Mr. Shumard says if poultry-men would unite and get a carload, or, better still, a cargo by boat from New Orleans or some grain-growing point on the other side of the Gulf, they might get grain down near Northern prices. Eggs, broilers, and full-grown chickens are worth as much here (sometimes more) as in the North.

Now comes the other great point: Do hens lay as many eggs here as in the North? A year ago Mr. S. did well with nearly the same size of flock; but when I got here in December he was getting only 15 or 20 eggs a day from 140 hens and pullets, mostly the latter, eight or ten months old. He was then feeding only corn. I urged him to try wheat, even if it did cost so much more. The number of eggs doubled in a very few days. This paid for the grain and a little more. Then I suggested that their craze for all green stuff indicated they needed cabbage, lettuce, grass, etc. A trial of pumpkins, sweet potatoes, turnips, etc., which they ate raw with avidity, gave still more eggs; and when we got over 50 a day the flock was paying very well, even though eggs were down to 20 cents in February. This, of course, was owing largely to the unusual warm weather in the North.† I sent home for some seeds of Dwarf Essex rape, seven-top turnip, borage, spinach, etc., to see how they will flourish on our peculiar soil. I presume such crops will have to be fenced off until they get at the proper stage of maturity, and then the fowls can be permitted to do their own harvesting. By selecting a place where the key (or island) is only a narrow strip, a very little fencing will include a big piece of ground. So far as I can learn, there are thousands of unoccupied islands, but many of them would be rather remote from a market or supplies.

In closing let me get back to my subject a little — “what to do,” etc. There are quite a few people and several periodicals constantly harping about the “great army of unemployed,” people who can’t find work. Some one said recently in some paper that every man, woman, and child who could *wash dishes* could find plenty of employment *anywhere* in the United States. Come to think of it, I believe this is true in every place where I have traveled. Even girls who “nick” and break the dishes, and don’t

wash them clean, continue to get a job anywhere. If they get turned off for their inefficiency they don’t care, for another place is always open to them. Well, besides the dishwashing there is always a call for poultry and eggs. Down here there is plenty of land that nobody wants. You don’t need any capital to put up buildings and fixtures, for the chickens can live outdoors the year round, and, I can almost add, so can you. A good many people do get on very well with only a tent. If you get hungry, go over to the beach and get “donax,” and in fifteen minutes you can have a delicious oyster supper just as we do. You can live in the open air, and get along without doctors. Now, if you are so helpless that you can not do this, nor wash dishes either, I shall not feel sorry for you if you have to go to the county infirmary where you live, and let people who know how to work take care of you.

I said a few months ago that I felt God wanted me down here, that he had *called* me to this “Robinson Crusoe” island, although I did not know just what he had called me to do. I think now he wished me to see and tell you all what wondrous gifts he has for those who love him and try to keep his commandments.

I have been young, and now am old; yet have I not seen the righteous forsaken, nor his seed begging bread.



#### HIGH-PRESSURE GARDENING IN WEST FLORIDA — CONTINUED.

Reasoner Brothers, Oneco, Fla., only about twenty miles from our home, grow all kinds of tropical nursery stuff, and I greatly enjoyed a visit at their place, and took home a few things that grow nicely on our island. I am not going to try to tell you all I saw there, more than to describe their method of selling tropical fruit-trees and shrubs, as “potted plants,” grown in the open air.

One of the first things that caught my eye was a little shed full of flower-pots, like those used in greenhouses in the North. I wondered what they could be doing with them when every thing was “all outdoors;” but I soon found out. A very pretty little garden again “caught my eye,” but I began criticizing it because the various little trees were planted so closely together. When I saw, however, that each one was in a three or four inch pot I understood it. In my order was a half-dozen assorted guavas. My attendant just picked up the little trees, pots and all, carried them into the packing-house, knocked off the pots, dipped the ball of roots into a tub of water, tied them in a bundle, and when I got home every one grew right

\*In California and in much of Florida, on the mainland, all poultry must be shut up in good tight houses at night, and let out in the morning, which is a *big job*, as all you who have tried it know. An island is almost the only cheap and safe remedy.

†A poultry-man in Braidentown with a choice flock of 75 or 80 is said to get on an average 50 eggs a day.



off, of course. If you want to know all about the plants that are for sale in pots send for their catalog. You may remember the papaya, or "muskmelon tree" I described when in Bermuda. Well, nice little trees in pots are only 20 cts. each. Mr. Shumard has a tree right near his door, about ten feet high, two years old, and it has thirty or forty melons on it all the time. We get a ripe one, say once a week, and new ones start at the top about as fast; so it just keeps giving us melons all the year round. Surinam cherries (a tropical cherry an inch in diameter) are only 10 cts. in pots; mangoes, 30 cts. in pots; loquats, or Japan plum, 10 cts. each. This is a beautiful tart fruit that ripens in February and March.

Now, all these potted plants or trees were in a pretty miniature garden, with a broad walk through the center, and narrow walks separating the beds. It is really a "little orchard" of different fruits on a small scale.

The damp atmosphere here on our island, with water all round us, makes it an easy place to grow any thing. If some one gives you a nice bouquet of roses, when they begin to wilt just cut off the blossoms and stick the cuttings in the soil right outdoors almost any where and they will grow almost all the year; and with such a winter as this, *without any watering*. The same with geraniums, coleis, acharanthus, and almost all kinds of house-plants. Cuttings would be surer, if shaded by trees or otherwise when the sun is very warm.

You can "make garden" here every month in the year. Squash and pumpkin vines are now bearing fine large ones, and have been all winter long. They were planted last June. Cabbage can be grown only in the winter months.

Friend Shumard cut off some "whips" from a mulberry-tree last spring, stuck them in the ground and nothing else, and now they are trees ten feet high. I omitted to mention that friend Rood, at Braidentown, has a tree in his yard just loaded with mulberries, and some of the fruit will begin to ripen in a very few days (it is now March 1st). These berries are so plentiful and easy to grow they are largely grown just for the chickens. The "potted plants" I have mentioned are quite a little cheaper by the dozen.

#### THE REMEDY WORSE THAN THE DISEASE.

The *Farm and Fireside* is guilty of the following. It sounds a great deal like T. Greiner. What do you think of it?

"Whisky is a remedy for snake-bite in people, but it has killed ten thousand where snake-bite has killed one. The constant giving of drugs to animals is just about as sensible as for a man to drink whisky three times a day for fear he might some time be bitten by a rattler.

#### A NICE LITTLE VERSE TO PRINT ON A TEMPERANCE-PLEDGE CARD.

God gave me this good body  
To grow both strong and tall;  
Tobacco helps to spoil it,  
And so does alcohol.  
Into my mouth they'll never go,  
And here's my name to prove that's so.

### Regarding Our Advertisers.

The Deming Co., 230 Depot St., Salem, Ohio, are sending out a very nice spray-pump catalog. In this book they show clearly just what the value of sprayers to the farmer, gardener, and orchardist is. Their several styles of spraying-appliances are fully illustrated and described. You will have to begin spraying very soon now, and it would be a good plan to get a Deming catalog. It will surely be of use to you.

Twelve evergreen trees free of charge is an offer which the Gardner Nursery Company, box 743, Osage, Iowa, are making. The only condition is that you send for a copy of their catalog. This is a very easy condition, too, because the catalog contains 42 colored plates and is a most valuable one. We believe that our readers will find the Gardner Company a very reliable company to deal with, and you should not hesitate to send for their catalog.

Bee-keepers who are interested in fruit-growing, and we know of no work which goes with bee-keeping better than this, should secure a copy of the March number of the *Fruit Grower*, a monthly magazine published at St. Joseph, Mo. It treats on the subject of spraying fruit-trees, and gives many valuable suggestions for making and applying spray mixtures, etc. See the *Fruit Grower* ad. on another page, and take advantage of this offer.

There is no doubt that the largest poultry profits are to be made from the sale of broilers. The poultry-man who succeeds in hatching a large number of eggs in January can have ready for the spring market a fine lot of chickens which will bring him good money. The whole secret is in being able to get good strong chickens from fertile eggs. Of course, an incubator should be used. G. H. Stahl, Quincy, Ill., claims that his "Wooden Hen" incubator is a most satisfactory one for this purpose. It will pay you to get a "Wooden Hen catalog" if you are after broiler money.

There is no doubt that a very attractive and substantial house can be built of hollow concrete blocks. It would also seem to us that this form of construction—when considering such points as warmth, insurance, etc., would prove cheaper than almost any other. The Medina Concrete Co., Medina, O., build machines for making concrete blocks. These machines have many points of advantage over any other that we have ever seen. This company is now printing a very attractive 32 page booklet for the Medina Concrete Co., and you may secure one by sending a postal.

Mr. Carl Sonderegger, of Beatrice, Neb., is the proprietor of the German nurseries whose ad. appears on another page. This company issues two very fine catalogs of the forest tree seedlings; small fruit trees, fruits and garden seeds, etc., which they offer for sale. One catalog is printed in German for the convenience of his large German trade, the other is in English for the benefit of his English patrons. One of his catalogs should prove a very valuable guide if you are buying your supply of seed for this season's planting. Just mention GLEANINGS and the catalog will be sent free.

The leading feature of the Gem Incubator manufactured by the Gem Incubator Company, Trotwood, Ohio, is a removable chick and nursery which can be moved, combined or separately. But this is not the only feature. The heating system is different from any other machine, and the manufacturers claim that it is impossible to overheat the Gem. Ventilation and moisture are controlled automatically. If you expect to buy an incubator this season you should send for a copy of the Gem catalog and post yourself fully on the merits of this machine before ordering elsewhere. A postal will bring the catalog to you.

The three catalogs sent out by the Jewel Nursery Company, Lake City, Minn., are the three most attractive booklets we have seen this season. The general fruit-stock catalog is very finely illustrated. The illustrations are clearer and more lifelike than are usually found in a catalog of this kind. The booklet, "Suggestions for Planting and Growing of Trees, Shrubs, and Plants," contains much useful and valuable information. Every nurseryman or gardener should have a copy of this book. While we believe that the regular price is 10 cts., the Jewel Company are willing to send it free upon request to our readers.

# Joseph Horne Co.

Pittsburgh, Penn.

28-in. Natural Color Linen, 18c a Yard

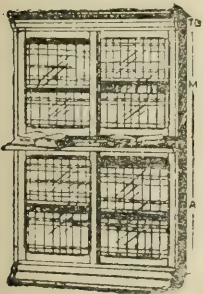
Every woman knows that linen is the most-wanted wash fabric of the times; that it launders better and looks nicer than almost any other washable fabric. There's a neatness about it, too, that is universally admired.

Now the linen we mention in this card is an extraordinary linen for the money.

It comes to us direct from Ireland, home of finest linens.

There are only three houses in the United States that carry this particular quality, one in the East, one in the West, and ourselves. The other two houses ask 25c a yard for it, and consider that a very, very special price. We are selling it for 18c a yard—have sold 50,000 yards at this price, and will continue to do so as long as our supply lasts.

28 inches wide, remember.



## SECTIONAL BOOKCASES

Sliding doors, adjustable shelves, in Quartered Oak and Mahogany. Send for illustrated free catalog.

The Cleveland Desk Co.,  
CLEVELAND, O.

Office and Library Furniture.

## FRUITFUL TREES

MILLIONS OF FRUIT AND FOREST TREES  
Small Fruits and Evergreens. Russian Mulberry and Black Locust, \$1.00 per 1000. Carefully dug and packed. Freight prepaid on \$10.00 orders. Catalogue free. Fine trees guaranteed.  
Vase County Nurseries, Box 647, Beatrice, Neb.

## A Savings Account

Thousands of people are now doing their banking by mail with perfect safety. The U. S. mail, with its free city and rural delivery, brings the strong, liberal savings bank to the very door of every person no matter where they are. You can open an account with this safe bank by simply sending to us

## One Dollar or More,

then add other dollars as you can spare them. Deposits can be sent by Postoffice or Express Money Orders, Check on Local Bank, New York Draft, or Currency by Express or Registered Mail. Your money will earn

## 4 PER CENT Interest,

compounded semi-annually, and will be secured by assets of over  
**ONE HALF MILLION**  
and the management of prudent and successful business men. . . . Write for particulars.

The SAVINGS  
DEPOSIT BANK COMPANY,  
Medina, Ohio.

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.  
E. B. SPITZER, Cashier.

## LADIES WANTED

ON SALARY . . . . .  
for a large established firm to solicit and demonstrate a modern toilet soap, distinctly different from all other soaps. No traveling. Easy sales everywhere. Write for particulars and free sample.

The D. Co. 715-725 S. W. St. Canton, O.

## HERE IS A WINNER.

|                                                                                 |       |
|---------------------------------------------------------------------------------|-------|
| The Modern Farmer and Busy Bee.....                                             | \$ 50 |
| American Bee Journal (new subscribers).....                                     | 1 00  |
| Farm Money Maker.....                                                           | 50    |
| Agricultural Epitomist.....                                                     | 25    |
| And your choice of Langstroth on the Honey-bee,<br>or A B C of Bee Culture..... | 1 20  |

All for \$1.85.

\$3 45

The American Boy, the Cosmopolitan, or Pearsons, may be substituted for A. B. J. Ask for other substitutes. We can save you money on any paper. Let us have a list of what you want. Address quick, THE MODERN FARMER, 307 N. 3d Street, St. Joseph, Mo.

## WE WANT NAMES!

We want YOU to send us the names and addresses of from ten to twenty-five farmers living in the United States each one having five cows or more. You can send us the names from any number of different postoffices. If you will send us these names we will send you FOUR BEAUTIFUL PICTURES FREE. These pictures are reproductions from the most celebrated paintings in the world, and they are of high quality, and we know that you will be pleased and delighted with them. No pictures will be given for a list of less than ten farmers.

We want to send a sample copy of the special dairy issue of the RURAL HOME to a lot of farmers who are not now taking our paper, and that is the reason we want these names.

Send us immediately a list of ten farmers and we will send you, ABSOLUTELY FREE, FOUR REPRODUCTIONS OF THE WORLD'S FAMOUS PICTURES. Address The Rural Home, 20 North William St., New York.



# Hatch and Brood

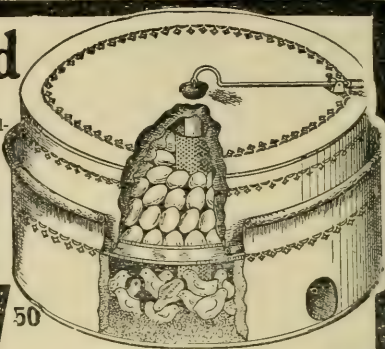
AT SAME TIME

Here's a new thing—a complete hatcher and brooder, one machine that performs both of these operations at the same time and does both well. The

## METAL MOTHER Brooder-Hatcher

is a long step ahead of all others—the most remarkable invention in the poultry world. With it 2 qts. of oil hatches 50 eggs and broods the chicks—brood one batch while you make another hatch. Our nest system enables you to do this. A time-saving, labor-saving, oil-saving machine complete for \$7.50. Free catalog—tells how it works. Regular Cycle Hatchers and Brooders at \$5 each are great favorites. Write today.

CYCLE HATCHER CO., BOX 225, SALEM, NEW YORK



\$7.50

## INVESTIGATE THE POULTRY BUSINESS

Write for a free copy of my book describing



**Profitable  
Combinations  
of Egg, Broiler  
and Roaster  
Farms**

It gives the prices paid for eggs and poultry week by week for the past three years. It tells how and when a hatch taken off each week in the year could be most profitably marketed. It shows how you can make \$2.00 on a large winter roaster. It tells what profits can be made with each of the popular breeds, and the costs of production.

I have helped thousands to make money with poultry. My Model Incubators and Brooders are used on the money-making farms. It is my business to teach those who use them to do so profitably. Whether your needs are small or large, I will furnish without charge, estimates and plans for a complete equipment that will insure success without your spending a dollar uselessly.

Send for my complete literature.

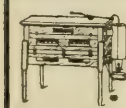
**CHAS. A. CYPHERS**

3927 Henry St.

Buffalo, N. Y.

## BANTA Incubators & Brooders

Backed by 14 Years of Successful Use by



poultrymen all over the world. No guesswork. They are automatic in regulation and ventilation. Fully guaranteed to give YOU satisfaction. (Send for free book. BANTA-BENDER MFG. CO., Dept. 23, Ligonier, Ind.)

## Our Money-Back Guarantee



Every incubator we sell absolutely money-back guaranteed to do all we claim. The 196 Reliable is the only incubator with double heating system. Free catalog tells all about it. Pure-bred Poultry and Eggs for hatching. Ask for prices.

Reliable Incubator & Brooder Co., Box B-49 Quincy, Ill., U.S.A.

You can't tell a good incubator or a good brooder by looking at them. The only true test is in the **Hatching and Raising of Chicks**. The machines that **Prove Best** by that test are the

## IDEAL

Incubators and Brooders.



Made by the man who knows and backed by the J. W. Miller Cos.' guarantee to give you satisfactory results or your money back after 30, 60 or 90 days **Free Trial**. If you are discouraged try the Ideal—if you don't want to be discouraged try the Ideal. Send for the book "Poultry for Profit"—Free. 128 pages, illustrates and describes everything needed to raise poultry.

Address **J. W. MILLER CO.,**  
Box 48 Freeport, Illinois.



## The Fresh Air Incubator

Fresh Air applied to Artificial Incubation in a new and effective way, making possible higher per cent hatches, brighter, healthier stronger chicks.

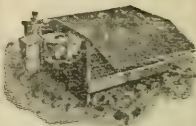
**5 FREE BOOKLETS ON ARTIFICIAL POULTRY PRODUCTION**

1st—The Standard Incubator. 2nd—An Incubator for Beginners. 3rd—Universal Hatcher and Colony Brooders. 4th—Feeding

Chicks. 5th—What Users are Doing.

## A PIANO BOX WILL DO

Put the Universal Hatcher into it and make your own brooder. The Universal Hatcher may be attached to any size or form of Colony house, washroom house, small portable building or piano box and make about as good a brooder as money can buy. Write for catalog and the five books FREE. Others to follow, you'll get them all if your name is on our mail list.



Prairie State Incubator Co., 414 Main St., Homer City, Pa.

## Racine Incubator

The simple, sure, dependable kind. Used by thousands of successful poultrymen and women.

Our free **Incubator Book** tells about them—tells how to make poultry pay 74 years experience. Don't buy until you read it. Warehouses: Buffalo, Kansas City, St. Paul. Address



We pay the freight

Racine Hatcher Co., Box 114, Racine, Wis.

# Let Me Tell You the Special Price On This Genuine 1906 Chatham Incubator

**Y**OU see we make more incubators than any other concern in the world.

We have two big factories equipped with every up-to-date labor-saving appliance.

We buy lumber in immense quantities. And turn out from six to seven hundred Incubators a day.

This means high grade machines at low cost.

Now we are after the trade with an Incubator of up-stairs quality at a down-stairs price. And to prove to you that Chatham Incubators are the best made, we are willing to let you try one 84 days **FREE**.

You can take off four hatches, and, if the machine isn't exactly as represented send it back at our expense. Could we make a fairer offer?

But we go further even than this and guarantee every Incubator we sell for five years—a direct iron-clad guarantee. Send for our **FREE**

Catalog today.

Your name and address on a post card mailed at once gets the whole story by return mail.

**The Manson Campbell Co., Ltd.**

216 Wesson Avenue,

Detroit, Mich.



## Take Your Own Time. Old Trusty Incubator

40, 60 or 90 Days Trial.

We want to send you the "Old Trusty" Book. You ought to read it before buying an incubator, because it has more every-day "chicken sense" in it than any catalog you have ever seen. 300 good pictures. It tells why "Old Trusty" does such good work—why it hatches so many and so good chicks—why it is so easy to operate—why it is so economical. It's sold on 40, 60 or 90 days trial, freight prepaid. Write to us.

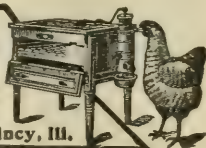
**M. M. Johnson Co.,**  
Clay Center, Neb.



**\$12.80 For  
200 Egg  
INCUBATOR**

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

**GEO. H. STAHL, Quincy, Ill.**



**\$1. PER MONTH**

to \$2. per month rents any incubator.

Rent pays for it. **We Pay the Freight.**

**40 Days Trial** at same prices. Buy

plans and parts and

build one. Prices, ready to use: 50 egg

\$5.00; 100 egg \$9; 200 egg \$12.75. Brood-

ers, \$3.50 up. Guaranteed. Catalog free.

**BUCKEYE INCUBATOR CO., Box 84, Springfield, O.**

## BIG Profits in Poultry

If you raise it right. Let us help you "get right" with a new 1906-pattern

**Standard Cyphers Incubator**

Guaranteed to hatch more and larger chicks than any other. Easy to operate. Complete Catalog and Poultry Guide, 228 pages (8x11) free if you mention this paper and send names of 2 neighbors who keep poultry. Write nearest office

**CYPHERS INCUBATOR CO.,** Buffalo, Boston, Chicago, New York, Kansas City or San Francisco.



## CAPE CURE

It's Gape that kills off the big hatcheries and spoils poultry success.

## CONKEY'S GAPE CURE

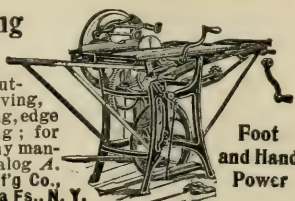
guaranteed to cure and prevent or your money back. Try a package. Dealers or druggists or by mail, post-paid, 50¢ per package. Conkey's big illustrated book on poultry diseases **FREE**. Send 4¢ to pay postage.

**G. E. CONKEY & CO.,** No. 315 Ottawa Bldg., Cleveland, O.

## Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog **A.**

**The Seneca Falls M'g Co.,**  
44 Water St., Seneca Falls, N. Y.



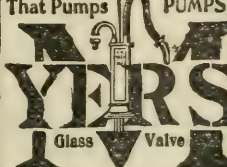
**Foot  
and Hand  
Power**

## SPRAY PUMPS

The Pump  
That Pumps

SPRAY  
PUMPS

Double-acting, Lift,  
Tank and Spray



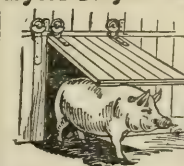
**PUMPS**

Store Ladders, Etc.

**HAY TOOLS**

of all kinds. Write  
for Circulars and  
Prices.

## Myers Stayon Flexible Door Hangers



with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

**F. E. MYERS & BRO.**  
Ashland, Ohio.



## EXTENSION NUTS CURE

**AXLE WABBLERS.**  
Make old buggies run like new. Quick sellers. Very profitable for agents. Exclusive Territory.

Hardware Specialty Co., Box 535, Pontiac, Mich.

**65c** for 25 NAMES—For names and P.O. of 25 farmers and 15c (stamps taken) we will send for 2 years the Farmer's Call—regular subscription price, 40¢ a year. F. C. is a weekly, 25 years old; 1300 pages a year; sample free. **Farmer's Call, Quincy, Ill.**





*This house, more substantial than wood, more attractive than brick or stone, and at about half the cost, was built of hollow concrete building blocks.*

*Our block machines are easy to operate, and not high priced. Send for new booklet.*

**Medina Concrete Co.**

22 Court Street  
MEDINA, OHIO.

# I Am the Paint Man

**2 Full Gallons Free to Try  
6 Months Time to Pay**

You pay no freight to try my paint



**O.K. Chase**  
St. Louis, Mo.

**I** AM the paint man. I have a new way of manufacturing and selling paints. It's unique—it's better.

Before my plan was invented paint was sold in two ways—either ready-mixed or the ingredients were bought and mixed by the painter. Ready-mixed paint settles on the shelves, forming a sediment at the bottom of the can. The mineral in ready-mixed paint, when standing in oil, eats the life out of the oil. The oil is the very life of all paints.

Paint made by the painter cannot be properly made on account of lack of the heavy mixing machine.

My paint is *unlike* any other paint in the world. It is ready to use, but not ready-mixed.

My paint is made to order after each order is received, packed in hermetically sealed cans with the very day it is made stamped on each can by my factory inspector.

I ship my pigment—which is white lead, zinc, drier and coloring matter freshly ground, after order is received—in separate cans, and in another can I ship my Oil, which is *pure old process* linseed oil, the kind that you used to buy years ago before the paint manufacturers, to cheapen the cost of paint, worked in adulterations.

I sell my paint direct from my factory to user at my very low factory price; you pay no dealer or middleman profits.

*I pay the freight on six gallons or over.*

My paint is so good that I make this wonderful fair test offer:

When you receive your shipment of paint, you can use two full gallons—that will cover over 600 square feet of wall—two coats.

If, after you have used that much of my paint, you are not perfectly satisfied with it in every detail, you can return the remainder of your order and the two gallons will not cost you one penny.

No other paint manufacturer ever made such a liberal offer.

It is because I manufacture the finest paint, put up in the best way, that I can make this offer.

I go even further. I sell all of my paint on six months' time, if desired.

This gives you an opportunity to paint your buildings when they need it, and pay for the paint at your convenience.

**Back of my paint stands my Eight Year, officially signed iron-clad Guarantee.**



This is the longest and most liberal guarantee ever put on a paint.

For further particulars regarding my plan of selling, and complete color card of 11 colors, send a postal to O. L. Chase, St. Louis, Mo.

I will send my paint book—the most complete book of its kind ever published—also utterly free. Also my instruction book entitled "This Little Book Tells How to Paint" and copy of my 8 year guarantee.

**O.K. Chase** The Paint Man.

715 Olive Street,  
St. Louis, Mo.

**NOTE-- 8-year Guarantee backed by \$50,000 bond**

## The Best Farm Help.

All farm help is scarce; Good farm help is scarcer. The user of Iron Age Farm and Garden Implements *owns* the best help in the world and has less help to hire.

## IRON AGE Implements

No. 6  
Iron Age  
Combined  
Double  
and Single  
Wheel  
Hoe,  
Hill  
and Drill  
Seeds.

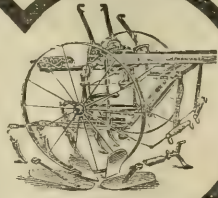


Earn a profit on every day's work in any field or garden. The No. 6 Combined Tool shown will at a *single operation* open the ground, plant and cover seed in hills or drills with any desired spacing between seed. A slight adjustment fits the same tool to roll, rake, hoe, plow or cultivate. The

No. 60 Riding Cultivator is another famous labor saver. Our NEW IRON AGE BOOK illustrates Seeders, Wheel Hoes, Cultivators, Horse Hoes, Fertilizer Distributors and all line of Potato Machinery consisting of Planters, Sprayers, Cultivators and Diggers. Sent FREE.

BATEMAN MFG. COMPANY, Box 120 Grenloch, N. J.

No. 60 Iron Age Pivot Wheel Cultivator



## THE NEW WAY TO LAY CARPET

Just out. The perfection of all carpet stretchers and tackers. Loads automatically: tacks are thrown into a little hopper and the machine does the rest. So simple, simplicity is outdone. New Principle Stretcher. Impossible to tear carpet. Stretches heaviest Brussels or Moquette while standing erect. No more backaches, bruised knees or smashed fingers.

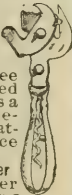
### Faultless Carpet Stretcher and Tacker

Has perfect tack cutoff. Feeds one only, always point down. Carpet can be folded in two or three thicknesses, stretched and tacked securely as a single layer. It's a mechanical wonder. Greatest labor-saving device ever invented.

Special Advertising Offer. Send \$1.50 with order and we will include a combination tack puller, cork screw and can opener worth 25c, free. Write today for descriptive circulars. Agents Wanted. Write quick.

J. W. QUILLING  
MFG. CO.  
1140 Hampshire St.,  
Quincy, Ill.

IT'S  
SO  
EASY



## YOU SPRAY

Make it as easy and effective as possible. Buy your outfit from a concern that is long made a specialty of spraying machinery. A

### DEMING SPRAYING OUTFIT

always gives satisfaction. 20 styles. An outfit for every purpose including Barrel, Knapsack, Bucket and Hand Sprayers and Power Outfits. Get free catalog and study the Deming line before you buy.

THE DEMING CO.,  
230 Depot St., Salem, O.  
Hennace Hubbel, Western  
Agents, Chicago.



## LAWN FENCE

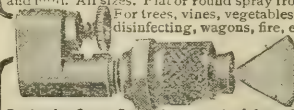
Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address

COILED SPRING FENCE CO.  
Box 448 Winchester, Ind.



## The "Kant-Klog" Sprayer

Something New. Gets twice the results with same labor and fuel. All sizes. Flat or round spray from same nozzle. For trees, vines, vegetables, whitewashing, disinfecting, wagons, fire, etc., etc.



Agents  
Wanted.  
Circular free.

Rochester Spray Pump Co., 32 East Ave., Rochester, N. Y.

## TELEPHONE FACTS

We publish a finely illustrated book that is full of telephone facts. It tells all about telephones for farms, the kind to use, how to organize a farm telephone company, how to build the lines and where to buy the best telephones. Free if you ask for Book 36-B.

Stromberg-Carlson Tel. Mfr. Co., Chicago, Rochester, N. Y.

## Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.



# GROCERIES

AT  
WHOLESALE  
PRICES

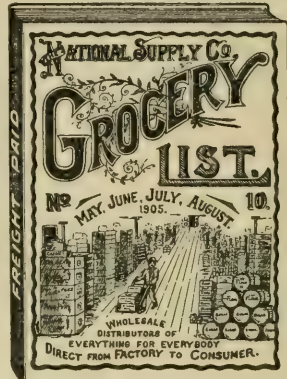
FREE

This catalogue will  
save you money on  
your grocery supplies.

## FREIGHT PAID

What do your groceries cost you a year? Will you buy them of us if we can prove that we will save you from 10 per cent to 20 per cent and *pay the freight*? That certainly is an amount worth saving; it is worth the trouble of asking for the proof. Get our large Grocery List and compare our prices with what you have been paying. Then put us to a greater test—send us a trial order and compare the goods and the prices. If we do not save you big money, send the goods back at our expense. The grocery bill is the biggest part of the family expenses. We will cut it almost in the middle and guarantee everything we sell. We can do this because we buy in immense quantities—carloads and trainloads—and we give you the benefit of our ability to buy cheap; in fact we can sell to you at just about the figure your local dealer would have to pay. We save you *his profit* and the *freight* besides.

To save still another 10 per cent, become a member of the **Co-operative Society of the National Supply Co.** We'll tell you how to get this extra 10 per cent discount, if you will write for full information. An easy way to make money.



If you want to save money get our catalogue and learn just how cheap you can buy groceries from us. Catalogue is ready and lists everything in the grocery line. We send it free.

**Co-operative Society of the National Supply Co., Lansing, Mich. and Chicago, Ill.**

## YOU Can Save a Lot of Work! Can Save a Lot of Money! Can Increase Your Comforts! Can Increase Your Profits!

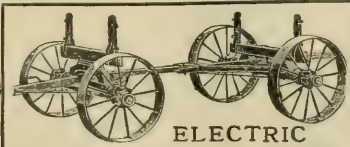


If you are interested in those things we'd like to send you our new book about

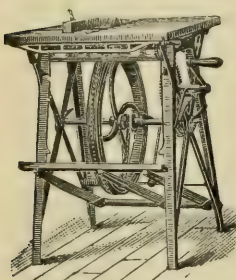
### ELECTRIC STEEL and the ELECTRIC Handy Wagon

More than a million and a quarter of them are in use and several hundred thousand farmers say that they are the best investment they ever made. They'll save you more money, more work, give better service and greater satisfaction than any other metal wheel made—because **They're Made Better**. By every test they are the best. Spokes united to the hub. If they work loose, your money back. Don't buy wheels nor wagon until you read our book. It may save you many dollars and it's free.

**ELECTRIC WHEEL CO.,**  
Box 95 Quincy, Ills.



ELECTRIC



### BARNES' HAND and FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

#### MACHINES ON TRIAL

Send for illustrated catalog and prices. Address  
**W. F. & J. N. BARNES CO.**  
545 Ruby Street,  
ROCKFORD, ILLINOIS.

# Paroid

The most economical  
siding and

## ROOFING.

Extra strong felt, extra saturation, slate colored, no tar, does not taint rain water; spark, cinders, heat and cold proof. Don't take an imitation. Get the genuine. Send for **Free Sample** and name of nearest dealer. Book of poultry and farm building plans sent for 2c stamp.

**F. W. BIRD & SON, Makers.**

Established 1817. Chicago, Ill.  
East Walpole Mass.  
Originators of roofing kit free in every roll.

### TEST THIS

## Chatham Corn Grader

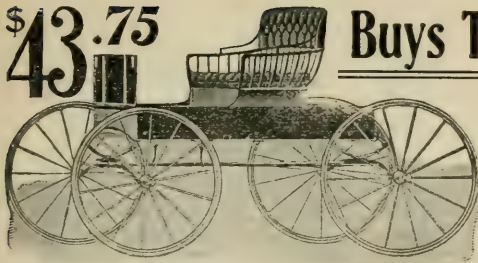
### A MONTH AT MY EXPENSE

This machine grades Seed Corn 98% perfect. Thus your edge drop or round hole corn planter gets kernels it can drop evenly, three to a hill. Your yield from planting such corn will be 20 to 30 bushels per acre larger than from common seed corn. To show you what a Chatham Corn Grader will do, we offer you 30 days use of it **FREE**. Upon receipt of your order we will ship you a Grader **Freight Prepaid**. Test it a month. If it is not all we claim, send it back at our expense. If it is all we claim, the Grader will cost you but \$10. This sum it will save in a single season.

Write for new book about Corn Graders, Incubators and Fanning Mills. It is **FREE**. It will tell you how to double your crops.

**The Manson Campbell Co. Ltd.**  
420 Wesson Ave. Detroit, Mich.

\$43.75



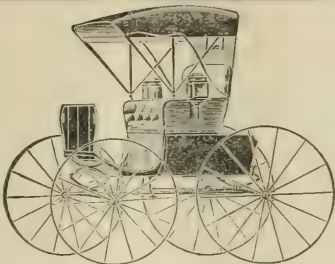
## Buy This Rubber-Tire Wagon

**Union Quality. Fully Guaranteed.** Best hickory wheels;  $\frac{3}{4}$ -in. Rubber Tire; long-distance, dust-proof, high-arched axles; oil-tempered springs. First-quality material and finish. worth nearly double our **Factory Price**. We ship for your examination, without a cent in advance, if desired, and allow

**30 DAYS FREE TRIAL**

Money refunded on all purchases not satisfactory. You save dealers' profits. We build 150 styles of Vehicles, from \$26.50 to \$150. 50 styles Harness, \$5 to \$60. Write to-day for our 200-page Illustrated Style Book. Free for asking.

**Union Buggy Co., 45 Saginaw St., Pontiac, Mich.**

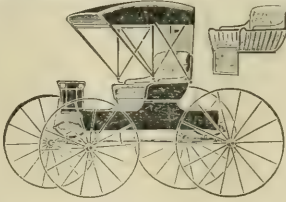


No. 516. Stanhope. Price complete, \$68.00. As good as sells for \$35. more.

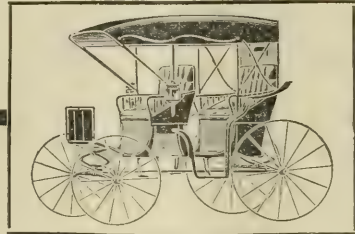
### 33 Years Selling Direct

Our vehicles and harness have been sold direct from our factory to user for a third of a century. We ship for examination and approval and guarantee safe delivery. You are out nothing if not satisfied as to style, quality and price. **We are the largest manufacturers in the world** selling to the consumer exclusively. We make 500 styles of Vehicles, 65 styles of Harness. Send for large free catalog.

**ELKHART CARRIAGE & HARNESS MFG. CO., ELKHART, IND.**



No. 646. Combination Top Buggy. Price complete with extra stick seat, \$50.50. As good as sells for \$25. more.



### Vehicle Bargains

Not mail order house bargains. We manufacture everything we sell from the raw material and sell direct to you from factory

**ON 30 DAYS FREE TRIAL**

We cut out all profits of agents and local dealers and guarantee to give you your money back any time within three years if your vehicle fails to stand the test. We further guarantee that the vehicle you get from us is the equal of any you can buy from a local dealer at double our price. A couple special jobs right now at extremely low prices. Write today for free complete vehicle catalogue.

**The Progressive Vehicle Mfg. Co.,**  
Dept. O. Ft. Wayne, Indiana.

**\$50 if it Suits  
Nothing  
if it  
Doesn't**



Great  
1906  
Split  
Hickory  
Special

That's how we sell our **Split Hickory Special Top Buggy**. Though it's the Buggy known for merit in every section of the country, and you know what you buy, still you can have one to use for 30 days before you decide. We make good, first-class Top Buggies \$35.00 up to our famous \$50.00 Split Hickory Special. And all other kinds of vehicles, and harness too. It takes 180 big pages to show all these in our new 1906 catalogue. We tell you this book will save you money and we want to

### SEND YOU ONE FREE

But we must have your name and address,—where can we reach you—let us know today. This is headquarters. We make vehicles and harness and ship direct to you to try. You can't get a more liberal proposition and you save middlemen's profit of a third to half by dealing with headquarters. Our guarantee is a legally binding one between you and us. You know the years of experience and long successful business behind it. Now we want to send you that catalogue so you can pick out what you want to try—then it's up to the goods. Your address, please, at once.

**THE OHIO CARRIAGE MFG. CO.,**  
H. O. PHELPS, Pres.  
Station 293 Cincinnati, O.

**\$35.50  
30 Day  
Test.**



**No  
Money  
in  
Advance**

"Anderton" Vehicles and Harness direct from factory at lowest factory prices.

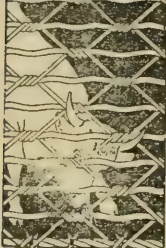
### A REAL FREE TRIAL

with no deposit, no fuss of any kind. A two years approval test, with a \$25.000 bank deposit to insure your getting your money back, if not satisfied. You can try an "Anderton" with your money in your pocket. Write for free 110-page Illustrated catalog No. 21. It fully explains our offer.

**The Anderton Mfg. Co., 41 Third St., Cincinnati, O.**



## COILED SPRING FENCE



Closely Woven. Can not Sag. Every wire and every twist is a brace to all other wires and twists full height of the fence. Horse-high, Bull-strong, Pig-tight. Every rod guaranteed 30 DAYS FREE TRIAL and sold direct to farmer, freight prepaid, at lowest factory price. Our Catalogue tells how Wire is made--how it is galvanized--why some is good and some is bad. Its brimful of fence facts You should have this information. Write for it today! Its Free.

**KITSELMAN BROS.,**  
Box 21 MUNCIE, INDIANA

**BROWN PAYS THE FREIGHT**

**HEAVIEST FENCE MADE**

All No. 9 Steel Wire. Well Galvanized. Weights  $\frac{1}{2}$  more than most fences. 16 to 35¢ per rod delivered. We sell all kinds of fence wires at wholesale prices. Write for fence book showing 110 styles. The Brown Fence and Wire Co., Cleveland, Ohio.

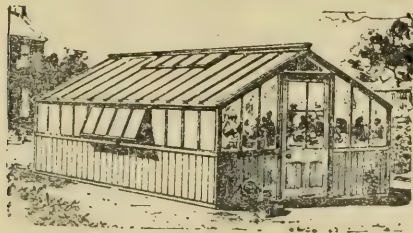
**FENCE Strongest Made**

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today

**COILED SPRING FENCE CO.**  
Box 101 WINCHESTER, INDIANA.

## PLEASURE AND PROFIT

A Premier Greenhouse will keep you supplied with flowers, fruits, and vegetables all the year round. Save its cost in a season; gives tone to your residence, and creates a pleasant and profitable hobby.



The illustration shows a Premier Greenhouse--length, 12 feet; width, 8 feet; height, 8 feet. It has double walls, double-strength glass, plant-tables, etc., fitted complete; built in sections, and can be erected in two hours. The price is \$63.00.

George B. Clementson, Esq., Lancaster, Wis., writes: "The Premier Greenhouse is the most attractive proposition for the plant-lover I have ever seen."

Catalog and price list on application. Greenhouses from \$20.00. Conservatories, Garden Frames, Summer Cottages, Auto-houses, Poultry-houses, and Portable Buildings of every description.

**Charles H. Manley,**  
Dept. B C, Premier Manufacturing Works, St. Johns, Mich.

## 850,000 GRAPE VINES

69 Varieties. Also Small Fruits, Trees, &c. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10¢. Descriptive price-list free. **LEWIS ROESCH, FREDONIA, N.Y.**

## Vaughan's Gardening Illustrated for 1906

We have made a new seed-book. It is the best seed book we have ever made.

We call it **Gardening Illustrated**. This book of 152 pages makes no extravagant claims or statements. It aims to give facts only and is crowded with good things for the flower & vegetable garden, the hardy garden and the fruits.

**IN VEGETABLES**, the book contains every variety and kind of known value for our climate. All the standard well-known varieties, and everything new which our experience and trials tell us would be of value to our customers.

**IN FLOWERS** we have undeniably the best selection in America. All the leading and best German and French Pansies. The best and choicest of all the Eckford (the famous English) Sweet Peas. The latest discoveries and creations of that famous horticulturist, Luther Burbank.

Then there is every conceivable kind of garden and lawn tool appliance.

You can hardly afford to get along without **VAUGHAN'S SEED BOOK** write for a **FREE** copy today.

**Vaughan's Seed Store**  
Chicago and New York

84-86 Randolph Street, CHICAGO

**"DOOR-STEP FLOWERS"**

There are two great classes of out-door flowering plants: the **ANNUALS** which are grown from seed each season, and the **HARDY HERBACEOUS** plants which live from year to year. We are large growers and collectors of both classes--38 years experience--and we offer all the best **HARDY** varieties. Send for our 1906 **SEED CATALOG**, which includes also **TESTED VEGETABLE SEED**. Remember we are the largest growers of **STRICTLY HARDY** fruit and ornamental trees and plants in the United States. Established 1868. 1300 acres. **FREE CATALOGS**. **Reliable Agents Wanted**.

The Jewell Nurseries, Box 12 Lake City, Minn.

## EAR SEED-CORN!

Four of the best varieties for sale. Tested, and guaranteed to show good germination, or your money back. Thirty choice ears for 75¢ or one bushel in crates for \$1.75. Same price for graded if wanted. If you want good ear seed corn write before it is all sold.

**Yenn Brothers, Riverside, Iowa.**

# FREE SEEDS

## SENT TO MARKET GARDENERS AND FARMERS.

We want every Market Gardener and Farmer to know what "Northern Crown" seed is and does. How it jumps right up out of the ground and hustles along to maturity in almost no time, while the "lazy" Southern grown seed is taking things easy. We want future customers to know how it is often possible to grow TWO CROPS a season instead of one through using Northern Crown Seed. So we have decided to **GIVE AWAY SEEDS TO THOSE WHO CAN USE THEM**, and who, after they have examined, tested and tried the seeds, and know of their own knowledge how quickly they germinate and how satisfactory they are, will become regular patrons.

Send for Big FREE Catalogue and select the seeds you wish to try (see page 118.) Write today SURE so the seeds will reach you before planting time.

**DARLING & BEAHN, 76 MAIN STREET, PETOSKEY, MICH.**

## BURPEE'S SEEDS GROW!

If you want the **Best Seeds** that can be grown, you should read **The Thirtieth Anniversary Edition of BURPEE'S FARM ANNUAL FOR 1906**, so well known as the "Leading American Seed Catalogue." It is mailed **FREE** to all. Better write **TO-DAY. W. ATLEE BURPEE & CO., PHILADELPHIA, PA.**

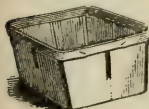


## 42 Plants \$2.50

10 Currant Bushes    10 Gooseberry Bushes  
10 Raspberry Bushes    10 Blackberry Bushes  
1 Concord Grape Vine    1 Niagara Grape Vine

Greatest Bargain yet, 42 plants, all grown, ready to bear fruit, for only \$2.50. Every one should have these lovely fruits growing in their garden. Now is your chance. Order early, and be sure of them.

**BAY STATE PLANT CO., Boston, Mass.**



## Free! Free!

Our catalog of berry-plants, 32-quart berry crates and baskets. Special prices for Feb'y orders.

**H. H. Aultfather**  
Box 3    Minerva, O.

## Trees, Plants & Seeds THAT GROW

Best quality. Good bearers. Low prices. Apple 4c; Plum and Cherry 12c; Peach 4c; all budded; Concord Grapes 2c; Forest Tree Seed-lings \$1 a 1000 up.

Tested seeds very cheap. Freight paid on trees. Catalogue, English or German, free. Address for it today. **GERMAN NURSERIES, Beatrice, Neb.**

**GERMAN NURSERIES**  
Carl Sonderreger, Prop.

## STRAWBERRY PLANTS

The Senator Dunlap is the best grower, best producer, best shipper, best seller. I offer over 1,000,000 of these plants at surprisingly low prices; fifty other varieties. Large variety fruit plants, roses, etc. 22d year. Send for free catalogue. **L. J. FARMER. BOX 608 PULASKI, N. Y.**



## SCARFF'S SMALL FRUITS

I grow millions of small fruit plants that yield luscious fruits. All true to name—full of life. They're money-coiners that will yield **\$300 PROFIT PER ACRE**. My handsome, new catalog of small fruits, fruit and ornamental trees, farm and garden seeds and general nursery stock sent free. Get it—write today. **W. N. Scarff, New Carlisle, O.**

## Strawberry Plants

Virginia and Chesapeake, winners of \$100 GOLD PRIZE ones; also Cardinal, Commonwealth, North Shore, Oaks Early, New York, Glen Mary, Stevens Champion, and 90 others; best list, good stock, fair prices. Dewberries: Lucretia and Austins.

**Seeds** Full line best new and standard old varieties GARDEN, FIELD and FLOWER SEEDS. **Now 60 Page Catalogue Free.** It tells about good plants and seeds and where to get them. Send now to **W. F. ALLEN, Dept. 20, SALISBURY, MD.**





**PIONEER GUARANTEED  
NURSERY STOCK  
AT WHOLESALE PRICES**

All stock guaranteed disease free and true to name.  
Hart Pioneer Stock is pure bred and produces heavy crops.  
Value received for every dollar sent us. No Agent's Commission  
WRITE FOR COMPLETE PRICE LIST. WE WILL SAVE YOU MONEY  
**HART PIONEER NURSERIES, Est. 1867 Fort Scott, Kan.**

## APPLE TREES 7c

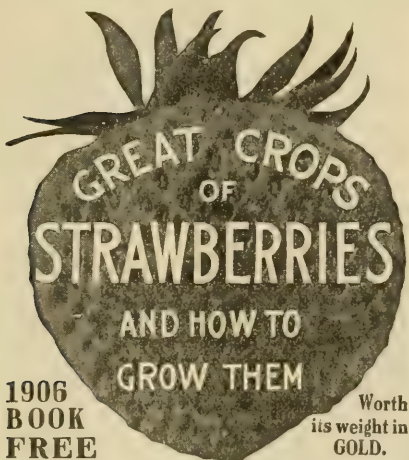


### POPLAR TREES AND ROSE BUSHES, TEN CENTS EACH

**ASPARAGUS**, the most popular vegetable, yields at the rate of \$400 per acre, two year plants 75 cents per 100; \$4.50 per 1,000. Grape vines and fruit plants at low prices. **POPLAR TREES** for driveways, shade and lawns. The most rapid growing trees, 10c to 17 cents each. **ROSES**. A large collection of hardy varieties, also our Live-for-Ever Pink Rose, 10c to 20c each.

### BUY DIRECT FROM GROWER—SAVE 35 PER CENT

Let us price your list of wants. Green's 1906 Catalogue, also copy of Green's Big Fruit Magazine free. Send postal card for them today. **GREEN'S NURSERY COMPANY, 41 WALL ST., ROCHESTER, N. Y.**



**GREAT CROPS  
OF  
STRAWBERRIES  
AND HOW TO  
GROW THEM**

**1906  
BOOK  
FREE**

Worth  
its weight in  
GOLD.

The Book that beats them all because it tells how big crops of big fancy strawberries can be grown every year and how to pick and pack them for big prices. It keeps Experienced Growers posted on new discoveries in plant breeding and latest cultural methods. It takes beginners through a complete course of instruction; tells just when and how to do everything to get **Big Results**, and how to start a Profitable Berry Farm with little capital. Beautifully illustrated with photo-engravings. Don't order your plants until you read this book. It is free.  
**R. M. KELLOGG CO., BOX 400 THREE RIVERS, MICH**



**GOOD SEEDS CHEAP**  
BEST EVER GROWN

A wonderful big catalog **FREE**  
Full of engravings of every variety, with prices lower than other dealers. The book is worth a dollar to any one who plants seeds.  
**Big Lot of Extra Packages Free to Every Customer.**  
Send yours and neighbors address.  
**R. H. Shumway, Rockford, Illinois.**

A beautiful colored plate of our

### New Eaton Red Raspberry

and our strawberry catalog of valuable information about varieties with instructions for beginners. Free to all.

**THE FLANSBURCH & POTTER CO.,  
Leslie, Michigan.**





(Kochia Tricophylla.)

A highly ornamental annual of unusually rapid growth, forming regular pyramids from two to three feet in height, having a cypress-like appearance. The leaves are slender and of a light pea green until September, when they change to carmine and blood-red. Its bright autumn coloring has given it two other names, "Mexican Fire Plant" and "Burning Bush." The seed germinates quickly. Sow indoors in April and plant out in May, or sow in open ground about May 1st. Plants do best in a sunny exposure and in salty soil, about two feet apart. Pkt., 10c; 3 for 25c.

## Vaughan's Seed Store

(Chicago and New York)

84 and 86 Randolph St., Chicago, Ill.



## HOW TO GROW CACTI

is fully explained in the new book just issued, "Cactus Culture for Amateurs," 80 pages, finely illustrated, describes 500 varieties. Tells where found, treatment to produce bloom, soil, how to

graft, how to grow from seed, and where to get all rare Cacti and Succulents, price 25c. 40-page catalogue of Cacti, and nice sample Cactus (named) 10c. E. Texensis (like cut) 25c. Old Man (genuine) 50c. 10 nice Cacti, all different, \$1.00. Circulars free. The Callander Cactus Co., Dept. 42, Springfield, Ohio.

### HARDY EVERGREENS

**12 FREE**

We grow them by the million. To prove they are healthy and vigorous we offer 12 Spruces and Pines 2 years old FREE to property owners. Mailing expense 6c, which send or not. A postal will bring them. Catalog with 43 colored plates of Hardy Fruit etc., free. Write today.

The Gardner Nursery Company, Box 743, Osage, Ia.

# MR. GREEN SAYS

Ask for my catalog.

It's different. If you already have a dozen it is worth while to see mine. It tells you how to grow good Gardens.

I list only the best of garden seeds. You can not go wrong when you order stuff from my catalog, for I tell the plain truth, and illustrate only by half-tones taken from nature. My prices are right. I am sure I can please you.

Remember, a postal today

**E. C. Green & Son**

Seedsman.

**Medina, Ohio, U. S. A.**



OVER FIFTY YEARS of square dealing entitles the dealer to the consideration of all who buy his sort of goods. Reliability and responsibility should always count. Our specialty is and always has been selling direct to the planter, who thus gets the best and pays but one profit. Everything of the best for Orchard, Vineyard, Lawn, Park, Street, Garden and Greenhouse. Rarest new and choicest old. We send by mail postpaid Seeds, Plants, Vines, Bulbs, Roses, Etc., and guarantee safe arrival and satisfaction, larger by express or freight. An elegant 148-page Catalogue FREE. Send for it and see what values we give for a little money. You will be interested in our extraordinary cheap offers of over half a hundred choice collections, in seeds, plants, roses, trees, etc. 62 years, 44 greenhouses, 120 acres.

**THE STORRS & HARRISON CO.,**  
Box 189, PAINESVILLE, OHIO.

## EVERGREENS

### AND FOREST TREES

**That are Sure to Satisfy**

I have been growing evergreens and forest trees for 31 years, always with one idea—trees that satisfy. When you buy Hill's trees you get honest value—highest quality. My catalogue is my salesman; it's free. Contains 48 pages illustrated with beautiful pictures; describes all kinds of nursery stock for all purposes—hedges, windbreaks and ornament. Also fruit trees, shrubs and vines. 50 Best Bargains ever offered—\$1.00 to \$10.00 per 100 Prepaid. Everything first-class, guaranteed exactly as represented. Write for catalog today.

**D. HILL, Evergreen Specialist**  
Dundee, Ill.



# The Big Two of the Poultry Press

go every week to thousands of exclusive readers who buy liberally in the desire to beautify their Rural Homes.

## The Feather

The most conservative and instructive of all monthly journals devoted exclusively to the advancement of poultry culture in all its branches.

## The American Fancier

The great weekly journal devoted to the interest of the business in all its branches, goes continually on Saturday to those most interested in standard-bred poultry.

THE ADVERTISER looking for profitable returns can not afford to neglect the advantages to be gained from the use of the advertising pages of *These Two Journals*.

## Begin Now, the Harvest is at Hand

For special rates send to publishers of this journal or to the home office of the two publications.

## The Howard Publishing Co.

714 12th St. N. W., Washington, D. C.

# Poultry Magazine,



Monthly, 50 to 100 pages, its writers are the most successful Poultrymen and women in the United States. It is

**THE POULTRY TRIBUNE,** nicely illustrated, brimful each month of information on How to Care for Fowls and Make the Most Money with them. In fact so good you can't afford to be without it. Price 50 cents per year. Send at once for free sample and **SPECIAL OFFER TO YOU.**

R. R. FISHER, Pub., Box 85, Freeport, Ill.

## \$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size 8x11 $\frac{1}{4}$  inches) of valuable poultry, pigeon, and pet-stock reading, costing us thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

**Poultry Item : : Fricks, Pa.**

## DO YOU RAISE CHICKENS?

If so, you will find The Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cts. a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

## You Need It. : : : : :

If you have only a few chickens;  
If you are at all interested in poultry;  
If you are breeding for fancy points;  
If you cater to the market trade;  
If you are in the business on large scale, you need

## Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. a year, but we offer it **AT HALF PRICE** for a short time to introduce it to readers of Gleanings. Send only 25 cts. and get it a year; or, if you send us \$1 for a year's subscription to Gleanings in Bee Culture, we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.



## Greider's Fine Catalog

of Prize-Winning Poultry for 1906. This book is printed in several Beautiful Colors and is larger than ever. Contains a Fine Chromo of lifelike fowls. It illustrates and describes 60 varieties of poultry, ducks, geese, pigeons, etc. It shows best

equipped poultry yards and houses—how to build houses; cure for diseases; **Best Lice Destroyer** how to make hens lay; poultry supplies and all kinds of information indispensable to poultry-keepers. Prices of eggs and stock within reach of all. Send 10 cents for this noted book.

B. H. GREIDER, RHEEMS, PA.

## POULTRY PAYS

If you get the right start, the right eggs or fowls and the right materials to work with. Our complete poultry guide pictures and describes all breeds, gives incubating, brooding and feeding directions. It lists **Thoroughbred Fowls and Eggs**, incubators, brooders, poultry rations and everything need-d for profit. **All at lowest prices** and all guaranteed satisfactory or your money back. **Send for Free Book** for 10 cents postage.

American Incubator Co., Box 115, Freeport, Ill.



## FREE! FREE!

Send for a copy of the **INLAND POULTRY JOURNAL**, and receive a fine color picture free. Cost us \$400 costs you nothing. Our paper has the admiration of every poultry man. Have you seen it? Well do not miss it.

Address **Inland Poultry Journal Co.,** 50 Cord Bldg., Indianapolis, Ind.

## BOOK ON POULTRY DISEASES FREE

Conkey's book on Poultry Diseases sells for 25 cts. Full of information on housing, feeding, sickness, and how to care for the flock. Will help you to make money. Send 4 cents to pay postage and the names of two other poultry raisers, and we will send you a copy of this illustrated book of valuable information free.

C. E. Conkey & Co., No. 80, Ottawa Bldg., Cleveland, O.

---"If Goods are Wanted Quick, Send to Pouder."---

Established 1889.

# BEE-KEEPERS' SUPPLIES

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

**EVERYTHING USED BY BEE-KEEPERS.**

Headquarters for the Danzenbaker Hive.



WALTER S. POWDER



OTIS I. MASTEN



A. G. FIELDS



ROBERT R. WOLFE

These are the boys that ship the goods that were made in the house that Root built.

## Conversation with Wilson

"Good morning, Wilson; how are you this morning?"

"I am all right, Smith, except that I have a touch of that rheumatism that always attacks me about this time of the year. Well, Mr. Smith, I have only a few moments to spare this morning and I came over to ask your advice about getting a lot of bee-supplies. I have noticed that your supplies are always nicer than mine. Where would you advise me to send?"

"Send to Pouder, at Indianapolis, by all means."

"But why do you prefer Pouder when I could get my supplies nearer home? You know the woods are full of supply-dealers, and have you noticed what a lot of them are advertising in the bee-papers?"

"Yes, I have noticed all of that, but there are several reasons why I would send to Pouder. You know he handles the A. I. Root Co.'s goods, and you know that means finest quality and more for your money. He fills his orders promptly, and you get a very low freight rate out of Indianapolis. He carries a

## With Apologies to G. M. D.

very large stock of goods, too, and they are bright and fresh from the factory."

"I suppose he makes mistakes in shipping same as all of them do?"

"I suppose he does, but if he does he will make it right with no expense to his customer. That is the way he does business. If you wish, you can trade your wax with him for supplies and he will allow you 30 cents a pound for wax."

"What is his address?"

"Walter S. Pouder, 513, 515 Massachusetts Ave., Indianapolis. Drop him a card and you will get his catalog on return train."

"That is just what I will do, and then I will send in my order. I have heard of this man Pouder before, but we always called him Powder. I do like to have the best of every thing for my bees, especially when the cost is no more than I have been paying. Much obliged to you, Mr. Wilson, and now I will take my cane and hat and go home. Manda said to tell you and Mary to come over and eat dinner with us right soon."

## BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight; always be sure to attach name to package.

# WALTER S. POWDER,

513-515 Massachusetts Ave.,

INDIANAPOLIS, IND.



# Bee = keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

## Good Goods, Low Prices and Prompt Shipments

are the POINTS in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

Page & Lyon Mfg. Co., New London, Wis.

## Dittmer makes a Specialty of Working Beeswax into Comb Foundation

Write for our price list, samples, and early-order Discount.  
We would like to send them to you at our expense.  
Our warehouse is full of bee-supplies.  
Jobbing - Wholesale - Retail.  
Beeswax always wanted.

GUS DITTMER,

--

AUGUSTA, WIS.



H. M. ARND, MANAGER

## YORK HONEY AND BEE SUPPLY CO. Not Inc.

141 ONTARIO STREET : CHICAGO, ILLINOIS

CARRY A FULL LINE OF

### Lewis Bee-supplies and Cornell Incubators and Brooders

and poultry-supplies at factory prices. Write for the 1906 catalog of either or both. Honey for sale. Beeswax wanted; 28 cts. cash, or 30 cts. when taking bee-supplies in exchange.  
Early-order discount, two per cent for March.



# Michigan Distributors

—FOR—

## G. B. Lewis Co.'s Beeware, Dadant's Foundation.

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service. Regular discounts allowed.

**SPECIAL.** A quantity of Dovetail and Wisconsin hives, slightly discolored by water, in packages of five at \$1.25 per hive for 1½-story 8 frame; 10 frame, \$1.40 per hive. Satisfaction guaranteed.

**ADVANCED BEE-VEIL.** Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

**A. G. Woodman Co.,**

Beeswax Wanted.

Grand Rapids, Mich.

# Southern Bee-keepers !

If you want bee-keepers' supplies of best quality and for the least money possible, you should buy them from the WHITE MANUFACTURING COMPANY. Situated, as we are, right near the great pine belt of North Texas, Louisiana, Arkansas, and Indian Territory, we can secure the best material possible at least cost, thus enabling us to give entire satisfaction. Catalog and price list free.

**White Manufacturing Co. - Blossom, Lamar Co., Texas**

## Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

**BEEES AND QUEENS**—Orders booked now for spring delivery.

**HONEY AND WAX**—We handle honey and wax. Write for particulars.

**The A. I. Root Co.**

Northwestern Branch,  
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

## BEE - SUPPLIES

Distributing-house for Lewis' Goods,  
Dadant's Comb Foundation, etc., at  
Factory Prices.

Every thing the bee-keepers need. No order too large for us, nor none too small. Cash orders before February, 6 per cent discount.

### FINE EXTRACTED HONEY × × ×

The best the world can produce. Sample sent, 8 cents. How much can you use? *We always buy beeswax.* Catalog and "Special" free.

**C. M. SCOTT & CO.**

1004 E. Washington St.

**Indianapolis : Indiana**

### BIG DISCOUNT till April 1 ON ALL SUPPLIES

Dovetailed hives, eight-frame, 1½-story, \$1.30; 10-frame, \$1.45. No. 1 sections, \$3.75; No. 2, \$3.25. Foundation, smokers, etc., reduced. Berry boxes, crates, boxes, etc., kept in stock. Honey wanted. Twenty-four page list free.

**W. D. Soper, Rt. 3, Jackson, Mich.**

**PURE ITALIAN QUEENS.**—From red-clover and five-banded breeders. Untested, 75c; select untested, \$1.00; tested queens, \$1.50; select tested, \$2.50. Safe arrival guaranteed.

H. M. PARKER, JR., James Island, S. C.



# BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

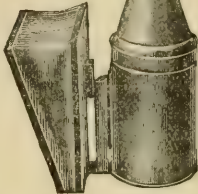
## Kretschmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.  
Trestler Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.  
T. B. Vallette & Son, Salina, Kansas.

### BINGHAM

Original  
Direct Draft  
CLEAN  
Bee Smokers



Pat'd 1878, '82, '92 & 1903

## Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and *last*; don't *spit fire*; don't *go out*; don't *daub* themselves all over. We are the most extensive *exclusively* bee-smoker makers in the world.

**T. F. Bingham - Farwell, Mich.**

Chico, California, October 28th, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.  
J. M. RANKIN.

# A Prosperous

Season is yours....

if you take time by the forelock, and be prepared for the season when it comes. **DON'T** put off ordering your supplies until you need them. Order now, and get the discounts.

I have a full line of Root's Goods, and sell them at factory prices and discounts. Send me a bill of what you want and let me tell you what I will deliver them at your depot for. Send for my 36-page catalog—it will be sent free—also a full description of the Hilton Chaff Hive and Supers, with a comparison made by the Michigan State Agricultural College between the single and double walled hives. All free for the asking. Cash or goods in exchange for wax.

**Geo. E. Hilton, Fremont, Mich.**

## WISCONSIN - BASSWOOD

### FOR SECTIONS

We make them and the very best of **Dove-tailed Hives**, **Shipping-cases**, and a full line of Bee-keepers' Supplies always on hand. We make very prompt shipments. Let us hear from you.

**Marshfield Manufacturing Company**

Marshfield, Wisconsin

**If You  
Want  
Root's  
Goods**

I have them at Root's prices. Also A B C of Bee Culture—one of the best books printed on bees. Catalog free. Address as below. . . . .

**D. Cooley, Kendall, Michigan**

**A. H. REEVES**

DISTRIBUTOR OF ROOT'S GOODS FOR

**NORTHERN NEW YORK**

Perch River, Jefferson Co., N. Y.

# The Quality of Bee Supplies

OUR Bee-supplies are made from the best material, by the most skilled labor. We give an article of superior merit at a great reduction in price. We can do this because we are located in the heart of the lumber district and get our power from the well-known Falls of St. Anthony. Our catalog is a valuable book as it is full of information for the bee-keeper not usually found in a catalog. Write for it to-day.

## Minnesota Bee Supply Co.,

20 Power Building,

Minneapolis, Minn.



## Everything for the Bee Keeper

will be found in our Illustrated Catalogue No. 40. It contains a full line of Hives, Supers, Followers, Sections, Section Holders, Frames, Extractors, Smokers, etc. All these and many other essentials are manufactured by us. Everything is guaranteed to be right and of best quality. Our prices are so reasonable that any bee keeper may afford the best supplies. We cannot tell you here of all the good things in this book.

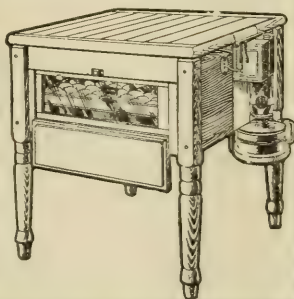
Better send for a copy today. We mail it free, together with a copy of the *Progressive Bee Keeper*, a splendid monthly publication devoted to bee interests. It will help you start right and keep you right after you are started. It is invaluable as an aid to every bee keeper. Ask for the paper and the book.

### We Sell the Best Incubators and Brooders.

Delivered at your station, prices the lowest. Write us at once and save money. Address

**LEAHY MFG. CO., 15 Talmage St., Higginsville, Mo.**

Branches at Omaha, Neb. and East St. Louis, Ill.



## Bees, Queens, and Bee Supplies.

We manufacture standard dovetailed bee-hives and supplies cheaper than you ever bought before. Our queens and bees stand at the head in quality. Untested, 75c each; \$4.25 for 6, or \$8.00 per dozen. Tested, \$1.25 each; \$12.00 per dozen. Select tested, \$1.50 each. Special prices to dealers in large lots on application. State agents for Dittmer's foundation. Catalog free.

**THE BEE AND HONEY CO.,**

Will Atchley, Prop., Beeville, Bee Co., Texas.

## If You Want the Bee - book

that "covers the whole apicultural field more completely than any other published," send \$1.20 to :: ::

**Prof. A. J. Cook, Claremont, Calif.**

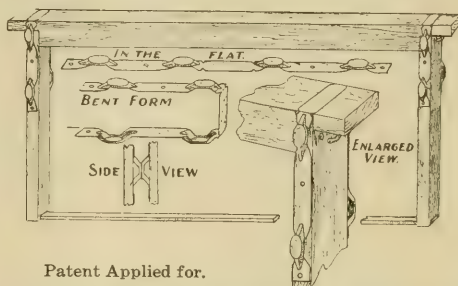
— FOR HIS —

## "Bee-keepers' Guide"

Liberal Discount to the Trade.



# Metal-spaced Hoffman Frame. IN GREAT DEMAND.



Patent Applied for.

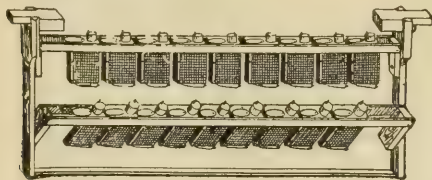
*Has come to stay. Can be used interchangeably with regular Hoffman frames. Has all the advantages of the regular Hoffman. Is not affected by propolis. Can be handled without pry or screwdriver. Has no rights or lefts, and, therefore, can not be put up wrong. See full description in 1906 GLEANINGS, page 16.*

**PRICES.**—Metal-spaced Hoffman frames—100, put up, \$4.50. In flat—10, 35c; 100, 3.00; 500, \$14.00. Metal spacers only—30c per 100; \$2.50 per 1000. Hives with metal-spaced frames, 5c extra each body, 8 or 10 frame, put up or in the flat.

**The A. I. Root. Company, Medina, Ohio.**

## THE ROOT QUEEN-REARING OUTFIT.

In this outfit are embraced the best points of the best systems in use. It will give satisfaction to the amateur as well as the expert. The cell-cups are made of wood, wax-coated. No melted wax is used in their manipulation, as they are attached to the cell-stick by means of a small nail-point.



The nursery cage combines the features of nursery and introducing cages. By their use a queen can be released on the candy plan or caged in the hive as desired.

In connection with the outfit goes a booklet on queen-rearing—one which ought to put the veriest amateur on the high road to success. Outfit comprises three cell-bars with fifty waxed wooden cells, 1 frame cages (20); one cell-forming stick; one set grafting-tools, and a book on queen-rearing, \$4.50.

### Tools for Queen-breeders.

Wood cell-cup, with point for attaching to bar, 50c per 100; \$4.00 per 1000.

Same, waxed ready for use, 75c per 100; \$6.00 per 1000. Titoff wire nursery-cages, 15c each; \$1.35 for 10; \$12.50 per 100.

Frame for holding 20 cages, including cages, \$3.00.

Cell-stick, each 10c; \$1.00 per dozen.

Transferring-needle, double-ended and nickel-plated, 15 cents.

Jelly-spoon, nickel-plated, 15 cents.

We can supply, also, fine-pointed lace-scissors with extra large bows, for clumsy fingers, at 35 cents each.

**The A. I. Root Co., Medina, O.**

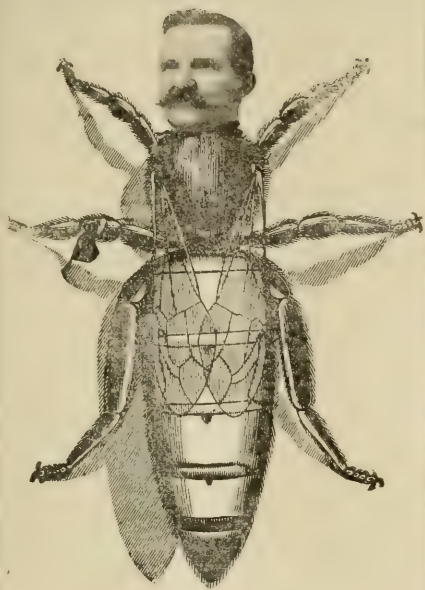
## FIRST-PRIZE MEDALS

For largest strawberries and gooseberries shown at St. Louis Fair. Catalog.  
A. T. Goldsborough, Wesley Heights, Washington, D. C.

## Convention Notices.

Mr. W. A. Selser has resigned his position of Director of the National Association. The Executive Committee has reluctantly accepted the resignation, and appointed Mr. Jas. A. Stone, of Springfield, Illinois, R. 4, to fill the vacancy.  
C. P. DADANT, President.

The second annual convention of the Pennsylvania State Bee-keepers' Association will be held at State College, Center Co., Pa., March 29 and 30, 1906. The first session will be at 7:30 P.M., March 29, and will be devoted to addresses by the President and Secretary, and reports of officers and committees, election of officers, and general business. On Friday, the 30th, there will be three sessions—forenoon, afternoon, and evening, all at the Pennsylvania State College, at State College (postoffice and railroad station by the same name). Among the speakers will be Dr. E. F. Phillips, Messrs. E. R. Root, E. L. Pratt, the President and Secretary of the Association, and others. Excursion tickets for the round trip will be sold at one and one-third fare, upon the presentation by purchasers, at time of buying ticket, of a card order. These card orders are to be obtained free by writing to either Rev. D. L. Woods, Secretary, Muncy, Pa., or Prof. H. A. Surface, President, State College, Pa. All interested in bee-keeping are invited to attend, as this will be an important and interesting meeting. Write to the officers mentioned above for the card orders for excursion rates. Lodging and meeting rooms will be given free of charge by the Pennsylvania State College, and the only cost while there will be 25 cents per meal for board.  
D. L. Woods, Sec,



## California Beats the World.

An expert horticulturist has succeeded in grafting the strawberry on the milk weed, and we now have strawberries and cream the year round in California. But our new bee beats that.

I HAVE HAD OVER THIRTY YEARS' experience in the bee business, twenty-three years in California with large apiaries. Have produced hundreds of tons of honey, and know what kind of bees it takes to do the work. And that is the kind we offer to sell at a living price.

1 Untested Queen, \$1.00

6 Untested Queens, 5.00

12 Untested Queens, 9.00

Tested Queens, \$2.00 each.

Breeders, \$5.00 each.

We have both the Leather and Golden bees. Either strain same price.

I have also 85 tons of No. 1 sage honey for sale.

ADDRESS

L. E. MERCER, VENTURA, CALIFORNIA.

## COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.

## QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatever ye would that men should do to you, do ye even so to them."

MALAN BROTHERS, Luserna, San Giovanni, Italy.

## TAYLOR'S ITALIAN QUEENS FOR 1906

Leather-colored and golden Italians. I have made it a specialty for 18 years to breed for the best honey-gatherers of these races, and I have not been able to get any other stock that will store as much honey as my strains, gentle and beauties. Untested, 75 cts. each; \$3.00 per dozen. Tested, \$1.00, or \$11.00 a dozen. Select tested, \$1.50. Breeders, \$3.00 to \$5.00 each. I guarantee safe arrival on all queens. Untested Caucasians, queens, \$1.00 each. Send your orders to

J. W. Taylor, Beeville, Texas

## GOLDEN ITALIAN QUEENS

For season of 1906. Same old stock.

Write for circular, prices, etc.

J. B. CASE, Port Orange, Fla.

1906 Italian and Caucasian Queens Price list now ready. Write E. E. LAWRENCE, Doniphan, Mo.

## Quality Queens

Are the Best Italians yet.

Send for circular. ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀

H. H. JEPSON,

182 Friend St., - Boston, Mass.

## California Sage Queens.

For the coming season I am breeding choice Italian queens from best honey-gathering strains of bees that are hustlers. No disease of any kind has ever been in or near my apiary. Prices: choice untested, \$1.00; six, \$4.50; tested, \$1.50; six, \$8.00. No small or inferior queens sent out.

J. W. GRIFFIN,

528 Gladys Ave., Los Angeles, Cal.

## TRY ONE OF MY \$1.00 RED CLOVER BREEDER'S DAUGHTERS.

After May 1st, untested, 50c; 13 for \$6.00. Select untested, 75c; 13 for \$9.00; tested, \$1.00; 13 for \$12.00; select tested, \$1.50 each. Breeders, \$2.50 each. Extra select breeders, \$3.00 each. Nuclei, \$1.75 per frame without queen.

H. A. ROSS,

1709 UPPER 2D ST., EVANSVILLE, IND.

## Now Ready, Italian and Red-Clover Queens

I guarantee safe arrival and perfect satisfaction. Untested, 60 cts.; select untested, 75 cts., or \$8.00 per dozen. Tested, \$1.00, or \$10.00 per dozen. Breeders, \$1.50 each.

R. O. COX,

Rt. 4, Greenville, Ala.

PRICES for Maturing Brood this Season will be same as in 1904, when I practically sold out my apiary. Will furnish queens at equally low prices, untested or tested, during May and June. Brood-combs wired; in nuclei or in bulk, to reinforce weak colonies.

B. F. AVERILL, Howardsville, Va.



## Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws apiaries, and double your crop of honey.

### I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season. I also offer another car of bees the coming season.

**PRICES:** Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

**W. H. LAWS, BEEVILLE, BEE CO., TEXAS.**

## Caucasian - and - Italian - Queens from California

Prices: CAUCASIAN—One tested, \$3.00; one best breeding, \$6.00; one imported from Caucasus, \$7.00. ITALIAN—One untested, \$1.00, six for \$5.50, 12 for \$10.00; one tested, \$1.50; one best breeding, \$5.00. Caucasians bred from the best imported breeding queens. Italians bred from breeding queens we procure from principal breeders of this country who have the best honey-gatherers. Nuclei and full colonies of bees. Send for particulars, and see our adv. in GLEANINGS, February 1st.

**A. E. Titoff, Ioamosa, San Bernardino Co., California**

## Rose Lawn Queens

Leather-colored and golden Italians or Carniolans. Unsurpassed for beauty, gentleness, and honey-gathering. Our location insures absolute hardness and prompt shipment to any portion of the country. Our apiary is stocked with breeders from the choicest strains in America. Select queens, \$1.00; six, \$5.00. Tested, \$1.50; six, \$8.00. Few choice breeders, 1 yr. old, at \$3.00. Caucasians from imported breeders after June 1st.

**Rose Lawn Apiary, Lincoln, Nebraska**

Frank G. Odell, Proprietor

## CAUCASIAN QUEENS!

For beginners, the timid, and the city bee-keeper. Not stingless, but gentle. With this race many will master the art of handling bees. I breed HIGH-GRADE ITALIAN QUEENS also. The demand for these queens is great; the supply is limited. Write for particulars to-day. Address

**Robert B. McCain, Yorkville, Ills. R. F. D.**

## Superior Stock

I make a specialty of long-tongue  
Italian, Carniolan, and Caucasian,

Rearing only from best stock obtainable. My Italian queens are unexcelled; my Carniolans and Caucasians from best imported queens. All races bred in separate yards to insure purity. A postal will bring my price list for 1906.

**CHARLES KOEPPEN**

Fredericksburg, Va.

## PURE ITALIAN BEES!

The most beautiful, gentle, prolific, best working, and being long-tongued, best honey-gatherers. **Prizes**—VI. Swiss Agricultural Exhibition, Berne, 1895; Swiss National Exhibition, Geneva, 1896; Bee-keeping Exposition, Liege, Belgium, 1895; Universal Exposition, St. Louis, U. S. A., 1904. **The Highest Award.** Extra select breeding Queen, \$3.00; six, \$16.00; dozen, \$30.00. Selected Queen, \$2.00; six, \$11.00; dozen, \$20.00. Young fertilized queen, tested, \$1.50; six, \$9.00; dozen, \$16.00. Special prices for 50 and 100 queens. The addresses must be clear; payments by postal money orders. If by chance a queen dies upon the journey she is to be returned immediately, with a postal certificate, and another queen will be sent gratis. Address

**Anthony Biaggi,**

Pedeville, near Bellinzona, Italian Switzerland. This country is politically the Switzerland Republic, but lies geographically in Italy, and possesses the best kind of bees known. Bee-keepers of the Far West can give their orders to my brother Stefano (Stephen) Biaggi, farmer, resident at Wash, Plumas Co., California, who will kindly collect orders. In writing, mention GLEANINGS.

## Pure Caucasian Queens!

Bred in their purity, at the foot of the glaciers, 1½ miles high, by "Etablissement d'Apiculture Mont Jovet, Albertville, Savoie, France, official breeder for U. S. Government." We supply, too, imported Caucasian queens. Safe arrival guaranteed. Select untested queen, \$2.00; six, \$11.00; twelve, \$20.00. Select tested queen, \$2.50; six, \$14.00; twelve, \$25.00. Full rates on application. English correspondence.

## QUEENS.

Italian, Carniolan, and Carni-Italian Cross.

Can supply select untested queens at 75c each; three for \$2.00; six for \$3.50. I am now booking orders for early delivery.

**George W. Barnes,**

138 N. Pleasant St.

Norwalk, Ohio.

# BEES and QUEENS

## The Three-banded Long-tongued Strain of Italians.

"We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

### Superior Qualities.

✓ Honey-gathering, size of bees, non-swarming, docility, uniform markings.]

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price.

### Quality Our Motto.

1300 colonies to select from.

Untested queens.....\$1.00; 6, \$5.00; 12, \$ 9.00  
Select untested queens..... 1.25; 6, 6.00; 12, 11.00  
Tested queens..... 1.50; 6, 8.00; 12, 15.00  
Select tested queens..... 2.00; 6, 11.00.  
Breeding queens, \$3.00 to \$5.00.

Yours for best service,

**The Victor-Knolle Apiary Co.,**  
Hondo, Texas.

## Red-clover Queens from Westwood Apiary

will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.

Henry Shaifer . . . . . Westwood, Ohio

## MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, \$1.00; six, \$5.00; twelve, \$9.00. Tested, \$1.50; six, \$8.00. Best breeders, \$3.50. Safe arrival guaranteed.

**W. H. Rails, - - - Orange, Calif.**

**H. C. Simpson, Catawba, S. C.**

Dealer in

**BEE - KEEPERS' SUPPLIES!**

Breeder of Italian bees and queens.  
Root's Goods a specialty.

### APRIL 1st

I will commence filling orders for queens. Send your orders early to avoid the rush. I will have nuclei for sale at the following prices: f. o. b. Charleston, S. C.: One-frame nucleus, \$2.00; two-frame nucleus, \$2.50; three-frame nucleus, \$3.00; one colony in Dovetailed hive, \$7.50. If queens are wanted with nuclei, add price of them to price of nuclei. See ad. elsewhere.  
H. M. Parker, Jr. . . . . James Island, S. C.

## ITALIAN QUEENS AND GLEANINGS.

For \$1.10 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

**W. T. CRAWFORD, Hinston, La.**

**IMPORTED - CAUCASIAN - QUEENS**  
are the mothers of my stock. Prices: Tested queens, \$3.00; untested, \$1.50; red-clover Italians, Carniolans and Carnio-Italians bred from best stock obtainable. Prices: Tested queens, each \$1.50; warranted, each \$1.00; untested, 6 for \$5.00; untested 12 for \$9.00. After May 15, by return mail. Satisfaction guaranteed.

Rev. J. G. Baumgaertner, New Memphis, Ill.

# Aliso Apiary

For queens, bees, nuclei, supplies, etc., send for price list.  
Root's standard goods. Address

**ALISO APIARY, El Toro, Orange Co., Calif.**

## Good Business

judgment would not allow a bee keeper to stock his apiary with poor stock when good stock can be had just as cheap.

### "Extra Honey Queens"

are good stock, and cost no more than poor, while poor stock is dear at any price. Get the best.

### Prices

One.....\$1.00      Six.....\$5.00      Twelve..\$9.00

Satisfaction, or your money refunded.

**Francis J. Colahan**  
**Bernardo, San Diego Co., Calif.**

## From Long-tongued Imported Italians.

Trial queen, 60c; only one at this price. Untested, 75c; \$7.50 per doz. Tested, \$1.25; \$12.00 per doz. Breeders, \$2.00 to \$3.00. Send for particulars.

**E. E. MOTT, Glenwood, Mich.**

## Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

**The JENNIE ATCHLEY CO.,**

Box 18, Beeville, Bee Co., Tex.

**Queens!** Select three or five banded, \$1.00; tested three or five banded, \$1.25. Ready for delivery April 1st. Write for circular. Daniel Wurth, 1111 No. Smith Street, San Antonio, Texas

### CUE-YOUGH-TWOESE-EN-ESS.

Buy ower weigh trates ov swmers & sel bilders kant b kohnvneighed 2 quenes thoooud an thense twol larvie, & kweans plumpin erbout eeten ther phooowdd. Direct strait 2  
C. W. DAYTON, Chatsworth, Calif.

FOR 14 YEARS

**I. J. STRINGHAM**

OF 105 PARK PLACE

**NEW YORK**

has been furnishing bees and apiarian supplies of every desired kind to bee-keepers of the East. A very liberal discount is now allowed early orders.

Apiaries, Glen Cove, L. I. - - Catalog free.



## Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 25 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—Seventy-five colonies of bees in Penn.  
S. L. 136, care of GLEANINGS.

**WANTED.**—To exchange or sell thoroughbred homer pigeons.  
A. I. WEIDNER, Arendtsville, Pa.

**WANTED.**—Bee-men to write. C. W. WAUTEL, Folkston, Ga. Best location; two railroads.

**WANTED.**—To exchange a Winton automobile for bees or other offers. E. M. GRAVES, Wakeman O.

**WANTED.**—Bees—carload or smaller lots. Cheapest man gets the order.  
G. RUTZAHN, Biglerville, Pa.

**WANTED.**—Raw furs of all kinds. The highest cash prices paid. Prices on application. Goods held separate if you wish. O. H. MORLEY, Hector, N. Y.

**WANTED.**—About 100 colonies of bees from Maryland or Carolina, located near the water.  
I. J. STRINGHAM, 105 Park Place, New York.

**WANTED.**—To exchange, bee goods, watch, bicycles, telephones, engine, for bees.  
141 Armitage Ave., Chicago, Ill.

**WANTED.**—Live wild animals, birds, and reptiles, large or small, from Mexico and foreign countries. I pay cash.  
O'FLYNG, Taylorville, Ill., U. S. A.

**WANTED.**—Refuse from the wax-extractor, or slumgum. State quantity and price.  
OREL L. HERSHISER,  
301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—To exchange Spanish Maltese hornless milch goats, Watchmaker tools and work-bench, for 8-frame 2 story L. size hives, Hoffman frames, Cowan extractor.  
OSCAR LAMONT, Oakwood, O.

**WANTED.**—For delivery in Virginia, about fifty colonies of bees in Danzenbaker hives; must be free from disease. Prefer pure Italians. Quote lowest price with full particulars.  
H. G. L., care of GLEANINGS, Medina, Ohio.

**WANTED.**—Old books on bee culture, especially from foreign countries. Please state titles, authors, year of publication, edition, binding, condition, number of pages, and price wanted.  
A. L. BOYDEN, Medina, Ohio.

**WANTED.**—Italian bees in the South for early Northern trade. Prefer them from some point near the ocean routes. State what you have to offer, with full particulars. Want also about 200 untested Italian queens. Box 10, care of GLEANINGS, Medina, Ohio.

**WANTED.**—Every bee-keeper who takes GLEANINGS to send in the subscription of one or more friends. For three new subscriptions at \$1.00 each we will give a copy of the 1905 edition of A B C of Bee Culture. Sample copies to show your friends will be sent upon request.  
THE A. I. ROOT CO., Medina, Ohio.

**WANTED.**—Beeswax. We are paying 28 cts. cash or 30 cts. per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 East Erie St., Chicago, 44 Vesey St., New York city, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.  
THE A. I. ROOT COMPANY, Medina, Ohio.

**WANTED.**—To exchange 500 chaff hives, also Carniolan queens, for honey (hives in flat). Both are as good as can be produced. I have a good market for best quality of white-clover honey and a little buckwheat, but can not raise profitably. Will allow Chicago price for honey. No poor grades of honey wanted.  
W. W. CRIM, Pekin, Ind.

## Help Wanted.

**WANTED.**—A young man of good habits and active in work, to take care of 50 or 60 stands of bees and work on the farm when not needed with the bees.  
GEO. M. KELLOGG, Pleasant Hill, Mo.

**WANTED.**—Two young men to work in apiary and on farm of 80 acres. I am one of the largest producers of honey in this state. Will give my experience and fair wages. For particulars address  
HERBERT MANLEY, Route 3, Sandusky, Mich.

**WANTED.**—Two practical bee-men, experienced in producing comb and extracted honey. Single American men, not over 35 years, preferred; wages \$40 per month and keep. Must come before April 15.  
C. F. GRAHAM, Sacramento, Cal.

**WANTED.**—Young man to work in apiary, and do other work on ranch when there is no work with bees. Can give work the year round to right kind of man.  
J. S. APPLETON, Simi, Ventura Co., Cal.

## Wanted, Situations.

**WANTED.**—Young man to take care of an apiary of 300 colonies, and carefully pack supplies for shipping.  
TRESTER SUPPLY CO., Lincoln, Neb.

## For Sale.

**FOR SALE.**—Twenty White Rock eggs, \$1.00.  
F. E. SCHRIVER, Rt. 2, Forest, O.

**FOR SALE.**—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog.  
F. R. DANIELS,  
117 Florence St., Springfield, Mass.

**FOR SALE.**—Best land for bee-keepers, farmers, dairymen. Cheap. Write us.  
WRIGHT-ROBINSON, Cumberland, Wis.

**FOR SALE.**—Pigeons, fine homer stock, \$1.00 and \$8.50 per pair.  
Wisteria Villa Aviary,  
GOULD & WATERBURY, Springdale, Conn.

**FOR SALE.**—Eggs to set. Fine Barred Plymouth Rocks 15 for \$2. No better stock raised anywhere. Orders promptly filled.  
G. H. CRUZAN, Jacksonville, Ill.

**FOR SALE.**—Eggs for hatching from a superior egg-producing strain of S. C. White Leghorns, \$2.00 for 15, \$3.75 for 30, \$10.00 for 100.  
J. F. RASCH, Marilla, N. Y.

**FOR SALE.**—White Wyandotte cockerels, Duston strain, fine birds, at \$2.50 each. Also eggs for setting, at \$1.00 for 15.  
C. A. GRAVES, Shelby, O.

**FOR SALE.**—Early and late seed potatoes as good as money can buy, 40 to 70 cts. a bushel. Write for circular.  
S. L. RHONE, Evart, Mich.

**FOR SALE.**—Rosecomb Buff Leghorn eggs, \$2.50 for 15, \$10.00 per 100; largest breeder and finest flock in the world; largest and best layers of all Leghorns. Gold Dust (original).  
F. BOOMHOWER, Gallupville, N. Y.

**FOR SALE.**—Root's bee-supplies at factory prices: full colonies Italian bees; queens in season (catalog free); Plymouth Rock chickens and eggs; incubators, brooders, poultry food, etc.  
H. S. DUBY, St. Anne, Ill.

FOR SALE.—White Wyandotte eggs, \$4.00 per 100; \$2.00 per 45, or \$1.00 per setting. CHAS. W. BARNES,  
138 N. Pleasant St., Norwalk, O.

FOR SALE.—15 White Wyandotte eggs, \$1.00; nice cockerels, \$1.00 each, Duston strain, seed corn. Circular. J. F. MICHAEL, Winchester, Ind.

FOR SALE.—Cheap, a place of four acres in one of the best locations for bees in New York State. Have taken 300 lbs. of comb honey from one colony in a season. G. H. ADAMS, Box 976, Schenectady, N. Y.

FOR SALE.—Trees by mail; one-year-old peach and apple trees, 10c each; \$1.00 per dozen. Guaranteed true to name and free from disease.

G. A. HAPER, Bathtown, Ill.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to FRANK S. STEPHENS,  
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Bees; the right kind, right prices. Safe arrival and satisfaction guaranteed. Ask for illustrated Outfits for Beginners, price list, and our hints on buying bees. MASON SUPPLY CO., Mechanic F's., Me.

FOR SALE.—100 colonies of pure Italian bees in eight or ten frame new Dovetailed hives with Hoffman frames; tested queen in each colony. Price \$6.00 each. In lots of ten, \$5.00 each.

F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season. W. N. CANNON, Greenville, Ala.

FOR SALE.—Three untested Italian queens for \$1.00 after July 1, if ordered now; warranted pure mated, 10 cts. extra. Satisfaction, or money back. Only 300 at this rate. All you want as long as they last. Orders filled in rotation. Particulars free.

S. F. TREGO, Swedona, Ill.

FOR SALE.—Fine home in Glenwood, Wis.; one large house and two lots in the city, and two acres with large building 25x100 feet (very suitable for bee-supply factory), 150 colonies of bees all in good condition; one of the best white-clover and basswood localities for bee-keeping. Write for particulars.

J. GOBEL, Glenwood, Wis.

FOR SALE.—An 8-room 2-story frame house, bee-cellar, coal-cellar, soft water, 2 lots, also 85 colonies bees in 10-frame Jumbo hives; 141, 10, 25, 8-frame Langstroth supers; 1250 clean extracting Langstroth combs; 9 ft. by 4 ft. solar wax-extractor pans, holding 500 lbs.; 1 reversible extractor, 2 other kinds; storing cans; 100 excluding zincs, enough fixings for 100 colonies with good honey business. Will sell bees separate or with property. W. BOWLING, Louise St., Stratford, Ont., Can.

## Regarding our Advertisers.

Mr. W. N. Scarff, New Carlisle, Ohio, is an enthusiast on small fruits. He says, "There are not enough raspberries, strawberries, blackberries, and other small fruits of the right quality to satisfy the commission men in the markets of the big cities. As much as \$300 profit per acre can be made from scientific culture of these fruits." Mr. Scarff is willing to tell how, and to send a catalog free to any one who may write, mentioning this paper.

A very neat and nicely arranged catalog of grapevines and general nursery stock has reached us. It comes from Mr. Lewis Roesch, the nurseryman of Fredonia, N. Y. Certainly there can be no better grounds on which to grow grapevines than those along the shore of Lake Erie. From this district come some of the finest grapes in the United States. It pays to buy from a specialist in nursery stock as in most other things, and we do not know of a better place to buy grapevines than from Mr. Roesch. Should you wish a copy of the catalog we refer to, just write, mentioning GLEANINGS, and one will be sent free.



### MAPLE SUGAR AND SYRUP.

The season is here when the sugar maple produces its delicious sweets. Quite a little syrup and some sugar has already been harvested, and we may have more when the weather warms up again. We offer choice syrup at \$1.20 per gallon, or \$1.10 in ten-gallon lots. A limited amount of sugar at 12 cts. per pound.

### SWEET-CLOVER SEED.

We are practically sold out of all kinds of sweet-clover seed, both hulled and unhulled, white and yellow. We have got track of two small lots which we will use in filling orders already received, as far as it will reach. This is not the best time of year to find it unless some one has it stored away gathered from last year's crop or before. If any of our readers can put us in communication with any one having seed for sale we should like to hear from such with sample and price.

### TRADE AND PROSPECTS.

Prospects are fair for a honey crop in parts of California, judging from the early rainfall. The outlook is good in other localities, and demand for goods is increasing. The early-order cash discount during this month is 2 per cent. After March, no discount. Recent prices quoted on pine lumber for hives are higher than we have ever paid, and an advance of about twenty per cent over the cost of our present stock, which we estimate is sufficient to see us through this season.

### WIRE-CLOTH SEPARATORS.

The editorial in last issue on wire-cloth separators has called forth numerous inquiries for samples and price. We are not yet equipped with tools and dies for making these most economically, and, in fact, the form best adapted for use has not been fully decided upon. The supers which we have made for different customers in New York State, and which are kept for sale at our Syracuse branch, are of a special form, either eight or ten frame wide. The section-holder has both top and bottom-bar, and a pressure screw through one end-bar by means of which the four plain sections are clamped and held in line with the section-holder, and it is handled as a hanging frame. Tin spacers are attached to each end of the section-holder at the top. The wire cloth separator bound with tin has spacers on the bottom at each end, and special spacers are provided at each side of the super. When all the section holders and wire-cloth separators are in place the space is filled without the use of springs, and the wire cloth separators are held in position without any point of contact with the sections. When a section-holder is raised half an inch it is free from the spacers, and may be lifted off freely. The great advantage of this arrangement is the ease and rapidity with which the contents of a super may be examined or removed, and the absence of any point of contact with the sections to be propolized. The supers regularly furnished are all made for the 4x5x1½ plain sections, and cost, without sections or foundation starters, \$4.50 for 5, in flat, eight-frame; \$5.00 for 5, ten frame. A sample of either, put up ready for use, will cost \$1.50. For those who want to try the wire-cloth separator in ordinary supers, in place of fences for plain sections, we will undertake to furnish them with the regular wood-end cleats; and no intermediate cleats, at 8 cents each. In using these separators which are spaced, and held in line only at the ends, it is important, before placing them in the super, to see that they are straight. If they are inclined to bow one way or the other they should be sprung in the opposite direction until they are straight. It will also be necessary to wedge the sections in the ordinary section-holder so as to hold them in position, even with the edge of the same. This is important to provide proper bee-spaces, and insure the comb being built entirely within the section and not projecting from either face beyond the edge of the wood.



# THE SWARTHMORE SYSTEM OF QUEEN-REARING

**W**HY DEVOTE your entire attention to honey production? You say you can buy your queens cheaper than you can rear them yourself. Possibly this is a mistake. Every honey-producer should acquaint himself with the best methods of rearing queens so as to supply his own yard at the greatest economy. With a Swarthmore Outfit and a good breeding queen you will find no difficulty in stocking your colonies with vigorous young queens. Queen-rearing is a science; but with a careful study of the books we list low, and an outfit, you will be surprised at the ease with which queens are raised, and the dollars you will save. Get a good breeding queen to breed from.

## Swarthmore Books

**CELL-GETTING.**—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life, and vividly showing all the labor-saving points in the best cup system ever invented. Price, postpaid, 50 cents.

**BABY NUCLEI.**—In this book Swarthmore thoroughly covers the field of small mating nuclei management. He has had twenty years' experience in mating young queens from section combs with but a handful of bees, and feels competent to write on the subject. Price, postpaid, 10 cents.

**INCREASE.**—This little book interests all who are anxious for profitable increase. It tells how to form new colonies without breaking the full ones; no labor; little trouble; safe introduction of queens directly. The colony formed on this plan works like a new swarm. Price, postpaid, 25 cts.

During the winter of 1903 I lost all my bees excepting a colony of Goldens. By Swarthmore's method of "Increase" I have made good all losses, and have just taken off seven full-depth supers of honey.—Geo. H. Mohler, Pa.

# Swarthmore Queen - rearing Outfits

## Prices of Complete Outfits:

### Outfit No. 1—Experimental

Postpaid, \$1.50

- |                       |                    |
|-----------------------|--------------------|
| 1 Cell-bar,           | 1 Holding-frame,   |
| 16 Waxed Flange Cups, | 12 Transfer-cages. |

### Outfit No. 2—Amateur

Postpaid, \$3.50

- |                      |                    |
|----------------------|--------------------|
| 2 Cell-bars,         | 1 Holding-frame,   |
| 35 Waxed Flange Cup, | 18 Transfer-cages, |
| 1 Needle,            | 1 Cell-stick.      |

### Outfit No. 3—Professional

By Freight or Express, \$7.50

- |                        |                          |
|------------------------|--------------------------|
| 2 Blank bars,          | 2 Cell-bars,             |
| 3 Holding-frames,      | 1 Incubating-cage,       |
| 1 Cage-pocket,         | 1 Grace Cell-compressor, |
| 1 Grafting-plug,       | 100 Flange Cups,         |
| 2 Double mating-boxes, | 2 Swarth. nursery-cages  |
| 1 Bar-holder,          | 24 Transfer-cages,       |
| 1 Swarm-box with lid,  | 1 Needle, 1 Stick.       |

## Prices of Separate Parts: post. extra

|                                           |        |     |
|-------------------------------------------|--------|-----|
| Bar-holder .....                          | \$ .10 | .04 |
| Blank Bar .....                           | .05    | .04 |
| Bottle Feeder .....                       | .10    | .05 |
| Bulb Filler and Feeder .....              | .75    | .08 |
| Breeding-queen Hive .....                 | 1.00   |     |
| 16-hole Cell-bar .....                    | .10    | .02 |
| Cage-pocket .....                         | .25    | .09 |
| Flange cups, unwaxed, 1c each; per 100.   | .75    | .09 |
| Flange-cups, waxed, 2c each; per 100....  | 1.75   | .14 |
| Grace Cell-compressor, each .....         | 1.75   | .14 |
| Grafting-needle, each .....               | .15    | .01 |
| Grafting-plug, each .....                 | .10    | .01 |
| Grafting-stick, each .....                | .10    | .01 |
| Holding-frame, each .....                 | .10    | .05 |
| Incubating-cage, each .....               | .35    | .07 |
| Double Mating-boxes, complete, \$1.00; 10 | 7.50   |     |
| Nursery-cages, complete, waxed cell-cup   | .35    | .05 |
| Nursery-cages, no cups .....              | .25    | .04 |
| Swarm-box, with lid .....                 | 1.00   |     |
| Swarm-box, lid only .....                 | .25    |     |
| Trap-box .....                            | .50    |     |
| T Stands, each .....                      | .10    | .06 |
| Transfer-cages .....                      | .10    | .02 |

FOR SALE BY ALL DEALERS IN BEE-KEEPERS' SUPPLIES

TO THE  
**BEE-KEEPERS**  
OF CANADA

WE ARE pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we are not able to offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers. Moreover, what we do list we propose to keep in large quantities, and will be able to ship promptly.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

**E. GRAINGER & COMPANY**

Deer Park

**Toronto - Ontario - Canada**

CANADIAN AGENTS FOR  
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

Root's   
**Bee - supplies**

You know what this means.

Four carloads of new goods on hand. Our business increased last year 100 per cent over 1904. This is proof that we are saving our customers money.

Why not let us do the same for you? Low freight rates from Toledo. Large discounts. It tells the story. Two per cent discount this month on bee-supplies. . .

**Model Incubators. .**  
**. . . . and Brooders**

Made by Charles A. Cyphers. Poultry-supplies of all kinds. Eggs for setting and stock for sale. Our new eighty-page illustrated catalog describes all of these well-known goods. Sent free. Don't be without it. Don't delay. Send to day.

**Griggs Brothers**

523 Monroe St. : Toledo, Ohio

**Bee-Supplies**

**For Southern**

**Bee-Keepers**

I have been over 20 years in the bee-supply business, manufacturing hives and fixtures, and raising bees and queens. With all this experience and the excellent facilities I have, I am able to fill your orders promptly, and give absolute satisfaction. Though I make my own hives I carry a complete stock of The A. I. Root Company's manufacture. Just specify "Root's Goods" and you will get them.

**Bees and Queens**

I breed with scientific, intelligent methods, from the best Imported and Long-tongued stock. Cheap queens may be had elsewhere. My stock is worth every cent of the price. You will be pleased with it. I GUARANTEE IT.

**64-page Catalog**

of Supplies and Bees sent free. Tell me you saw my ad. in GLEANINGS.

**J. M. JENKINS**

**WETUMPKA : ALABAMA**

**CENTRAL**  
**PENNSYLVANIA**

I am in an unexcelled position to furnish bee-keepers within a hundred miles of Williamsport with Root's bee-keepers' supplies. We have four railroads and three express companies — Adams, American, and the United States. Can deliver goods with great promptness, and save you freight charges. Wholesale or retail. Also can supply you with pure-bred Italian and Caucasian bees in season. Write for our price lists.

**E. E. PRESSLER**  
**WILLIAMSPORT, PENN.**



# SUPREME EXCELLENCE

is only another name for OUR Make of

## BEE-KEEPERS' SUPPLIES

---

Have you ever used them? If not, give us a trial order this spring. We will do our best to please you. Our prices are as low as any; and if our goods aren't as we claim you'll not have to pay for them.

~~~~~

We allow a discount of 2 per cent
for orders received in March

~~~~~

**The W. T. Falconer Manufacturing Co.**  
Jamestown, New York

Dadant's

## Foundation

It Excels

**Every Inch Equal to Sample**

Beauty! Purity! Firmness!  
No sagging; no loss.  
Twenty-eighth Year.  
We Guarantee Satisfaction.  
Wax Worked into Foundation.

~~~~~

Bee-supplies of All Kinds

~~~~~

Beeswax wanted at all times.  
Send for Our 1906 Catalog.

~~~~~

Dadant & Sons, Hamilton, Ill.

New Goods-Big Stock

New Warehouse, Root's Goods,
Prompt Shipment, Low Freight.

Everything for the Bee-keeper at Savannah, Ga.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. . . .

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog sent free. Correspondence solicited. .

HOWKINS & RUSH

124 West Liberty Street

SAVANNAH - - GEORGIA

GLEANINGS

IN BEE CULTURE



THE A. I. ROOT CO.,
MEDINA, OHIO.

Eastern Edition

Entered at the Postoffice Medina, Ohio, as Second-class Matter



Our New Manager at Washington, D. C.

MR. H. G. LA RUE is now the manager of our branch at 1100 Maryland Ave., S. W. Mr. La Rue is a bee-keeper of considerable experience. He is also a graduate of one of the best business colleges in Ohio. Our customers are assured of prompt and satisfactory treatment. Freight and boat rates from Washington to the South are very low.

The A. I. Root Company
1100 Maryland Av., S. W.
Washington, D. C.

Root's Bee-supplies at Root's Prices

But f. o. b. Baltimore instead of Medina. Write for catalog I.

Rawlings Implement Co.
Baltimore : : Maryland

NORTHEASTERN & NEW ENGLAND BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine
MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

MISSISSIPPI

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders.



Bees and Queens
from Select Stock

Correspondence Solicited.
GEO. A. HUMMER,
BRAZELIA, - MISSISSIPPI
Shipping-point, Macon

PENNSYLVANIA

April is the best month to buy supplies. Get everything in shape before the swarms come.

ROOT'S GOODS AT ROOT'S PRICES

We handle the trade in Pennsylvania for these goods, wholesale and retail. Best shipping facilities. Big stock.

Frank W. Prothero
Successor to Prothero & Arnold
Dubois, Clearfield Co., Pennsylvania

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusively, at Root's Factory Prices.

Give me your order for the **BEST GOODS MADE**. You will be pleased on receipt of them. You will **SAVE MONEY** by ordering from me. My stock is complete; in fact, I keep **EVERY THING** the **BEE-KEEPER** needs. **CINCINNATI** is one of the best **SHIPPING-POINTS** in the Union, **PARTICULARLY IN THE SOUTH**, as all freight now **GOES THROUGH CINCINNATI**. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly **FREE** of charge.

I will buy your **HONEY AND BEESWAX**. I pay **CASH ON DELIVERY**; or, if you are in **NEED OF HONEY**, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of **EXTRACTED** or **COMB HONEY**. I guarantee its purity.

QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest **GOLDEN ITALIANS**, **RED-CLOVERS**, **CARNIOLANS**, and **CAUCASIANS**. Can furnish **NUCLEI** beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: **White and Yellow Sweet-scented Clover**, **Alfalfa**, **Alsike**, **Crimson Clover**, **Buckwheat**, **Phacelia**, **Rocky Mountain Bee-plant**, and **Catnip**.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

ATLANTA.—Honey market is at a standstill with us, and there will be very little doing till the new crop begins to move. We quote: Fancy white, 12½ to 14; No. 1, 10 to 11. Beeswax firm at 30 for No. stock.

JUDSON HEARD & Co.,
Atlanta, Ga.

March 19.

TOLEDO.—The market on comb honey at the present time is very hard to give, as no one has any honey to quote prices on. Fancy comb would bring very readily 16; No. 1, 15; and almost anything, 14. Extracted in barrels is at a premium. No one has any to offer. Beeswax is firm at 28 to 30.

GRIGGS BROS.,
521 Monroe St. Toledo, Ohio.

March 19.

CHICAGO.—Choice white comb sells at 15, and there is no surplus thereof. Other grades go slowly at lower prices. Extracted is without special change unless it is that clover and basswood of good flavor are no longer obtainable. The Western product is in fair supply, with best grades of white at 6½ to 7, and amber 5½ to 6½. Beeswax, 30.

R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

March 20.

SCHENECTADY.—Weather conditions continue favorable for the sale of honey, and it moves off on arrival at satisfactory prices; and as stock is small, buyers are not quite so exacting about quality. We quote: White clover, 14 to 15; buckwheat, 11 to 12; extracted, light, 7 to 7½; dark, 6 to 6½.

CHAS. McCULLOCH,
Schenectady, N. Y.

March 20.

PHILADELPHIA.—The call for honey is falling off; while the supply is not abundant, yet it equals the demand. We quote: Fancy white comb, 16 to 17; amber, 13 to 14; white-clover extracted, 7 to 8. Beeswax, 28. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
10 Vine St., Philadelphia, Pa.

March 20.

NEW YORK.—Demand for comb honey is fair, especially for the better grades, and fancy white is selling at from 14 to 15; No. 1 at 13; light amber at 11 to 12. No more demand for dark comb honey. Extracted is in good demand, mostly California, at unchanged prices. Beeswax is firm at 29 to 31, according to quality.

HILDRETH & SEGELKEN,
82 Murray St., New York.

March 19.

KANSAS CITY.—The demand for honey is improving. Fancy white comb honey, 24 sections, sells at \$3.25; amber as low as \$2.75; extracted, 6½ to 7.

March 19. C. C. CLEMONS & Co., Kansas City, Mo.

BOSTON.—Our market is practically cleaned up of 1905 comb honey, leaving a fair stock of old honey still on hand, which ought to sell now that the new is out of the way. The market on best grades of fancy white is 16 to 17, with very little to offer. Extracted, 6 to 7, according to quality.

BLAKE, SCOTT & LEE Co.,
March 22. 31-33 Commercial St., Boston, Mass.

BUFFALO.—Honey is all cleaned up in our market. There has been an advance and a very good demand at the advanced price. It is scarce in the country, and we think it will stay high until next crop is ready for market. We quote: No. 1 to fancy white comb, 15 to 16; No. 2, white comb, 12 to 13; No. 1 buckwheat, comb, 12 to 13; No. 2 buckwheat, comb, 11 to 12; white-clover extracted, 8½ to 9; amber extracted, 7 to 7½; dark extracted, 6 to 7. Beeswax, 30 to 32.

W. C. TOWNSEND,
Buffalo, N. Y.

March 29.

CINCINNATI.—The demand for comb honey is slow, and prices obtained are the same. Stock on hand seems to be sufficient for wants. Quote fancy white, 14 to 16; amber extracted, in barrels, 5¼ to 5½; in cans, ½ ct. more; fancy white clover in 60-lb. cans, 7½ to 8½; Southern, equal to white clover in color 6½ to 7. Bright yellow beeswax, 30.

C. H. W. WEBER,
March 3. 2146-8 Central Ave., Cincinnati, O.

ST. LOUIS.—The honey business continues to drag along slowly at the same quotation as in our last. We quote: Fancy white comb honey, 13 to 14; No. 1, 12 to 13; amber, 11 to 12; extracted, California light amber, 6 to 6½; outside price for liquid honey, Spanish needle, 6½ to 7. Southern, in barrels, 4¼ to 4½; in cans, 5 to 5½. Beeswax, 29 to 29½.

R. HARTMANN & Co.,
March 3. 14 So. Second St., St. Louis, Mo.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.

O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

THE FRED. W. MUTH CO.,

51 WALNUT ST.,

CINCINNATI, OHIO.

WANTED.—Comb and extracted honey. State quality, quantity, and price.

JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.

EVANS & TURNER, Columbus, Ohio.

WANTED.—Carlot or less quantity of fancy comb honey, also extracted basswood or white clover.

E. R. PAHL & Co.,
Broadway and Detroit St., Milwaukee, Wis.

FOR SALE.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.

HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.

R. A. BURNETT,
199 South Water St., Chicago, Ill.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.

GRIGGS BROS., Toledo, Ohio.

WANTED.—A case of two 60-lb. cans extracted honey (1905 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.

THE A. I. ROOT Co., Medina, Ohio.

“SO-KUTE” PHOTOS; very elegant; 2x3 in.; copied from any photo for 23 cts. a dozen. Original returned. Sample 2 cts. E. A. HOUSE, Box 48, Gadsden, Ala.

SCHILDER BROTHERS - CHILLICOTHE, OHIO

We are extensive growers of
...ONION SEED...
Write us for our prices.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair
St. Louis, 1904



**UP-TO-DATE.
STRONGEST,
COOLEST,
CLEANEST,**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool adding to its durability. It has no valves to get out of order or snout to clog with soot.

Every Thing Guaranteed “Root Quality.”

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Plattville, Wis.

IT SURPASSES ALL OTHERS.—“After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker.” Grant Stanley, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

F. DANZENBAKER, MIAMI, FLORIDA



NEW HOME OF

**The Mugler Engraving
Company**

Cleveland, Ohio, U. S. A.

HERE we are, prepared to make Photographs, Half-tones, Zinc Engravings, Electrotypes of the very finest quality.

We have had special experience in making cuts for bee-keepers and bee-supply dealers, having made plates for THE A. I. ROOT COMPANY for several years.

We are engravers for Gleanings in Bee Culture. Your request for prices or information will be immediately cared for.

YOU SPRAY

Make it as easy and effective as possible. Buy your outfit from a concern that has long made a specialty of spraying machinery. A

DEMING SPRAYING OUTFIT



always gives satisfaction. 20 styles. An outfit for every purpose including Barrel, Knapsack, Bucket and Hand Sprayers and Power Outfits. Get free catalog and study the Deming line before you buy.

THE DEMING CO.,

230 Depot St., Salem, O.
Kenosha & Hubbard, Western
Agents, Chicago.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

E. R. ROOT
Editor

A. I. ROOT
Editor Home Departments

H. H. ROOT
Asst. Editor

Department Editors:
DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE,
LOUIS H. SCHOLL, G. M. DOOLITTLE, W. P. ROOT.

J. T. CALVERT, Business Manager

A. L. BOYDEN, Advertising Manager

Circulation 30,000. Reaches every State and 60 foreign countries.
Established in 1873. Sixty-four pages. Semi-monthly.
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

Terms---\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.

Postage is Prepaid by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS., 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones
Per year, postpaid, 5/6.

Dunedin, New Zealand. ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 6/.*

Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publisher.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY.....STATE.....

DATE.....If you want Gleanings discontinued at expiration, check here ()

FARM FOR SALE!

I have three boys man-grown, and for that reason, I wish to sell my farm and go into Northern Michigan where wild land is cheap, that we may all secure farms near together. The farm that I wish to sell is located eight miles east of Vassar, Tuscola Co, Mich. It consists of 40 acres, 30 of which are cleared. It is well fenced and well drained. There is a small orchard, stables for the horses and cows, and a small story-and-a-half house. The soil is a dark sandy loam, and can't be beaten for raising potatoes, corn, hay, buckwheat, etc. There is rural mail delivery, school quarter of a mile

distant, and railroad station only two miles away. The location is a good one for honey. From twenty colonies last year I secured 120 pounds of extracted honey per colony. I offer this farm for only \$600; two-thirds down, and balance on long time if desired. Would accept bees as part payment if they were not too far away. For particulars address

Elmer Hutchinson, Vassar, Mich.

Reference, Editor of Review.

HERE'S YOUR CHANCE

to win a prize by doing a little work in
obtaining subscriptions for Gleanings
in our Second Subscription Contest.

Last contest EVERY contestant that sent in more than ONE subscription obtained a prize. It will doubtless be so in this contest, so that besides the regular commission you will receive a prize that will more than pay any effort made.

Twenty-five Prizes!

(Variety of queen to be winner's selection)

First Prize \$10.00 queen
Second Prize 7.50 queen
Third Prize 5.00 queen

Fourth Prize 3.00 queen
Fifth Prize 2.00 queen
6th to 15th Prize One cloth-bound A B C
16th to 25th Prize One Junior Cornell smoker

Conditions!

FIRST.—That subscriptions to be entered in this contest are to be obtained as results of work between February 15 and July 1, 1906.

SECOND.—To be eligible to any one of the first fifteen prizes, contestant must have at least five yearly subscriptions, or their equivalents, to his credit.

THIRD.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

FOURTH.—That subscriptions can be sent in any time, but must be plainly marked "For Second Subscription Contest."

CUT HERE

Gleanings in Bee Culture

Subscription Contest Department.

Date

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Please send agents' terms and enter my name as contestant in Second Subscription Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions and agree to them.

Name

P. O.

I can use sample copies of Gleanings. State

CONTENTS OF THIS NUMBER.

MARKET QUOTATIONS.....	417	The Science of Successful Wintering of Bees.....	430
STRAY STRAWS.....	411	Some Experience with a Chinese Bee-keeper.....	433
EDITORIAL.....	413	A Cheap Home-made Strainer.....	434
Heavy Winter Losses in Kansas.....	413	A Visit to a California Apiary.....	435
The Honey-producers' League.....	443	The Wire-cloth Separator Condemned.....	437
The Ohio Foul-Brood Law and Special Tax.....	413	HEADS OF GRAIN.....	439
G. M. Doolittle.....	414	An up-to-date Young Bee-keeper.....	439
Early Queen-rearing in the North.....	413	Addressing Farmers' Institutes.....	439
Co-operation in Selling and Handling Honey.....	415	Bees in Cellar Res tless.....	439
GLEANINGS FROM THE PACIFIC COAST.....	416	Large Entrances Propolized nearly Shut.....	439
BEE-KEEPING IN THE SOUTHWEST.....	417	Hive-carriers.....	440
PICKINGS FROM OUR NEIGHBORS' FIELDS.....	419	Combined Hive-tool and Frame-tongs.....	441
FANCIES AND FALLACIES.....	420	Shade for Baby Nuclei.....	441
CONVERSATIONS WITH DOOLITTLE.....	421	Moving Bees with Entrances Open.....	441
GENERAL CORRESPONDENCE.....	423	Caucasians in the United States in the '80's.....	442
How Shall we Make our Increase?.....	425	Washington as a Honey State.....	442
How to Provide Protection for Supers.....	426	A YEAR'S WORK IN AN OUT-APIARY.....	441
The Prevention of Swarming.....	423	OUR HOMES.....	445
How I Began Bee-keeping.....	429	SPECIAL NOTICES.....	459
COVER PAGE PORTRAIT—G. M. DOOLITTLE.			

INDEX TO ADVERTISEMENTS.

Banking by Mail.		Machinery.	
Savings Dep. Bank Co.....	447	Electric Wheel Co.....	454
Bee Smokers.		Lyons Engine Co.....	450
T. F. Bingham.....	463	Manson Campbell Co.....	455
F. Danzenbaker.....	403	Mead Cycle Co.....	452
Bee Supplies.		Medina Concrete Co.....	448-449
W. W. Cary & Son.....	462	F. E. Myers & Bros.....	451
D. Cooley.....	464	Miscellaneous.	
J. H. M. Cook.....	409	Alden Brothers.....	465
W. T. Falconer Mfg. Co. Back Cover		H. H. Aultfather.....	381
Geo. E. Hiltou.....	463	Best Gate Co.....	456
M. H. Hunt & Son.....	408	F. W. Bird & Son.....	451
Kretschmer Mfg. Co.....	463	Hardware Specialty Co.....	452
Leahy Mfg. Co.....	464	Chas. H. Manley.....	458
G. B. Lewis Co.....	410	Seaboard Air Line R. R.....	409
Marshfield Mfg. Co.....	463	Home Correspondence School.....	447
Minnesota Bee Supply Co.....	464	Mugler Engraving Co.....	403
Fred W. Muth Co.....	402	Rand, McNally & Co.....	447
Walter S. Pouder.....	460	Poultry Supplies.	
The Root Co.....	465	Willett's Egg-preserving Co.....	455
Page & Lyon.....	461	Publishers, Agricultural-paper.	
A. H. Reeves.....	463	Farmer's Call.....	447
The Root Co., Syracuse, N. Y.....	408	Southern Fruit Grower.....	472
The Root Co., St. Paul, Minn.....	461	Publishers, Bee-Journal	
C. M. Scott & Co.....	462	Modern Farmer & Busy Bee.....	447
I. J. Stringham.....	466	The A. I. Root Co.....	404-405
White Mfg. Co.....	462	Geo. W. York & Co.....	409
C. H. W. Weber.....	401	Publishers, Poultry-paper.	
A. G. Woodman Co.....	462	R. R. Fisher.....	472
York Honey & Bee Supply Co.....	462	The Howard Pub. Co.....	472
Bees and Queens.		Ohio Poultry Journal.....	472
Aliso Apiary.....	469	The Poultry Gazette.....	472
Anthony Biaggi.....	468	Poultry Item.....	472
Bee & Honey Co.....	464	Seeds and Trees.	
The Jennie Atchley Co.....	469	Callander Cactus Co.....	457
D. J. Blocker.....	469	L. J. Farmer.....	457
H. H. Jepson.....	469	Flansburgh & Potter Co.....	458
Grant Anderson.....	469	E. C. Holmes.....	457
R. O. Cox.....	467	E. C. Green & Son.....	458
Doolittle & Clark.....	467	Forest Nursery and Seed Co.....	458
B. F. Averill.....	466	Hart Pioneer Nurseries.....	458
Henry Alley.....	466	R. M. Kellogg Co.....	458
John M. Davis.....	466	Jewel Nurseries.....	457
J. W. K. Shaw & Co.....	466	Louis Roesch.....	457
F. A. Lockhart & Co.....	467	L. H. Mahan.....	409
E. L. Pratt.....	467	Schidler Bros.....	403
J. L. Strong.....	467	Vaughan's Seed-store.....	457
A. W. Yates.....	467	Yenn Bros.....	458
B. C. Terry.....	468	Wants and Exchanges.	
George W. Barnes.....	468	See page.....	470-471
Rev. J. G. Baumgaertner.....	469		
J. B. Case.....	466		
W. T. Crawford.....	467		
F. J. Colahan.....	467		
Etablissement d'Apiculture.....	468		
A. W. Griffin.....	466		
Chas. Koeppen.....	468		
J. J. Jepson.....	466		
E. E. Lawrence.....	466		
W. H. Laws.....	468		
Robert B. McCain.....	468		
Malan Brothers.....	466		
E. E. Mott.....	469		
H. M. Parker, Jr.....	469		
A. E. Titoff.....	468		
W. H. Ralls.....	469		
J. A. Rambo.....	466		
Roselawn Apiary.....	467		
H. A. Ross.....	469		
H. C. Simpson.....	467		
J. C. Taylor.....	469		
Henry Shaffer.....	469		
Victor-Knolle Apiary Co.....	469		
Daniel Wurth.....	469		
Buggies.			
Anderson Mfg. Co.....	454		
Elkhart Carriage Co.....	453		
Ohio Carriage Mfg. Co.....	453		
Progressive Vehicle Mfg. Co.....	453		
Union Buggy Co.....	454		
Comb Foundation.			
Dadant & Son.....	Back Cover		
Gus Dittmer.....	461		
Fences.			
Brown Fence & Wire Co.....	454		
Coiled Spring Fence Co.....	454-455		
Page Woven Wire Fence Co.....	455		
Honey-buyers.			
See page.....	402		
Household Specialties.			
Best Light Co.....	452		
Cleveland Desk Co.....	447		
Crofts & Reed.....	452		
The D. Co.....	454		
Joseph Horne Co.....	447		
Elliott Tel. and Elec. Co.....	452		
A. L. Rice.....	454		
Stromberg-Carlson Tel. Mfg. Co.....	451		
1900 Washer Co.....	452		
Incubators.			
Banta-Bender Mfg. Co.....	455		
Buckeye Incubator Co.....	455		
Cycle Hatcher Co.....	455		
Chas. A. Cyphers.....	455		
Gem Incubator Co.....	455		
Manson Campbell Co., Ltd.....	455		
Geo. H. Stahl.....	455		
H. M. Sheer Co.....	454		

ADVERTISING TALKS

BY THE AD. MAN.

Have you a telephone line in your community? Are you and your neighbors enjoying the greatest modern improvement? If not, what is the trouble? Perhaps you do not realize how easily and cheaply a farm telephone line can be built. Then we would advise you to find out without another moment of delay. Write to the telephone companies whose ad's appear in this number of GLEANINGS, and ask for their farm-telephone booklets. You will learn more telephone news in a moment than you would in a year if you should wait for your nearby friends to tell about the advantages their telephones have been to them and how easily they built their line. No matter where you live, a telephone line is not only possible but needed.

There is a booklet entitled "Chimney-corner Graduates," published for free distribution by The Home Correspondence School, Springfield, Mass., which we should like to have every one of our readers send for. This booklet is not a catalog nor an appeal for money. It is just the most helpful booklet which we have ever seen. Any young man who feels that he has missed the goal simply because he could not get to college as he had planned will find a new life inspired within him after he reads how it is possible to become the possessor of the most advanced education right at your own fireside. The author of the booklet is Mr. James Lane Allen, one of the leading authors of the day. Send a postal right now.

Have you been patronizing our seed and nursery advertisers this season? We are very proud of the ad's we have carried in this line. Many of the very best—most reliable—houses in the country have been represented regularly. Several of these people have advertisements in this number; and if you have not already done so, send for their catalogs and plot out your garden. Only a few days off to seed-planting time, you know.

When making a catalog or booklet to use in answering inquiries in answer to your advertisements, you should consider carefully just what information the inquirer will want. Answer his questions before they are asked, by describing your products in a simple, accurate, and complete way. The latest catalog which we have seen that comes up to this standard is the booklet entitled "Profitable Poultry," issued by Berry's Golden Rule Poultry Farm, Clarinda, Iowa. Poultry information is given here in every conceivable way. You will act wisely in send-

ing for the Berry catalog if you are in the market for poultry or want a model catalog.

PACIFIC COAST AND ROCKY MOUNTAIN STATE ADVERTISERS WANTED.

If some of our bee-keepers in the far western States knew how many requests come to this office for queens and bees from clear out in California, down in the extreme Southwest, and in Mexico, we are pretty sure they would then realize that they are living in a profitable field. It's oftentimes hard for eastern advertisers to fill orders quickly, and for their patrons to realize how adverse the shipping conditions are from the Eastern States to the far West. When Californians are having the very finest bee-weather, likely as not the snow is flying here. If you have bees, queens, or honey for sale we can offer good reasons why you should advertise in GLEANINGS. A man in California put a honey ad. in our Feb. 1st number. Ten days later he wrote, "Please drop my ad. from your Honey Column, as I have enough offers to last three months and more." How many orders have you ahead?

HOW TO USE THE INDEX.

Are all of our readers aware that the index on the opposite page refers to Advertisers? It is very easy to use this index, just think to what class the advertiser whose ad you want to see belongs, then look under the proper heading and you will find his name given and the number of the page on which his ad appears.

We like to have our readers look over all our advertisements, and really it is for your good to do so. Many new advertisements appear in each issue and something may be advertised in this number which you need very much. But the index is invaluable if one wishes to find a certain ad in a hurry.

POULTRY.

So many of our bee-keeping friends who keep poultry also, have sent in small classified ads, either wants or offers on poultry or eggs, that we are adding a new heading in our classified advertising columns this issue.

Statistics which we have recently gathered show that a great many bee keepers are poultry raisers also and many profitable poultry sales have already been reported. The special rate which we are making for Ads under "Poultry Offers," is three lines for 50 cents—each insertion. Allowing about nine words to the line, a very good ad can be inserted at a small cost.

Stop and Consider!

How much time have you wasted in cleaning wooden separators, and then not having the color-stains of the propolis scraped off?

Wire-cloth separators do not need cleaning very often.

Consider Again!

Why you can not secure as nice comb honey from any old super filled with color-stained wood separators as with an entirely new super with new separators. Have you ever noticed it? Wire-cloth separators are not colored with propolis, and consequently the stains are not transferred to the nice white capping of the comb. If these separators need cleaning, by boiling them in water they come out as **good as new**. For prices, see catalog sent out from Syracuse, N. Y.

The A. I. Root Co., Syracuse, N. Y.

HIVES - HIVES



Now is the time to place your order for the hives you will need this year. By getting them now you will save the discount, and can have them nailed and ready for your bees in the spring. . . . We should like to quote you prices in any quantity on the following:

The Root Chaff Hive

The best chaff hive made

The Danzenbaker Hive

The comb-honey hive

The Root Dovetailed Hive

Standard size and extra quality



Send for Catalog

M. H. HUNT & SON, BELL BRANCH, MICH.

We Sell Root's Goods in Michigan

A 50-cent Bee-book for only 20 Cents

~~~~~  
**When Taken with the Weekly American Bee  
Journal One Year**  
~~~~~

We have of the cloth-bound edition of the 160-p. book by the
late Thomas G. Newman, called "BEES AND HONEY,"

Only 200 COPIES LEFT

Do you want a copy? While they last we will mail a copy in connection with a year's subscription to the WEEKLY AMERICAN BEE JOURNAL (which alone is \$1.00) BOTH FOR ONLY \$1.20. First come, first served—while the books hold out. It will be your last chance to get a copy of this book. Better order NOW. ❖ ❖

We send a TRIAL TRIP of 13 weeks (13 copies) of the AMERICAN BEE JOURNAL to a NEW subscriber for only 20 cents. A single sample copy free. ❖ ❖

The Weekly AMERICAN BEE JOURNAL is better than ever this year. You really ought to have every week, if not now, a regular subscriber. ❖ ❖ ❖

~~~~~  
**George W. York & Company**  
334 Dearborn St., Chicago. Ills.

## GOLDEN Opportunities!

EXIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

**J. W. WHITE**

Gen. Indus. Agt., Portsmouth, Va.

**Seaboard Air Line Railway**

## Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

**J. H. M. COOK, 70 Cortlandt St., New York**

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

## Sweet Potato Seed

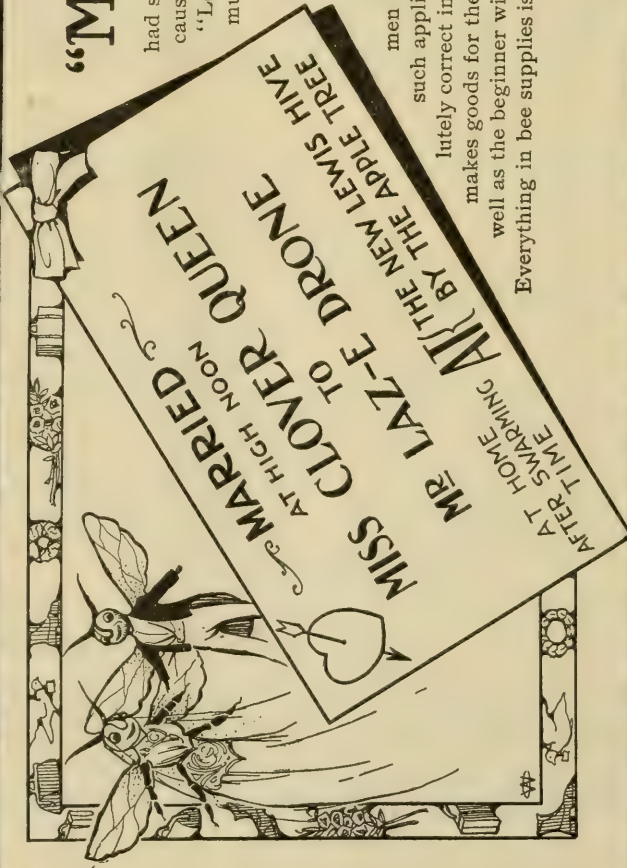
Bright stock; straight from storage; best varieties—old and new. Send for my free descriptive price list.

— ADDRESS —

**L. H. Mahan, Box 143, Terre Haute, Ind.**



# THE HONEY-MOON OF THE HONEY QUEEN



(Extract from the "Beeville" Chronicle.)

"**M**IDST strains of Italian music Miss Clover Queen was wed to Mr. Laz-e Drone at high noon yesterday. The Frame wired the Foundation to come, but she was pressed and could not leave. Many other suitors had sued for the hand of Miss Clover but Mr. Laz-e Drone conquered because he offered her a home made by G. B. Lewis Co. Such hives as "Lewis" makes are fit for any queen, and any bee who owns such a home must belong to the aristocracy so all in Beeville approved."

LEWIS hives and sections are made from the finest Wisconsin white pine and basswood. This wood is nice, clear, white and free from the spots found in wood from many other states. Lewis Goods are made to go together right. They are right because the G. B. Lewis

Co., has been manufacturing bee goods for the past thirty years, having men in its employ who have given their lives to the proper construction of such appliances so that all details as regards bee space, etc., are found to be absolutely correct in Lewis Beeware as tried out by the experience of years. The Lewis Co., makes goods for the specialist bee-keeper who reaps a harvest of tons of honey a year as well as the beginner with one colony. Your bees can earn the most money with Lewis Goods.

Everything in bee supplies is handled by your nearest Lewis agent,

**G.B. LEWIS CO. MANUFACTURERS OF BEE KEEPERS' SUPPLIES WATERTOWN, WIS.**

# GLEANINGS

## IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests  
Illustrated : Semi-monthly : One Dollar per Year  
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

APRIL 1, 1906.

No. 7



A. I. ROOT, can you grow sweet clover in Florida? I don't know that any one has succeeded. You are just the man to try it.

A REMARK, p. 348, sounds as if bees are not taxed in Ohio. Are they not? and if not, why not? [Yes, bees are taxed like other property; but the proposed tax referred to on p. 348 was for the purpose of raising a fund for paying a foul-brood inspector only. See Editorials.—ED.]

QUEEN-REARING IN ENGLAND is the title of a pamphlet by F. W. L. Sladen, F.E.S. It follows, in the main, the Doolittle plans, and is up to date. [I have seen this work, and believe it to be a good one. Mr. Sladen himself is not only a practical bee-keeper but a scientific man as well.—ED.]

REPLYING to your question, p. 344, I think it was from a German or French bee-journal that I got 50 degrees as the temperature of a cluster of bees in winter. But I should have said that *that* was the outer part of the cluster, and probably outdoors. You likely found 84 in the center of the cluster. Somewhat strangely, if you had tested a colony outdoors you would probably have found 90 or more in the center.

NO DOUBT, Mr. Editor, you are quite right in thinking that scent has something to do with the calling of bees. F. W. L. Sladen, F.E.S., thinks the swarming-call "is at least partly due to a scent which is emitted from a membrane situated between the fifth and sixth dorsal segments of the abdomen. Ordinarily this membrane is covered by the

fifth segment; but whenever the humming takes place it is exposed, and the scent is then given off. The scent is very pungent, and suggests a mixture of that of iodine with that of formic acid."

YOU DIDN'T get the point of my question, p. 344, Mr. Editor. If it works all right to carry the last bees out of the cellar in broad daylight, why not carry out all in daylight? [There is no objection at all to carrying all the bees out by daylight in case there is a small number of colonies—say not over 100 to be moved from the cellar. But it would be simply impossible for Mr. Alexander to move all his bees by daylight so that, when it warmed up, all the bees would have a chance to fly at once. The point I tried to make was that we should avoid carrying bees out *after* it warms up. Do the work at night or very early in the morning, just preceding a bright warm day; that is, get every colony out before the bees have had a chance to fly.—ED.]

DR. E. F. PHILLIPS calls attention to some things which make it seem that the span of life of a worker in the busy season is hardly up to the orthodox six weeks. Dr. Dzierzon says, "I made a great many artificial swarms from pure German bees with a pure Italian queen. In six weeks there was not a single German bee left." It is hardly supposable that each bee lived exactly the same number of days; and if no bee lived beyond the six weeks, was not the *average* span of life less than six weeks? Moreover, v. Buttel-Reepen says, "In rich forage the bee lives often only two or three weeks." [If I mistake not, Dr. Phillips will bring to light some other fallacies that have been repeated so often that they almost seem to be true.—ED.]

I FANCY A. I. Root smiling as he reads p. 348, and saying, "Yes, I once tried hurrying up things by putting bees in a hot-bed. Ernest's bees in the window will likely come



out about the same way." [You forget, doctor, that I was almost constantly with A. I. Root when the experiments to which you refer were being conducted. I remember perfectly as though it were yesterday the whole thing. But the plan that he carried out was quite different from the one outlined on p. 348. He was trying to make the bees fly *inside* of a greenhouse or warm room. If you will read again what I said you will see we are attempting nothing of the kind. The *hives* and *nuclei* only are kept in a warm room, but the *bees* are permitted to fly *outdoors* whenever it is warm. In this way you will see that we hope to bring about the conditions similar to those of normal colonies outdoors about a month later. Whether we can steal a march on nature of a whole month remains yet to be proven.—ED.]

GLEANINGS has learned to talk French. In other words, a new bee-journal is published—*L'Apiculture Nouvelle*, which repeats the contents of GLEANINGS, only giving them in French. With this journal in French, and *Europäische Bienenzucht* giving American methods in the German language, Europeans ought not to be in the dark about what's going on in bee-keeping on this side the water. Now don't get the big-head because you're an American bee-keeper. Without the things we've learned from other countries, bee-keeping in this country would not stand where it does now. The address is 142 Faub'g St. Denis, Paris. [Bee-keeping on the continent of Europe is just beginning to have an awakening. While we freely acknowledge that we have learned much in point of pure science from our European cousins, yet we feel that they have something to learn from us in the *practical* management of bees.—ED.]

E. F. ATWATER, in *Review*, has given, perhaps, the key to something that has been a puzzle to me. Editor Root said that, with Langstroth frames, there was an amount of honey in the upper part of the combs that I knew was not to be found in mine; for often my combs have brood clear up to the top-bar. Mr. Atwater says that foundation sags in the deep frames, at the upper part, "to such an extent that there was very little brood reared within, perhaps, two inches or more of the top-bar." With horizontal wiring I can easily believe that would be so. With vertical foundation splints in my own frames there is no more sagging at top than bottom, giving me, in that respect, the advantage of shallower frames. [Score a point in favor of splints in place of horizontal wires; and I am not sure now but it was a mistake to change from vertical to horizontal wires, for which I was largely responsible, if I mistake not. But when we adopted thick top-bars it did not seem practicable to use perpendicular wires. The best solution of the whole problem yet, in my estimation, is very fine iron wires incorporated in the foundation by the maker. We have worked on the problem for years, but have not

yet been able to solve it. Mr. Van Deusen has succeeded with a flat base. You may ask what the objection is to your splints. They are too large, and yet the diameter can not be reduced. What I should prefer would be fine perpendicular wires laid right into the foundation in the first place, the wires about two inches apart.—ED.]

REFERRING to p. 355, I think, Mr. Editor, your idea of uniting colonies immediately upon taking from the cellar will work even better than later. The trouble, however, is that, at the time of taking out, you can not tell so well just which the strong and weak ones are. [What you say is true; but last winter we put our colonies in with marks of identification to indicate their relative strength in stores, so we could have some idea of them, and what their condition would be or ought to be by spring. I know it seems hard to get a very good idea of the strength of colonies when taken out. Doolittle recommends putting a wet rag over the entrance to shut bees in. A handful of snow when obtainable is equally good. With a pry loosen the cover; use a little smoke to keep the bees down, and I think you can tell very quickly whether the colony is strong or weak. You can not always detect the *medium* from the *strong*, but you can always determine when a colony is *weak*, and these are the ones that should be united with the strong, or, better, the *medium* strength.—ED.]

I THANK YOU, Mr. Editor, for your answers, p. 345, to my questions about breeding from hybrid stock. I think we are entirely agreed, except in one thing. You think I can get pure stock that will store as much as my hybrids. I don't—at least, not easily. We will try to settle who is right. You are to send me (I paying for it) a queen of the right sort. I will queen a number of colonies with her royal progeny, and compare their work with that of the hybrids. If the new comers store most, you beat. If you do, it will be to me a real pleasure. [But look here, doctor; that is not going to be a fair test. My idea was for you to get a breeding queen from *each of four or five different queen-breeders*, and then select from that lot the one that shows up the best in honey. You might have to try this out on two or three different years. I feel satisfied that, if you work on that basis, one of the queens in due course of time would equal or excel your mixed blood. The fact is, breeders are not going to sell their best queens—I mean their breeding queens—and will part only with the daughters of those queens. Owing to the fact that they are unable to control male parentage as they would like, it is seldom that the daughter of a breeder will be the equal of her mother. Take, for example, our old \$200 queen. There was not one of her daughters that was quite the equal of the old original, although we had some very good ones. Say! we would give \$500 quick if we could get that old queen back.—ED.]



WE have been informed that there has been a general good rain throughout the honey section of California, and that the prospects for a fair crop of sage and alfalfa are good.

#### HEAVY WINTER LOSSES IN KANSAS.

WE have received numerous reports from Kansas of heavy winter losses, indicating a mortality of from 30 to 75 per cent. So far we have received no unfavorable reports from other sections, yet we are fearful that the mildness of the fore part of the winter, followed by a cold March, will result in a large amount of brood-rearing and a heavy consumption of stores and starvation. The cold snap, coming on just when brood-rearing was at its best, would probably kill a good deal of brood as well as cause the chilling of a good many bees trying to hover over the brood.

#### LATEST FROM THE CABIN ON THE ISLAND OFF FLORIDA.

WE have received a card from A. I. R., since the matter he wrote elsewhere in his department went to press, saying that he now has four young queens laying, of Caucasian blood, and that the old Caucasian queen has her hive so full of honey that they are preparing to swarm, and that her colony is far ahead of the Italians and hybrids.

Our Caucasian breeder is an imported one that we secured direct from Russia; and on the island we are endeavoring to inbreed, to pick out the best individuals from such inbreeding. A. I. R. has, of course, trapped out all the hybrid and Italian drones, and is rearing only Caucasian, so that the queens from the imported ought to be just as pure as the mother. Later on, if the plan works well, we shall get some other pure imported Caucasian stock from other regions in Russia to tone up any loss due to inbreeding. I anticipate that, on the island, we shall be able to solve practically the problem of breeding from select drones.

We have no Caucasians for sale at present, and may never have if the stock should not show up well later on; so, don't ask just now for queens.

#### THE HONEY-PRODUCERS' LEAGUE NOT RESPONSIBLE FOR THE PUBLICATION OF PAMPHLET ATTACKING PROF. WILEY.

A SHORT time ago the Honey-producers' League was credited through the general press with sending out an elaborate pam-

phlet giving the history of the "Wiley lie," so called, and attacking Professor Wiley himself. The League, as I happen to know, had nothing to do with the preparation of or the sending-out of the pamphlet under consideration, although at the last meeting of the Board of Directors at Chicago they were approached by certain interests, and requested that the League father the pamphlet, with the understanding that these "interests" would pay all expense of publication, as well as postage. The matter was discussed, and by a unanimous vote it was decided to do nothing with it, as it was not known what these certain "interests" represented. The president, Dr. Miller, assures me that no further action was taken. It was the feeling on the part of some of the Board that the "interests" back of the pamphlet were the brewers and distillers who were endeavoring to "get back at" Wiley for his strenuous attitude on the subject of a national pure-food law. If that were the fact the League felt that it could not be used as a club to pound Wiley, because bee-keepers stand for pure food.

#### THE OHIO FOUL-BROOD LAW AND THE SPECIAL TAX OF ONE CENT PER COLONY.

THIS was duly signed by Governor Pattison, and has already taken effect; but, contrary to what I had supposed, the expense for the enforcement of such a law is provided by a tax of one cent on each colony in the State. Where one has 100 colonies he would be placed on the tax-duplicate for \$1.00, as I understand it, in addition to the regular tax on his bees.

If the assessment of one cent per colony will be the means of checking the disease and otherwise keeping it out of any given locality, the money will be well invested.

Perhaps some bee-keepers in the State may claim that they can take care of their own foul brood, and that the tax of one cent per colony is exorbitant and unnecessary, because of the fact that only a few localities will be affected. In this they may, perhaps, be mistaken. The disease is all around us. Black brood and foul brood exist in York State; foul brood has gotten a good headway in Michigan, and in some localities in Canada it still exists. With foul brood all around us it is high time that we had an effective working law in Ohio, and I believe we have it now.

After the amended foul-brood bill passed the Senate (the special tax of ten cents per colony being stricken out) I received word from our Representative, Mr. Woods, that there was a disposition on the part of the House to kill the bill because of the expense it would involve to pay inspectors out of the regular county fund. I suggested then that he see the author of the bill and ask if there would be an objection to putting back the special tax but only half a cent or one cent per colony. I heard nothing more of the matter until I saw the bill had passed both Houses; and the fact that the one-cent tax



was added to the measure would indicate that it was done to save the bill.

In brief, the law now provides that, on the complaint of three persons, residents of the county, to the county commissioners, setting forth that the disease known as foul brood actually exists within said county, the county commissioners *shall* (not *may*, as it was in the old law) appoint a competent person as foul-brood inspector, clothed with necessary authority to inspect colonies, and treat the same according to the most up-to-date methods. The expense of such inspection will be paid out of the funds secured from the special tax of one cent per colony, as I understand it. As there are 150,000 colonies in Ohio, according to the last census, this will give us a fund of \$1500—more than enough, I should say, to do the work thoroughly throughout the whole State.

#### G. M. DOOLITTLE.

VERY few, perhaps, will recognize the individual whose face appears on the front cover page of this issue; but he is, nevertheless, one of the best-known men in all bee-dom. He is none other than our old friend G. M. Doolittle, of Borodino, N. Y., a correspondent who has been conspicuously before the bee-keeping public as general instructor for a period of at least thirty years.

He is the author of "Scientific Queen-rearing," a work that first brought out certain new principles that are now basic in nearly all modern methods of rearing queens. He was the first to exploit to any great extent the artificial cell cup, grafting the same and then having it accepted and built out in a colony where there was already a laying queen; of having queens fertilized from "upper stories," and several other tricks that were then new to the business.

For the last sixteen years he has been working on a system of swarm control in connection with the production of comb honey. The two first chapters of the new book are published in this issue, and will speak for themselves. Mr. Doolittle considers this one of the best things he has ever given to the public. He is a close, careful observer, one whose apicultural knowledge comes direct from the bees. There are but few men in our ranks who are better posted in regard to the natural habits of bees than he; and few men whose writings are more carefully read, especially by the beginner class, for he has been the Gamaliel at whose feet many have sat.

#### EARLY QUEEN-REARING IN THE NORTH.

JUST as we were going to press with the last form I received the following from the senior editor which will explain itself:

#### ARTIFICIAL HEAT FOR BEES IN SPRING.

When Ernest speaks of keeping bees in the office (see p. 348) he probably forgot about my experiments with the house-apiary 25 years ago. The idea was to keep the whole house warm so as to hasten early brood-rearing, etc.; but after much time and money were spent by myself and many others we reluctantly decided that a good strong colony with no artificial heat was quite often

ahead of us. I believe poultry-men have also decided that stove or steam heat to *get eggs* in winter is a failure. Will our poultry-men tell us if this is true up to the present date? Queens can be hatched any month in the year here, or up north, and drones can be secured also; but to get queens *fertilized* we must have warm still days for both drones and queens to get a good natural flight. I have finally, during the middle of March, succeeded in getting all queens, not too old, to laying nicely.

A. I. ROOT.

As will be seen by the answer to Dr. Miller on the same subject in Straws in this issue, both he and A. I. R. have misunderstood what I tried to say on page 348. I was not unmindful of the experiments of my father 25 years ago, both in his greenhouse and in the house-apiary. I also remember an experiment not mentioned by either, of his burying colonies in manure. The artificial heat generated by the fermenting mass kept the individual hives warm. But colonies so treated did no better than other colonies packed without artificial heat. As I remember the experiments at the time, it was a question whether or not the heat did not over-stimulate to the positive detriment of the colony.

The plan I outlined on page 348 was not for stimulating *colonies*, but to get *queens* early in the season, the flight to be always outdoors when suitable weather permitted. The plan is working all right so far as getting the cells is concerned; but so far during March (it is now the 28th) we have not had a single fly-day, and this is rather unusual. During April we shall undoubtedly have plenty of days in which the queens can fly out, and meet drones in the yard.

There is another point, that small nuclei for mating purposes could not possibly exist outdoors in a temperature such as we have been having. Experiments thus far show that they do exist in a warm room; but unless we get a fly-day soon there will be trouble.

#### SOME OF THE GOOD THINGS THAT GLEANINGS WILL GIVE ITS READERS DURING THE COMING YEAR.

I THINK that never before in all our experience have we had on hand and in prospect such a wealth of valuable matter for publication as for the present year. Doolittle's special series of articles alone will undoubtedly attract wide attention, and be the means of emancipating some bee-keepers from the vexations of natural swarming at outyards where comb honey is the object. The Alexander series of articles will continue to lighten the burden of the bee-keeper; and R. F. Holtermann will speak from his large experience as a bee-keeper and bee-journal editor.

We have in hand also a fine lot of special articles on important subjects, which will be given to our readers as our space and the season will permit. The article by Rev. Frank McGlade, illustrated by our special artist, in our Dec. 15th issue, on the facetious order, comparing poultry-keeping with bee-keeping, to the disadvantage of the former, has called forth a lot of valuable rejoinders from bee-keepers who are also

poultry-keepers, showing conclusively that the poultry business is a paying proposition when rightly managed, and, what is more, is a valuable adjunct in connection with bee-keeping. These special articles alone will be worth the subscription price to GLEANINGS for a year.

Moreover, our correspondence course in bee-keeping is drawing out a valuable series of questions in the Heads of Grain Department, which will be answered by the editor, based on his experience, and on his knowledge of the various localities where the questioners reside.

We hope, along in the middle or the latter part of summer, possibly earlier, to get out GLEANINGS in our new publishing house that will be equipped with the latest machinery. Our present dress of type is pretty badly worn, owing to the large runs we have been compelled to make on account of the rapid increase in our list of subscribers, of an average of 800 per month since Jan. 1.

My younger brother, H. H. Root, lately from the Northwestern University, is now my assistant and associate. He takes to editorial work like a duck to water. His department is that of sifting out the copy and otherwise preparing it for publication. This leaves me more free to study the needs of our subscribers, to experiment with and work with bees; in short, bring the journal in a general way up to a higher standard than it has been before. We are striking out for 50,000 names, and it looks now as if we were going to reach that number. The strange thing about it is that these new readers are not new bee-keepers, but mainly old ones who have never before taken a bee-paper. Instead of selling their product "at any old price" they will now keep in touch with the market and sell accordingly.

#### CO-OPERATION IN THE HANDLING AND SELLING OF HONEY AND BEE-KEEPERS' SUPPLIES.

The *principle* of co-operation is magnificent; it is Christian in that it aims at mutual helpfulness. In short, it seeks to stimulate brotherhood in its best sense.

Whether co-operation can be made a success or not depends somewhat on the individual membership; but, more than all else, on the character and business ability of the manager elected or appointed. If he is a good man, and will do business on business principles, pay cash in advance, or give satisfactory security for all goods purchased in the name of the society, he will have no trouble about buying goods. In short, he must do precisely what the dealer does, and often for little or no pay. In the majority of cases he soon tires of this, and the co-operative feature is dropped.

We have probably done business with co-operative societies as long as or longer than any other manufacturer in our line, for it is no new thing with us. But because of the fact that some co-operative societies are often not willing to assume responsibility for con-

tracts entered into, and because they have been disinclined to pay a good manager a fair salary, the plan has more often been a failure than a success. There are two or three marked exceptions, and these exceptions are based almost wholly on the essential factors enumerated.

In my opinion the only way to make co-operation succeed is to incorporate the society; then make each member not only subscribe, but pay for a liberal amount of stock. When this is done he is compelled to take his fair share of responsibility. Any business, to succeed, must have capital, for it always costs to do business. The plan proposed by F. E. Brown, looking toward co-operation, at the National convention at St. Louis, was perfectly practicable, but it appears that bee-keepers would not subscribe for the stock in sufficient numbers to do business, and so it has generally been.

It has been assumed that we would be hostile to the principle of co-operation—a perfectly natural assumption, in view of our dealers. This is a mistake; but we have run across in our experience so many instances where the plan was tried and failed, involving severe losses on the part of some one, that a word to the wise will be sufficient. Just as I write these words, information has come of another society that has failed, and left its manager in a "hole."

We have always urged co-operation in selling honey; and to be consistent we could hardly condemn the same principle when extended to the buying of supplies when rightly applied. I see no reason why a manufacturer would not sell to a society properly organized and financed, providing that such society did not publish the wholesale rates it secures, to the outside world that has no interest in the organization, and probably never would have.

#### THE BRANCH-HOUSE QUESTION.

This whole question brings up the matter of whether it is cheaper and better to organize bee-keepers into co-operative societies, or do business through the medium of an agent or middleman. As a matter of fact, there is a certain cost in manufacturing the goods. To this cost must be added the expense of selling. No matter by what plan, this item will be nearly equal to the making.

Some have argued that the middleman—that is, the dealer or distributor—should be abolished and sell direct to the consumer, saving the middleman's profits. The principle is very pretty in theory, but it has not proved to be satisfactory in practice. Years ago, when we shipped all goods from Medina direct to the consumer, the majority of bee-keepers would not order their goods until almost the last minute, then they wanted them instant. They would wait until they were sure of a honey-flow, then clamor for the goods. When they could not get them, then the poor manufacturer was the recipient of all kinds of complaints—bees swarming, no hives nor sections. Under the present plan of having dealers and distributing-



houses, goods are stored all over the United States for immediate shipment, and in sufficient quantities in each locality to take care of the local needs. By this plan time is saved and freight rates are considerably reduced, for the goods go almost the entire distance to the consumer at carload rates. Then there is only a small local freight charge direct to the consumer. Again, the customer can go to the nearest distributing-house, look over the line of goods he desires to purchase, and be advised as to his needs for the locality in which he is located. Say what we may, all business depends on the middleman, always has and always will to a great extent.

Taking it all in all, the principle has given universal satisfaction to bee-keepers, except in some quarters where there is a feeling that the branch-house business adds materially to the cost of the goods. This feeling has been entertained by some honest men, concerning whom we have the highest regard; but they were mistaken as to the facts in the case. It costs about as much to store goods in one place as another. If goods are all stored at the factory, and there should be a fire, the loss would be correspondingly great; but by having them distributed all over the country the risk is reduced, and the same clerical force that would be necessary at the main office to take care of the immense volume of correspondence is placed where it can look after the business to the best advantage, and where it can come in actual contact with the local needs of the vicinity.

Least I may be misunderstood. I will state that I am not trying to compare co-operation with the branch-house plan, for, as a matter of fact, each has its advantages, and, I may say, disadvantages as well.



#### ORDERS OF INSECTS.

We have noted that all the orders of insects thus far treated, if we may except the beetles, and in a sense the thrips and the sub-order *Neuroptera* among the lace-wings, undergo in their development incomplete transformations; that is, all are much the same in all stages of development. We have also observed that all have mouth-parts for biting and eating, if we except the bugs and the thrips, although the latter really do suck. The wings are various; but if we except the one family of scale insects—*Coccidæ*—the females of which are wingless and the males have but two wings, all so far possess four wings. We next consider the

#### DIPTERA, OR TWO-WING FLIES.

These well-known insects are at once recognized by their one pair of wings, which fact is announced in the name *Diptera*, which is from the Greek, and signifies two wings. These may be very simple, as seen in the notorious Hessian flies, and wheat and clover-seed midges, or quite complex as illustrated in the common house-flies, horse-flies, robber flies, etc. Like bugs, the flies, or *Diptera*, all suck. They, like beetles, butterflies, and bees, pass through very complete transformations in their development. The larvæ are footless, and are called maggots. Their mouth is simple, and works to scrape or wound the tissue on which they subsist. The pupa is often seed-like, and is protected only in the last larval skin. These seed-like pupæ—"flax-seed" state of the Hessian fly—are known in science as *puparia*, each a *puparium*.

No insects are better known to man than the two-wing flies, or *Diptera*. The house-flies are ubiquitous, and in the warm days of the year are always with us at meal time, and never wait for invitation. They are equally insistent as we essay an after-dinner nap. Fortunately they cease from their vexing annoyances as the night comes on; but not so the equally well known and more dreaded mosquito.

Many of the *Diptera* are among our most serious insect-pests. The Hessian fly and wheat-midge destroy our most important cereal to the tune of many millions of dollars, often in a single season. The *Anthomyiids* also are serious pests in the vegetable-garden, while the *Trypetas* are dreaded foes of the fruit-man. Others, like the syrphus flies and robber-flies, are very good friends in destroying other insects, though the robber-flies are not as careful to discriminate as we might wish, and often kill our honey-bees; yet on the whole I am quite sure that they do far more good than harm. The horse-flies bite or stab our horses and cattle, and give a cruel thrust with their strong sharp beaks. The sheep-tick is no mean foe to our valuable flocks, while a close relative is the bee-louse, which in some of the warmer regions is no slight enemy of our pets of the hive.

Of late the mosquito has become more interesting to us as the necessary agent in the spread of malaria and yellow fever. As the Texas tick must be present to carry the fatal Texas-fever germs from one bovine to another, so no one would ever have malaria or yellow fever except that the little sporozoan germs or animals were carried to the blood by the mosquito. There is some evidence that the flea, also classed by Linnæus with *Diptera*, though it is very distinct in its structure, carries the plague of leprosy as the mosquito does malaria.

It is interesting to know that the maggots of the common house-fly work on and develop in the manure of the horse-stable. If, then, our automobiles drive the noble horse from us it will at the same time rid us of the fly nuisance.



Watch the weaklings!

Pinch the heads of the worthless queens.

Will Texas get the National convention this fall?

It is the good queen and the good management that work to the best advantage in an apiary.

"Water-white" is the grade of my honey, yet I can not call it "white as water," according to S. E. Miller, in *Progressive*. If "clear" should be used instead of "white," how would "water-clear" sound for a term in grading honey?

If, as is estimated, 3,500,000 visits from the bee must be made, and 62,000,000 heads of clover must be deprived of nectar to collect one pound of honey, how many acres of clover are required to yield an average of one hundred pounds per colony in an apiary of one hundred colonies?

The fellow who thinks he can not afford to buy a good smoker that he needs is the fellow who can't afford to do without it at any price. It's a waste of time and money to bungle along with some bad or worn-out smoker. Don't tolerate it. A good new one will give better satisfaction, cause less annoyance and delay, and will pay for itself in a short time.

The time to put the apiary in "tip-top shape" is at hand. The yard needs a general "cleaning up." The "floors" of all the colonies should be cleaned to free them of the winter's "droppings." The roofs should all be good ones, or be replaced by such. While doing this, notice which colonies are weak or short of stores, and need feeding. Supply all these with syrup, and those that are not queen-right should receive "one brood" or "two broods" as needed from a stronger colony from which to rear a new queen, and also to strengthen them. Unite any that are too weak to pull through. While you are doing all of these things you will still find sufficient time in which to learn, between jumps, some of our "short apicultural terms."

#### BEE-VEILS SHOULD BE USED.

A beginner should never undertake to hive a swarm or work with bees without being well protected by a veil and gloves. An

experienced apiarist works often for months without either veil or gloves, and, indeed, they are a nuisance. The apiarist, however, knows the nature of his bees, and knows how to manage them to avoid stings; yet it is really folly not to use a bee-veil at *all* times. It can never be known what accident may happen, and result seriously. If the veil is not worn constantly over the face it should at least be kept over the hat so that it can be drawn down upon a moment's notice when necessary. For years I had no use for a veil about my face. It was in the way, and did not allow a free circulation of air, so beneficial in a hot climate. Being so overly tall in person it was also quite an annoyance, for limbs catch on the veil, especially when in a rush. But after experiencing several "stinging-scrapes," and working in large apiaries of bees where veils *had* to be worn, and after several instances, more or less serious in nature, of stinging accidents had come under my observation, it was decided best to use a veil at all times and places; hence I prefer to wear a veil whenever among the bees. A good veil does not cost very much; and if made at home the cost is only a trifle. I prefer black cotton tulle with silk facing only, for cheapness, and the silk face is not really necessary except for minute work. For rough work the tulle is all right, and black can be seen through better, and does not blind the eyes as white does.

#### HOW FAR DO BEES FORAGE PROFITABLY?

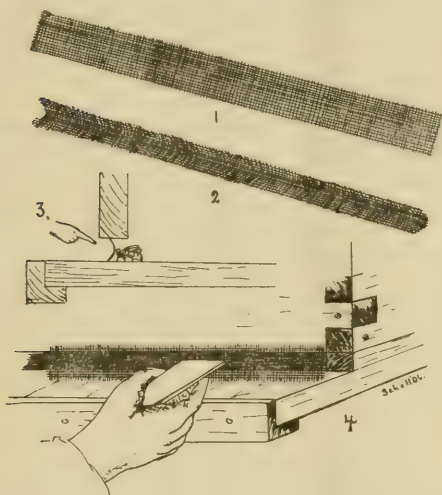
An item of interest that I came across while with Mr. W. H. Laws in some of his outyards about twenty miles west of Beeville was the following: The bees in his Dowd yard were being fed, giving them several hundred pounds of syrup in a trough, outside, and some little distance from the apiary. All colonies were soon busily at work storing it away. When they were well under way, or about the second day, a visit was made to neighboring yards to ascertain to what extent the bees there might be partaking in the fray. Another apiary belonging to Mr. Laws, half a mile away, was working as busily in storing the syrup as the first. An apiary belonging to a neighbor one mile distant also worked as busily at it, the whole number of colonies in the yard engaging in it. But of an apiary of 75 colonies  $1\frac{1}{2}$  miles away, only 14 found the syrup being fed, while only 7 out of 60 colonies, 2 miles from where the syrup was being fed, found it. These few colonies worked just as busily as those in the Dowd yard; but on account of the distance, and, probably, a later discovery of the syrup, they did not store as large an amount per colony. The remaining colonies of the two latter yards,  $1\frac{1}{2}$  and 2 miles distant, did not discover the syrup at all during the three days of feeding. This should help us in getting at an idea of how far bees may forage profitably, and also the distance out-apiaries should be located from each other. It should also give us a clew by which to explain why one colony may store



more surplus during some seasons than others in the same yard. While there may be no bloom in the immediate vicinity of an apiary, some colonies may find plenty to do some distance away.

#### HOW TO CLOSE HIVE-ENTRANCES.

A unique way of closing hive-entrances with screen wire cloth is that of E. R. Jones, of Beeville, Texas. It is the cheapest and quickest that I have ever seen or heard of. I have tried the scheme myself while moving colonies, and was highly pleased with it.



The wire cloth is cut into strips (Fig. 1) twice the width of the entrance to be closed, and exactly the inside length of the same. For the standard  $\frac{3}{8}$  inch-depth entrance the strips would be  $\frac{3}{4}$  inch wide; for the  $\frac{5}{8}$ -inch entrance,  $1\frac{1}{8}$  inches. The strips are next bent into shallow troughs (Fig. 2) by placing them lengthwise between two straight-edged boards and letting half their width extend out to be bent down by the use of another board.

On closing the entrances, simply lay one of these strips down on the bottom-board with its curved "back" in the entrance, and by means of a piece of section box (Fig. 4) push it into place about half way under the end of the hive so it will be in position as in Fig. 3. This finishes the job. The strips are easily pushed in but not out. The sharp projections of the cross-wires of these strips will "stick" into the wood above and below, and form a "truss" in such a way that, the more pressure is put behind it, the firmer the grip will be in the wood. It takes "quite a pull" to remove them when releasing the bees. The point of a pocket-knife is inserted at one end, then pryed out, and the screen is caught by the thumb and pulled out with a hard quick jerk. There is no danger of these entrance-closers being pushed in or torn off *en route*, as they are completely hidden out of the way. Mr. Jones has shipped bees closed in this way in a car several hundred miles without any

trouble. When shipping out small lots of nuclei he fixed them in this way also. Care should be taken not to get the strips too wide or the "teeth" will not stick into the wood. They are simply inexpensive, requiring but little wire cloth, and no strips of lath and nails; besides the time required in the preparation of many of the entrance-closers now in use.

#### WHAT COUNTIES IN TEXAS WOULD YOU SELECT TO START IN TO KEEP BEES FOR A LIVING?

Many questions of like nature were sent to me, and I have tried to answer them as best I could. More or less delay occurred, however, and, to kill several birds with one stone, some of these questions will be answered in GLEANINGS.

First I would refer you to the map of Southwest Texas, p. 1295, 1905. There is a section of country in Dimmitt and Zavalla Counties, extending from Carrizo Springs, in Dimmit Co., to Luma Vista, and Batesville, in Zavalla Co., which impressed me very much when I traversed that section a few years ago. It is a good locality for bee-keeping, with an abundance of the main honey-yielding flora, and lies in what is known as the "artesian belt." Artesian wells are numerous, and obtained at no great depth, with an abundant flow of fine water. The only consideration, to some, would be the distance to a railroad shipping-point, which is Dilley, on the International and Great Northern Railroad, to the south of this section. The roads are quite good, however, as this is not a sandy country, and "freighting" the crop by wagon could be resorted to profitably.

There is another section of country further south. This is located below Cotulla, in La Salle Co. This locality lies along the banks of the Nueces River, and offers locations for bee keepers that I am well impressed with. There is one section in particular, of 42,000 acres or more, owned by people who are offering for sale any amount of it at from \$6 to \$8 per acre for unimproved land. The section has sixteen miles of river front, which makes it quite valuable, as some of it can be irrigated. The shipping-point here would be only about fifteen miles distant.

A section that is drawing most attention is the great territory of country near Brownsville, in the most southern portion of the State, near the mouth of the Rio Grande. This section has only lately been opened up by the extension of a railroad; and as more railroads are built it will mean the opening of many new and unoccupied locations for bee-keeping.

Besides these sections there are numerous localities scattered throughout the entire territory of Southwest Texas that are excellent apiculturally. These will have to be sought out.

I do not know prices of land, as that varies very much in different sections. The land, too, varies. It should be remembered that all this information is given for the benefit

of the readers of GLEANINGS, and especially those who have asked for this information. We are not desirous of more bee-keepers "flocking" here, and are not advertising for them, for we have lots of them; but to such, who want to know something about the country, this has been given, and we hope that it will be appreciated.

[Mr. Jones' entrance-closer is as simple as it is unique, and I am not sure but I have seen it in use somewhere in the West; but I have never seen it in any publication before. We have marked it to go in the next edition of the ABC book, and that is proof enough that we regard it as something extra good.]

You will have to be careful how you invite bee-keepers into your State or you will get a bees' nest (of bee-keepers) in your hair. On the other hand, it may be said that you have the biggest State in the Union, and a good deal of unoccupied bee territory, provided one is willing to sacrifice the comforts of city or town life and move out into the desert; for be it said that, strange as it may seem, there are many good bee locations in the desert portions of Texas. I have traveled through localities in that State where nothing would grow except mesquite, guajilla, and the like, and yet these, despite the awful dryness and the parching sun, would yield immense quantities of finely flavored light-colored honey; although it is but fair to say that mesquite would more properly be called an amber.—ED.]



I have just been reading in *L'Apiculteur*, one of our French exchanges, an account of Mr. Frank Benton's visit in Savoy, a mountainous district in the southeast of France. As there are many reasons just now for the interest felt in Mr. Benton's journey to the East in search of something new in the bee realm, I have felt excusable for desiring to lay before the readers of this journal a translation of the article in question, in order that bee-keepers here may know how our representative was received in France. Besides this, it throws some very pleasant sidelights on Mr. Benton's personality.

The celebrated American bee-keeper, Mr. Frank Benton, being just now on a tour through Europe, I have just had the pleasure of passing two days in his company, July 7 and 8, at Albertville, Savoy, at the home of Mr. Mont-Jovet.

Mr. Benton is known to bee-keepers throughout the entire world by his writings, his researches, and his work in all kinds of bee culture. In particular is his name connected with the Benton cage for sending queens by mail across continents and oceans. He is especially popular in the United States, where for several years he has exercised a great influence in apicultural progress, as much by the great value of his direc-

tions and counsels as by the legislative measures which he has brought about, and the establishment of model apiaries in the different States of the Union, in his capacity as bee expert of the Department of Agriculture, Washington. He has established a national apiary in that city, where queens are received from the principal foreign breeders.

Mr. Benton has traveled much. He has visited Greece, Palestine, Egypt, East Indies, Ceylon, Austria, Italy, Germany, France, and has traveled all over that immense country the United States. He lived for seven years in the island of Cyprus, and four at Munich, Bavaria, rearing Cyprian and Carniolan queens which he sent to the United States and Canada. In connection with Mr. Baldensperger, whose name also is well known, he has brought the rearing of queens to a high degree of art.

Just now Mr. Benton is on a mission from his government to make a comprehensive study of all races of bees, and particularly two varieties peculiar to the East Indies and Ceylon, known to naturalists as *Apis dorsata* and *Apis zonata*, both of which are about double the size of common bees, and having, on this account, tongues longer than those of European bees, which will enable them to work on flowers in a way that ordinary bees can not.

Mr. Benton has also undertaken the task of acclimatizing the pure Caucasian bees in the Rocky Mountains, especially in Wyoming, the climate of which resembles the cold regions of Caucasus. Knowing that drones transmit their traits of character and temper to their kind, and that queens transmit their aptitude for work, and fecundity, he has studied the possibility of realizing practically the crossing of Cyprian queens, the most fertile breeders of all, but the most aggressive, with Caucasian drones, a very mild race, hoping thus to obtain a mixed strain which will combine all the qualities of both races and at the same time eliminate their defects. There will thus be obtained at the same time a secondary result more important—that of favoring the diffusion and popularizing of apiculture by dispensing with stings, which hinder many persons from keeping bees. Mr. Benton will at the same time study all honey-bearing plants, known or unknown, and investigate the means of importing and acclimatizing in the United States those foreign plants which are the best yielders of the nectar. It will thus be seen that his trip is of much consequence to American apiculture.

Leaving Washington June 2, Mr. Benton has already visited a large number of bee-keepers in England, France, Germany, and Switzerland. He is to continue his explorations through Italy, Austria, Greece, Caucasus, Afghanistan, Hindoostan, the Nepal, Java, Borneo, Japan, the Philippines, Sandwich Islands, back to San Francisco, thus having gone around the globe.

Mr. Benton says the American government appropriates \$50,000 a year for the development of bee-keeping. It will thus be seen that we are far behind America. He is 53 years old, medium stature, gray mustache, open countenance, tireless on the march, and indifferent to the heat of the sun. His face shows the effects of his laborious voyages, but they have in no way diminished his activity. He speaks French perfectly, although he has not practiced it for ten years, sometimes thinking for a moment for the proper word. He speaks also several other European languages.

Mr. Benton is a man of very agreeable presence, a good talker, and he held us charmed for two days, and excited much interest on our part while relating some of the adventures of his voyage, which would form a very interesting volume. We were much surprised at the profound knowledge of our eminent visitor. Before leaving he selected several choice Italian queens to send to America, and on the 9th of July took the train for Italy. F. FENOUILLET.

A French exchange relates a curious case that occurred in France. A certain man there had a chronic inflammation of the eyes, that baffled the skill of the physicians. It so happened that he was stung one day on the left eyebrow. The next morning, to his great surprise, the light was no longer painful to the left eye. Attributing the good result to the action of the sting, he applied one to the right eyebrow, with exactly the same result. Strange as the case may seem, it is no more incredible than the many instances of cures of rheumatism that have been reported for years.





DOES HONEY FROM THE SAME PLANT VARY  
IN COLOR IN DIFFERENT LOCALITIES?

On page 58 of the *A B C of Bee Culture* it is stated that "Where white clover does not grow spontaneously, alsike is, undoubtedly, ahead of every thing else now known. It not only produces honey in large quantities, but the quality is not excelled by any thing in the world." Now, this is saying a good deal, and it is not my intention to dispute it. Mr. Doolittle, in his comments on this statement, says, "The quality is excellent, as you state; but the color of alsike honey, in this locality, is decidedly poor, it being of a reddish-pink shade. When clear, or when it is mixed to any degree with our first basswood honey, as it often is, such honey has to go as second quality on account of its color."

He referred to comb honey, of course. While the statement on page 58 of the *A B C* book does not say that the color of alsike is light, or white, I think almost any one would take it so; but whether so or not, it certainly is white in some places where it is grown.

I have given the above, not for the purpose of controversy, but rather for the purpose of stating an exceedingly interesting fact, or fancy or fallacy. Can or does any plant produce honey of one color in one place and another color in another locality? I may as well admit right here that I have, for quite a fraction of my life, believed it was so; but I have at last come to doubt it. I remember very well extracting some honey which, I had every reason to believe, was from red clover, more than thirty years ago. I remember very well, also, the pink shade of this honey, and have many times told how red-clover honey was of a reddish or pink color; and now after so many years I have come to doubt my own statements.

What would we think if some one were to tell us that the basswood honey in his section is of a pink or red or brown color? I fear most of us would do, as many of our judges do, reserve our judgment till some future time before we regarded it as a fact.

It would seem to me now quite as reasonable to expect the flowers of a given plant to change their color as that the nectar of the flowers should change its color by being grown on a different soil or in a slightly different climate.

How, then, do I account for the difference in certain kinds of honey in different years or localities? I account for it very largely, if not wholly, in the mixing of the honey from different sources, in the hive, by the bees, when gathered and stored. We notice

a great difference in clover honey, or honey gathered during the honey season, in different years or localities. While I live in what might be called a clover section, our honey gathered during the clover season in different years varies from "water white" to a wine color, or, perhaps, more accurately, as Doolittle describes it, a reddish-pink shade, although some years I think it rather even darker than that.

Do the seasons so affect the clover as to cause it to change the color of its nectar, and become strong in flavor as well? "Doth the same fountain send forth sweet water and bitter?" I think not; but I have noticed this: That, just as the clover honey is likely to be short, we are likely or quite sure to get more color and poorer quality. As a rule our honey in Western Vermont is of a fine white or very light-amber color; but if the clover fails to yield early in the season, or an open winter has killed most of the clover, then look out for a strong-colored honey, gathered, without much doubt on my part, from white daisies and sumac.

I was amused when, in Chicago some three or four years ago, I met Mr. S. A. Niver. He showed me many favors, and gave me some interesting facts. Among other things he told how he raised and marketed honey in New York State, where he formerly lived. One year he said he had a lot of honey a good deal mixed. Early in the season the bees stored a reddish honey in the sections, and then white basswood honey, and finished them with dark buckwheat. Possessing a large development of the commercial instinct he labeled it "Fancy Mixed," and sold it for a good price. It was certainly mixed, and I have no doubt a fancy article of its kind. I inquired the source of the reddish honey gathered early in the season before basswood. He said he did not know. I then inquired if they had the white daisy in that section, and he informed me that the country was overrun with it.

The past year has, in this section, been very favorable to the growth and bloom of the clovers, and both white and alsike were in great abundance, and the honey gathered from these sources was undoubtedly mixed very largely with some other, yet the quality was what might be called "water white," at least during the best of the season, and I have come to think that all shades off from this are caused by the mixing-in of honey from other sources known or unknown.

In very marked contrast to the past season was that of 1882, when, owing to the previous open winter, almost all clover was killed, both white and red, and what little alsike was grown at that time. Probably some newly stocked pieces of clover showed some signs of life, and gave some flowers; but it was difficult to find it. I feared my bees might starve; but they were not discouraged, but worked on what they could find; and as there was an abundance of daisy bloom in my home yard they filled their hives, and some of them stored considerable surplus; but it was all of the reddish kind. I believe

I have a sample of it now; and, although nearly twenty-five years old, it has never granulated.

But some one will say, as did Mr. Niver, "I never saw a bee on white daisies." Well, I have, but it is not very often that we do. I think I might say further that we feel sure as to the source of this honey. During the past season we have seen very few bees on clover. Indeed, I think when there is a great abundance of flowers there are fewer bees seen on them than when there are but few flowers. In seasons when clover fails to yield early in the season we sometimes have the sections started nicely, and just enough of this reddish honey put in some of them to injure their quality, the same as Doolittle speaks of. When this honey is first gathered it smells and tastes as a field of daisies does. It is rarely very abundant, and, apparently, bees wear out rapidly while gathering it.

From information received from buckwheat sections I am under the impression that the fine appearance of clover honey in those sections is sometimes injured from being mixed with a dark honey gathered from volunteer buckwheat during clover bloom. In thinking over this subject it occurred to me to look in the A B C of Bee Culture to see what it had to say about the honey-producing quality of these somewhat despised daisies, and did not even find it included among those that produce honey. I have received this honey, or what appeared to be, through the mails, sent me as sumac honey; and I have no doubt sumac honey was mixed with it, as both bloom together.

Now, if any one can bring proof, beyond the shadow of a doubt, that the flowers of any given plant actually change color on different soils, or in slightly different climates or seasons; if it is white in one place and dark or reddish in another, it would establish an exceedingly interesting botanical fact, providing the change were sufficiently pronounced as to affect materially its commercial value, as Doolittle suggests.

This may all seem a very small matter, and I would not claim it a large subject; and yet if we are in the habit of accounting for inferior grades of honey from sources of good repute to some mysterious influence of soil or climate, I fear we shall lose some grains of truth that might be of value to us all.

It would be an excellent thing, and a most interesting thing as well, if bee-keepers could or would collect different kinds of honey of undoubted purity for their own pleasure, and for the information of others interested. Few things will interest a crowd quicker than showing samples of different kinds of honey. This would be good work for the boys winter evenings. The expense of sending samples through the mails is very small, and will well repay the trouble.

[On one of my western trips there was nothing, perhaps, that surprised me more than to find alfalfa honey on the amber or-

der in some localities where nothing grew but alfalfa, while in other localities in the West it had the same color as the ordinary clover of the East. Both of the alfalfa sections were irrigated, but the soil was different, and the number of cuttings varied. This, it would seem to me, is a very clear case where the soil and climate do affect the color of the honey from the same plant. I might point out the localities where the darker alfalfa is produced; but some of the resident bee keepers would not thank me for advertising the fact that their alfalfa was not as light in color as that produced in some of the other irrigated sections.

In the East it may be very hard to prove, in view of the great variety of plants that may or may not be in bloom, the effect of climate and soil on the color of honey from any particular plant. —ED.]



#### CURING AND KEEPING COMB HONEY.

"Good morning, Mr. Doolittle. My name is Alderman, and I have come up north from Florida to have a short talk with you about curing comb honey."

"All right, Mr. Alderman. But aren't you a little early in the season in talking about comb honey and the curing of the same when we have snow on the ground?"

"Perhaps so, for you northern people, and it is a little early for us; but I wished to know at this time so I might be fixing what I may need by way of preparation, before I am too busy to do so with my season's work. Will you tell me how you fix your room for comb honey, so it will keep honey after it is off the hives?"

"The most necessary part about a room for comb honey here at the North is to have the roof and sunny sides painted some dark color which will absorb the rays of the sun so as to warm up the whole interior during the day time to from 85 to 100 degrees; but you might not need the dark paint in the South for this purpose. You will know better about this."

"What is the object of keeping honey so hot? I have thought of some way of keeping it cool."

"The object is to keep as near a temperature as possible with that which the bees use when they are keeping honey; for you know that, the longer the honey stays on the hive during warm weather, the better it grows, save the one thing of discoloring the nice white cappings of the combs. Were it not for this coloring of the white combs, and lack of room on the hive, there could not



possibly be a better place to keep honey than on the hive, with the bees covering it. But as this can not well be, the next best thing is to put it in a room which will keep it as near as possible where the bees would keep it were it left on the hives."

"I see. But do the bees keep a temperature as hot as that?"

"The temperature at which brood is reared is from 92 to 98, which is about the same as is needed for the working of wax by the bees; and while we can not keep quite as even a temperature as the bees do, yet we can approximate quite nearly to it; for where the temperature of the room can be kept at 100 degrees during the afternoon of any or every day, the pile of honey we have in the room will become so thoroughly heated through that it will hold this heat till the next day, when the sun comes up to warm it up again; and in this way we have our honey growing better and better each day, similar to what it would be doing if left with the bees, while we do away with the travel-stain which would come to it were it left in care of the bees."

"Yes, I begin to see now. But suppose the temperature goes too high in our hot climate. Might there not be danger here?"

"Possibly the temperature of one of our curing-rooms might run high enough in your climate to melt the combs sufficiently to allow the honey to fall from the sections; but I hardly think so, and especially if you provide for ventilating the room as we do here."

"What means do you employ for ventilation?"

"My honey-room has three windows in it and a door. These all have screens on them; and whenever the temperature of the room rises to 95 or 100 degrees these windows, and sometimes the door, are left wide open. This not only keeps the room from becoming too hot, but helps very much, through a circulation of air all through the room and pile of honey, thus carrying off all moisture from the honey to a still greater extent than where the room is kept shut all the while. This is also something on the principle that the bees cause the honey to become better in quality when it is left on the hive."

"What do you mean by that?"

"Through their fanning at the entrance, on hot days, the air is caused to circulate all through the hive, thus carrying the moisture out into the open air; for this ventilation part is one of the great items with the bees by way of reducing the thin nectar, as brought in from the fields, to the nice ripe honey which we so much enjoy."

"Well, the bees do know what they are about, don't they? But how do you pile your honey when it is in the room?"

"That depends upon how it is left. If you take it from the supers then you will want a platform fixed so that none of the honey comes nearer the floor than one foot, for it is damp down on the floor, especially where the honey is set right on the floor so as to shut off all ventilation. Then the top of the platform should be made of slats

strong enough to hold the weight of honey you expect to place on it, and these slats should be so spaced that the edges of the sections just rest on them, leaving the space under the larger part of each section all open to the air."

"What is that for?"

"That is so that the air can go all under and through the pile in every direction, the same as it would do were the sections left on the hive; for if you leave all sections a bee-space apart, the same as they are on the hive, you will have ventilation going on between every section in the whole pile, no matter if you have five to eight tons in it, as I did one season."

"I had not thought of that. But suppose I wish to leave the sections in the supers, just as they come off the hives, till I wish to send the honey to market—what then?"

"Fix your platform just the same, only have it so that the edges of the super rest on it, the same as the sections did by the other plan. Now, after you put a super on the platform put an inch-square block on each of the four upper corners to the super, and on these blocks set your next super, and so on till your pile is completed. In this way you have things fixed as before, and with very much less work, if you have extra supers enough so that you can spare all full ones till the end of the season."

"I see now. This last is much the easiest way, and I will make a few extra supers, I guess, so I shall have all I need. Is there any thing more?"

"Yes, there is one thing I forgot to say in our talk; and that is, no super or sections are to touch the side walls to the room in any place. I generally see that they are at least two inches out from the walls on every side, for the air seems more loath to circulate around the sides of the pile than up through it."

"How long will honey keep in this way? I want to keep mine until there is a demand for it; and if the demand does not come the year it is produced, I want to keep it until there is such demand."

"The honey will keep getting better and better just as long as the proper conditions are kept up. We have no trouble here till the dark cloudy fall days come on, with their mists and rains. Then we have to resort to artificial heat, such as oil-heaters, stoves, etc.; and if you have such weather down there in winter as we do in October and November here, you will have to employ artificial heat as well or else have your honey begin to deteriorate."

"And can I keep section honey for a year or two, if I keep the temperature from 80 to 100?"

"Yes, certainly. During winter, here at the North, we run our furnaces and coal-stoves all the while, night and day; and by piling the honey in such a heated room, and throwing a sheet or something of the kind over the pile of honey, to keep the dust off, it will keep just as well through the winter as at any other time of the year."

"You think that is right?"

"I know it—don't think any thing about it; for I once kept some section honey standing on the mantel-shelf behind the stove, winters, and in the honey-room in summer, for three years; and when we used it at the end of that time it was the thickest and best-flavored honey I ever tasted. The only trouble here at the North would be that it would require considerable labor and fuel to keep a whole crop of honey a whole year through. The question would be whether we could get enough above the usual selling price in the fall to pay for this. If we were sure that any certain year of failure would follow one of bountiful yield it might pay; but with the large area of our country it is a rare thing that the failure is great enough the whole country over to raise the price sufficient to cover the cost of keeping the honey."

"Well, I think it can be made to pay in the South, and I am going to try the matter. I thank you very much for sending so much time with me."



## HOW SHALL WE MAKE OUR INCREASE?

How to Control Swarming at the Same Time;  
a Revision of the Former Article.

BY E. W. ALEXANDER.

Our readers will remember the article on this subject by Mr. Alexander, in our April 15th issue, 1905. Very few articles, probably, have received the comment that this one has; and in view of this we have asked our correspondent to go over the same ground again, incorporating the various comments and criticisms. It is very seldom that we reprint an article, but we are glad to do it in this case, believing that it will be appreciated in its revised form.—ED.

This subject has received, perhaps, as much thought and study as any other one thing connected with bee-keeping, and I will try to show that, with proper management, you can have two colonies, each nearly equal to what the mother colony would have been for the clover harvest, if not divided, and fully equal for a later harvest.

In calling your attention to this matter I take it for granted that you keep bees like myself, for the purpose of making the most money out of them you can, regardless of increase or the number of colonies you may have. Simply make what increase will add to your present season's crop of honey. In the first place, let me impress upon your mind the importance of doing every thing in your power, not only to build up all your colonies as strong in bees as you can after tak-

ing them from their winter quarters, but to keep them in that condition to the end of the season; for without strong colonies we can not expect much surplus. As the day is now past when natural swarming is desired by any progressive bee-keeper, we will turn our attention to some practical way of making artificial increase.

The most common way of doing this is either forming nuclei and afterward building them up into strong colonies, or dividing a strong colony at once by putting the greater part of the bees with their queen in an empty hive on the old stand and setting the old hive containing the brood away some distance in a new place. Each of these methods has some serious faults. The nucleus method usually requires so much time that frequently the best part of the harvest is past before they are in condition to take advantage of it. They also require much work and attention, and the other way of dividing the strong colony is all wrong in every respect.

I think I hear some of you say, "Yes, but that is about the same as natural swarming, only the old hive is set on a new stand."

I will admit it is something the same, though not half so good; for in natural swarming the old hive on its old stand retains part of its working force, and matures all its brood; whereas if divided, as is frequently done after its queen and most of its working force are left on the old stand, and it finds itself in a new place without its queen, the greater part of the bees that have ever been out to fly will return to the old stand and join the swarm, leaving the old hive with all its brood in a deserted condition. Then the few remaining bees will destroy every egg and nearly all the uncapped larvæ. Here you lose enough brood, many times, to make nearly a swarm.

After studying on this subject for many years, and trying every thing I could think of to prevent this loss of brood in making our increase, and at the same time avoid the loss of valuable time in fussing with nuclei, and at all times keeping every colony in good condition to take advantage of any unexpected harvest that might come, I hit on what I consider the most practical way of making increase of any thing I have ever tried or heard of. It is this:

When your colonies are nearly full enough to swarm naturally, and you wish to divide them so as to make two from one, go to the colony you wish to divide; lift it from its stand and put in its place a hive containing frames of comb or foundation, the same as you would put the swarm in providing it had just swarmed. Now remove the center comb from your empty hive, and put in its place a frame of brood, either from the hive you wish to divide or some other colony that can spare one, and be sure you find the queen and put her on this frame of brood in the new hive; also look it over very carefully to see that it contains no eggs or larvæ in any queen-cells. If it does, destroy them. Now put a queen-excluding honey-board on top



of this new hive that contains the queen and frame of brood with their empty combs, then set your full queenless colony on top of the excluder; put in the empty comb or frame of foundation, wherever you got your frame of brood, and close the upper hive except the entrance they have through the excluder into the hive below. Now leave them in this way about five days, then look over the combs carefully, and destroy any larvæ you may find in queen-cells unless they are of a good strain of bees that you care to breed from, for they frequently start the rearing of queens above the excluder very soon after their queen has been kept below by the excluder. If so, you had better separate them at once; but if they have not started any queen-cells above, then leave them together ten or eleven days, during which time the queen will get a fine lot of brood started in the lower hive, and every egg and particle of larva that was in the old hive on top will have matured, so it will be capped over and *saved*; then separate them, putting the old hive on a new stand. It will then be full of young bees mostly, and capped brood, and in about 24 hours they will accept a ripe cell, a virgin, or laying queen, as they will realize that they are hopelessly queenless. I would advise you to give them a laying queen, as I never like to keep my full colonies a day longer without a laying queen than I can help. In this way you have two strong colonies from one, as you have not lost a particle of brood nor checked the laying of your queen; and with me it almost wholly prevents swarming. This is the way we have made our increase for several years, and we like it much better than any other way we have ever tried. In doing so you keep all your colonies strong during the whole summer, and it is the strong colonies that count in giving us our surplus.

The mere fact of having a large number of colonies does not amount to much unless they are strong in bees and are *well* cared for at all times. This is a fact that many have sadly overlooked; and when the season comes to a close, giving them a small surplus, they feel disappointed and lay the fault on many things that have had but little to do with their failure.

In making your increase in the above way your new swarm on the old stand is in fine shape for a clump of sections, as it has a large working force backed up by having its hive nearly full of brood, and but little honey, as the bees have been in the habit of storing their honey in the old hive that was on top, so they will soon go to work in the sections and have no notion of swarming. Then the old hive that has been set away can usually spare 15 or 20 lbs. of honey, which can be taken with the extractor, giving its new queen plenty of room to lay, and in a short time will be one of your best colonies, and also have no desire to swarm.

Now, if you have done your duty by your bees since taking them from their winter quarters, as I have recommended in the above, keeping them snug and warm, and

feeding them a little thin warm syrup nearly every day for the first 30 days after they commence to fly, you can have two good strong colonies in the place of one ready to commence work on your clover harvest, which here commences about June 15.

From an extensive experience along this line I find I can get nearly twice the amount of surplus by dividing as above stated over what I was able to acquire either by letting them go undivided or dividing in a way that caused the loss of a greater part of their brood. This losing of brood we must guard against at all times if we expect to secure a fine surplus. It costs both time and honey to produce it, and it is the principal factor in obtaining those strong colonies that give us tons of honey.

Far too many bee-keepers think that the value of their apiary consists in the number of colonies they keep. This is so only to a certain extent; for if you had 1000 colonies and they were all weak in bees, so they would give you no surplus, they would not be worth as much as one good strong colony that would give you 200 or 300 pounds of honey.

Several years ago one of my sons bought nine colonies of bees in common box hives, about the first of June. He brought them home and transferred them at once to movable-frame hives, and in about three weeks divided them, making 20 colonies of the 9 he bought, using some queen-cells I had on hand for his surplus colonies. He then attended to those 20 colonies so they were all strong at the commencement of our buckwheat harvest. I then lent him 20 hives of empty combs to put on top of his colonies to extract from. He took 2849 lbs. of extracted honey from those 9 colonies and their increase, and left them in good condition so every one came out the next spring in fine order.

Another son, the same season, took one colony, divided into three, and received 347 lbs. of extracted honey. They also came through the following winter in good condition. I speak of these cases simply to show that it is not necessary to keep hundreds of colonies in order to get a little honey. If you will only keep strong colonies and give them the best of care you will soon find both pleasure and profit in bee-keeping.

Now in regard to the criticism on this way of making our increase, which has been published in GLEANINGS. I find that nearly all who have made a failure of the method have taken colonies that had already made some preparations for swarming by having eggs or larvæ in their queen-cells, as did J. D. Ronan, of Chesterville, Miss., and also Don Mills, of Highland, Mich.

During the summer I received a few letters from parties who had made a failure of this method in about the same way. Some had taken colonies that had capped queen-cells in their hives at the time they put the queen in the under hive, and, of course, they swarmed in a day or two. I can not see that these failures are any proof of fault in

the method. When we work with our bees we must always use some discretion in such matters. If a colony is very strong in bees it certainly requires different management from one rather weak.

Since looking over the many comments on this way of making our increase I am somewhat pleased to find that so few have failed. Nearly all speak of it as a perfect success. The few that have failed were unfortunate in taking colonies that had already contracted the swarming fever. When they have done that it is almost impossible to prevent them.

Several parties have written me in about the same language as did George Shibber, of Randolph, N. Y., in the July 15th issue of GLEANINGS, page 777.

In conclusion I advise you to look over all the combs very carefully for eggs or larvæ in the queen cells of the colonies you wish to divide. If you find any it is sure proof of their intention of swarming; then you had better leave them only a few days together. The number you must decide yourself according to the age of the eggs or larvæ in their queen-cells. If you are careful about this part I am sure you will find it a fine way to make a large increase, and at the same time have your colonies in good condition for any harvest.

Delanson, N. Y., Jan. 15.

---

## HOW TO PROVIDE PROTECTION FOR SUPERS.

### The Value of Such Protection.

BY IRA BARBER.

I wish to add a little to the article of Mr. S. Simmins on the importance of protecting sections from cold, as given on page 1238. He did not tell how to do so in his article; and as I have spent my life in the production of comb honey I will state how I prepared my hives and sections to keep them as warm as possible through all changes of the weather that would take place throughout the honey season.

The hive should be made with a rim about one inch all around, about 1½ inches below the top, for a cap to rest on to go over the sections to keep the cool night air away and also retain all the heat from the bees.

I used a low cap eight inches high for the first set of sections at the beginning of the honey season; then as I tiered up higher, caps were used to keep all snug and warm. This can be done by using rims without top or bottom slipped on over the supers, but always keep the cap with a good tight top on top of the pile, no matter how many supers you have on the hive.

To retain the warmth I used to put the top cloth to the hives on top of the sections, and then on top of that a large newspaper, like a sixteen-page paper, one large enough to

cover the super all over with ten or twelve thickness of paper so that no heat from below could escape with the top board of the hive laid on top of all to keep them down snug and warm; and as you tier up, keep this packing on top of the pile with a good tight cap over all, and you will find your bees at home tending to business at all hours, night and day, if there is anything coming in, even if the nights are cool; and your bees will surprise you to see how they will climb up and finish sections as long as there is any thing coming in.

Now, of course this plan does away with all upward ventilation, but which is entirely unnecessary, as bees will do all that at the bottom if your hive is raised up one inch all around except at the back end, as I always like to have some part of the hive rest square on the bottom-board.

A good roof should protect every hive from the sun, and I think there is none so good as one made gable fashion so there will be a current of air at all times passing between the roof and the cap of the hive to carry off the heat that the sun produces by shining right down upon them.

DeKalb Junction, N. Y., Jan. 17.

[When I prepared the announcement of Mr. Barber's death, as given in our February 15th issue, I was not aware that we had an unpublished manuscript from him. When it came it was promptly passed in to the printers at the time by my assistant, and you can imagine my surprise when I saw the communication in type. It is evident that the ink was scarcely dried when the trembling hand that penned the words assumed the condition of palsy which was soon followed by death.

About two years ago I made all arrangements to visit him to discuss that all-absorbing question, the temperature of bee-cellars, for he it known he was an advocate of high temperature. But conditions arose whereby it was impossible for me to get away—a fact which I regret the more now, for Mr. Barber was one of the brightest bee-keepers in the United States. This communication, coming from him at this time, may seem almost like a voice from the grave.

It is needless for me to say that I think our departed friend is entirely correct in all he says for localities having cool or chilly nights. I am of the opinion that comb-honey supers protected in almost any locality in the North would give better results than those not protected; or, to put it in another way, the ordinary ¾ thickness of the standard comb-honey supers is hardly sufficient protection against the varying temperatures between a noonday sun and an atmosphere at night sometimes as low as 60 or 65 degrees. A protecting-case made of roofing paper or some light thin wood, I think will pay for itself, if not in one season at least in two. Let no one construe this as a bid for trade, for as a matter of fact one can buy his roofing-paper anywhere and make up his own cases.—ED.]



## THE PREVENTION OF SWARMING BY MEANS OF THE HIVE.

BY L. A. ASPINWALL.

[As promised in our Feb. 15th issue, page 204, we take pleasure in reproducing an article from the *Bee-keepers' Review*, by L. A. Aspinwall, describing his new non-swarming comb honey hive. I think our readers will agree with me that nothing like it before was ever illustrated and described—at least not in America. While the Doolittle method of swarm control relates to a system of management, the one here shown is all in the construction of the hive. For the present, at least, Mr. Aspinwall says he is not prepared to furnish the hive nor to have any one else make them—that he wishes to experiment further before they are placed on the market. So it would be useless to write us or Mr. Aspinwall for hives or prices on the same.—Ed.]

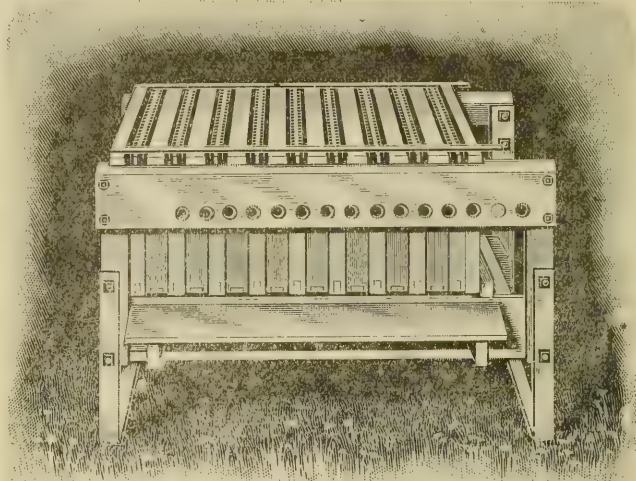
The ultimate control of the increase of colonies, culminating in the absolute prevention of swarming, is no less essential to successful bee culture than the control of increase in stock and poultry breeding. With no visible means to prevent increase among our domestic animals and poultry, perplexities would prevail, not unlike those experienced by bee-keepers during the swarming season; and, I might add, with the promiscuous mating of queens.

### THE YIELD DOUBLED BY NON-SWARMERS.

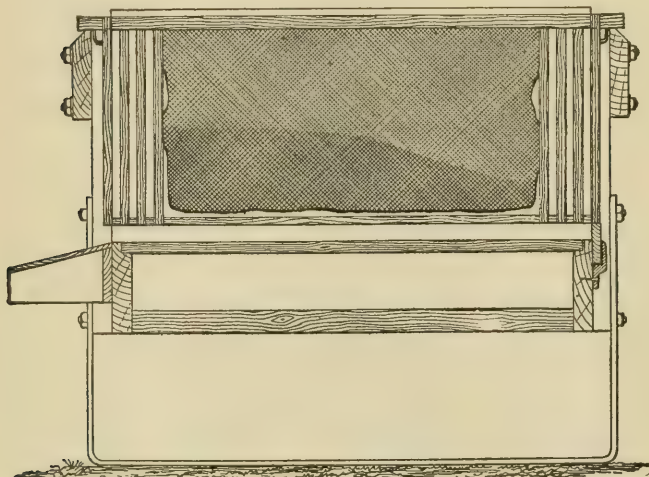
With our colonies under perfect control we may reasonably expect the yield of honey, in average seasons, to be at least double. Furthermore, with non-swarming hives the ability to secure all the honey possible from white clover gives an added value to the increased product.

Having experimented 17 years with from 30 to 50 colonies of bees, involving great expense (both as to labor and money), in the employment of various methods, I must take issue with experimenters generally in this line, in that a successful method to prevent swarming must primarily be found in the *hive* rather than in the methods adopted. However, be the hive never so perfect, any neglect to use the methods requisite in its use will result very largely in failure.

In the prevention of swarming we must first prevent a development of the factors which induce it. These hinge mainly on a crowded condition of the colony. This con-



COVER AND SECTIONS REMOVED, SHOWING SLATTED DUMMIES IN PLACE.



SECTIONAL SIDE VIEW SHOWING SLATTED ENDS OF BROOD-FRAMES.

dition results in the clogging of the brood-apartment with honey, and impeding the queen in her work of laying. The lack of storage room is a very important factor to be considered in this connection. Ventilation, and freedom of access to all parts of the hive, must in no way become impeded. The hive employed must embody requisites which, with proper management, will prevent a development of these factors.

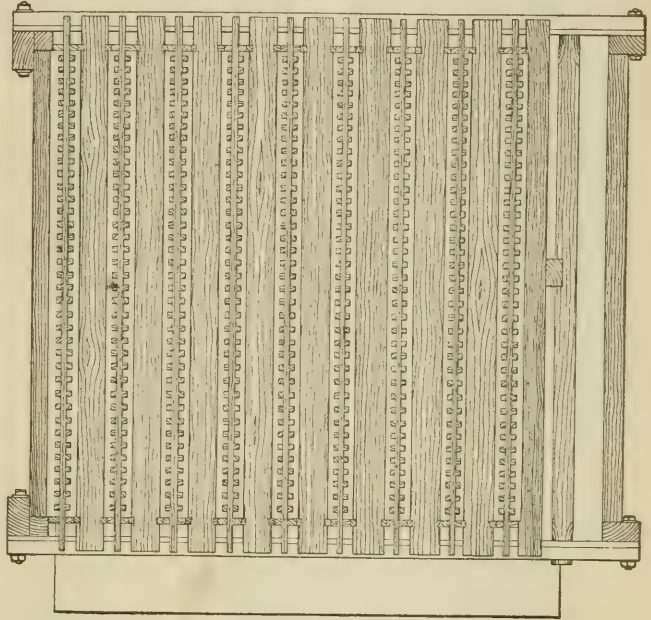
### ESSENTIAL FEATURES OF A NON-SWARMING HIVE.

The essential feature embodied in the construction of my hive is an arrangement whereby the brood-combs may be separated, or spread, covering a greater area. It is an established fact that any amount of box or surplus room will but partially

overcome a crowded condition of the brood-nest.

The introduction of slatted frames, or dummies, previous to the swarming season, I have found to be the great essential in overcoming the crowded condition, thus retarding the swarming impulse. This plan has been the basic or foundation principle of all my experiments since 1893. The thickness, size, and number of these slatted frames have been wonderfully changed during the 12 years which have followed. I now arrange the comb-frames with slatted dummies between them, and on both sides and ends of the hive, which includes a new frame. While I have used slatted dummies at the sides for years, the new frame was first made with the view of rapid handling, and to prevent the killing of bees thereby. By reference to the accompanying illustration a slatted extension at each end of the frame will be seen. As already stated, through the tendency of bees to crowd the brood-nest, the slatted portion, although filled with them upon opening the hive and removing the frames, will almost instantly become free for closing, by their movement toward the combs. It is evident that a sufficient distance of slatted space between the combs and end-bars may be employed which would extend entirely beyond the reach of the strongest colony during the warmest weather. But there is a mean distance which is practically right. This I have made to conform to the number of sections, five of which are used in each holder contained in

the super. We will now see that, with additional length of the slatted dummies, which, together with the improved frames, tend to expand the colony, also affords free movement of the bees at either end, thus relieving the tendency to become crowded at the side where the bees enter in greatest numbers during a honey-flow. Furthermore, we have the combs, by reason of the slatted ends, most thoroughly protected from

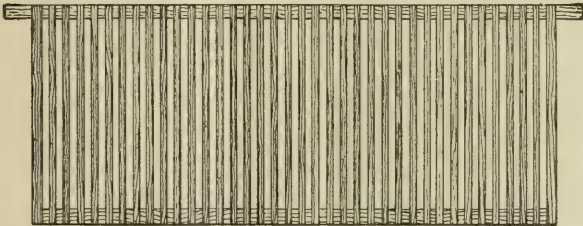


TOP VIEW OF BROOD-NEST, SHOWING UPPER EDGES OF SLATTED DUMMIES.

the outside heat during very warm weather, which is another factor overcome in the prevention of swarming.

#### THE IMPORTANCE OF FREE COMMUNICATION WITH THE SUPER.

As with the development of mechanical contrivances, we find intricacies, evolving and forming a part of a non-swarming hive. Not only must the crowded condition be overcome, but much greater access afforded the bees for entering the supers. Who has not noticed sections, well filled with honey, having the lower edges of the wood gnawed by the bees? This, to the thoughtful mind, is an evidence of their requirements. It is equivalent to a demand for wider openings. By reference to the accompanying illustration, a plan or top view of the hive may be seen, showing the comb-frames and dummies alternating each other. Instead of the latter having wide top-



SLATTED DUMMY FOR USE IN BROOD NEST.



SLATTED DUMMY FOR USE IN SUPER.



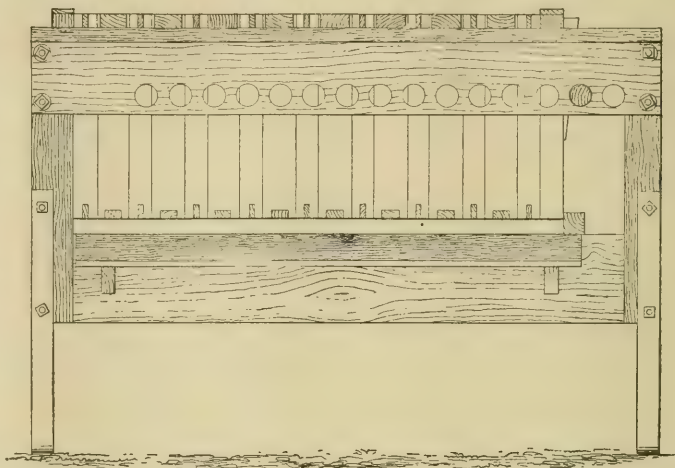
bars, additional bee space is given, which is correspondingly furnished by the super dummies or separators. This construction never fails to make the supers acceptable to our bees. With increased bee-space the supers become, as it were, more a part of the brood-chamber, inviting the storage of honey where it will be accessible to the cluster during winter. Bees reluctantly place their stores where it will fail to meet their requirements in cold weather.

But with this free passage to the supers, a corresponding evil presented itself which had to be overcome in order to gain complete success. I refer to the storage of pollen in the sections. The additional bee-space invited the storage of pollen as well as honey. I found, however, that, although the bees ventured above with pollen, the queens confined themselves exclusively to the brood-nest.

THE PART THAT DRONE-CELL FOUNDATION PLAYS IN THE PROBLEM.

The past season has been prolific in methods developing the non-swarmers. Knowing that bees seldom deposit pollen in drone comb I concluded to experiment with over 1000 sections containing drone-cell foundation. Although fearing the queen might occupy them, I was agreeably surprised to

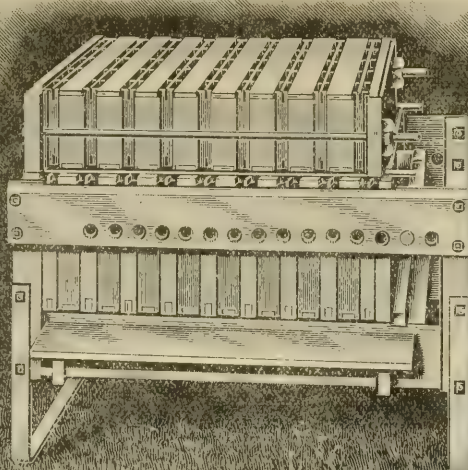
find that but four sections out of the whole number contained a few cells of brood, which I could readily account for. If, however, sections containing drone-cell foundation be placed on swarming hives, a crowded condition of the brood-chamber would be likely to force the queen above and occupy such cells in the laying of eggs. The slatted



FRONT ELEVATION, SHOWING SLATTED DUMMIES ALTERNATING ONE ANOTHER.

dummies of a non-swarmers prevent the crowded condition, and overcome all tendency to crowd the queen, which is a factor inducing the swarming impulse.

In the field of invention the unexpected invariably happens. It occurs in two ways. In the development of a principle many of the difficulties overcome are attended with a corresponding evil, which, upon being eliminated, gives us more than was anticipated. In respect to the latter, drone-cell foundation above the brood-nest entirely eliminates the storage of pollen; and with sections containing worker-cell foundation at each end of the section-holders (where no pollen is likely to be stored), a wonderful impetus is given to the storage of honey. By this arrangement we give the bees just what they build when left to instinct—both kinds of comb. We frequently find worker foundation in sections largely changed to drone size, thus displaying their instinctive demands relative to the construction of comb. Using three sections of drone foundation, and but two of worker size, which



HIVE WITH COVER REMOVED, SHOWING SUPER WITH SLATTED DUMMIES BETWEEN THE SECTIONS.

are placed at each end of the holder, thus making an outside row, induces the bees to complete them (the outside ones) much sooner than if all contained the same size of cells. This rapid filling of the outside sections, which is due to the excess of drone-size cells, affords another illustration in which the unexpected happened, giving more than was first expected. It may be well to state in this connection that the supering surface should be sufficient to contain from 35 to 40 sections in a super, or approximately about 25,000 cells, and 50,000 upon being tiered, which should be done when the first set of combs are about half drawn out, provided the honey-flow is good. In order to give employment to all the comb-builders, as well as those engaged in the storage of honey, without interference in their respective duties, from 50,000 to 75,000 cells are requisite. Let us also note that a *non-swarmling hive is imperative*. I mean by this, unless we keep pace with our colonies in the storage of honey by adding supers *when required*, the brood-apartment will become clogged, and the building of burr-combs ensue, thus developing a factor inducing the swarming impulse. The non-swarmer will be, most emphatically, the hive for progressive bee-keepers.

But some one may inquire as to the quality of honey and the thickness of comb when drone-cell foundation is used. I will simply say it transcends honey in worker comb for beauty, while the amount of wax per pound of honey is not increased in the least.

Another advantage contained in the non-swarmer is (if properly managed) the almost complete elimination of burr-combs, which are so annoying in the production of comb honey.

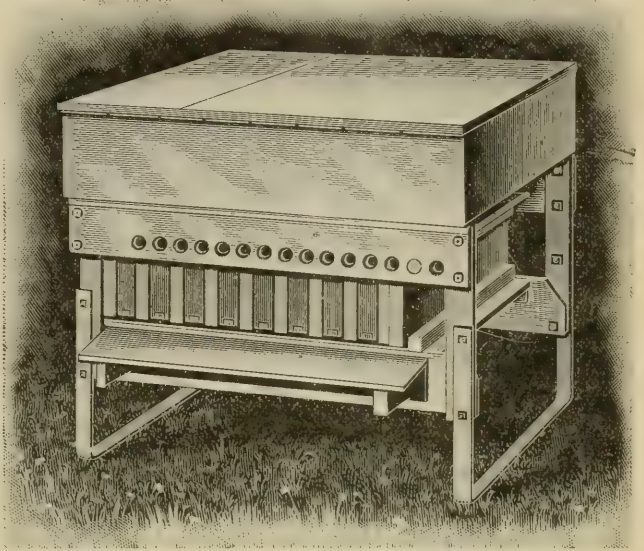
From 35 colonies, with an average production of 128 sections per colony, the burr-comb scrapings amounted to less than a quart, and most of these were due to experiments. Having conducted these experiments to prove the correctness of the principle involved in the hive, much less honey was stored than would otherwise have been.

Under the best-developed working plan, my bees would doubtless have averaged 150 sections per colony. The activity of a newly hived swarm does not compare with that of a strong non-swarmling colony when the honey-flow is good.

So rapid has been my progress in the development of a non-swarmer of late, I can safely say that more advance has been made in the last two years than in the 15 which preceded them. And what a comfort to

keep bees with all swarming eliminated! What possibilities in the maintenance of out-apiaries, also, to unite the keeping of bees with some other occupation!

In producing the non-swarmer, five important and distinctive features essential in its construction have been developed. As already stated, the basic principle lies in the



HIVE COMPLETE, WITH COVER IN POSITION.

slatted dummies. Next came increased communication between the hive and supers. Following this, slatted ends were made in the comb-frames; and, in consequence, longer dummies were used. To prevent the storage of pollen in the sections, and at the same time retain wide passageways, led to the use of drone-cell foundation. In order to increase and equalize the storage of honey throughout the super, it was found advantageous to supplement the drone-cell foundation with worker size placed at the holder ends.

#### HOW I BEGAN BEE-KEEPING.

The Value of Books and Journals; a Financial Report of One Season's Success; How Colonies in the Cellar are Taken Care of.

BY A. K. FERRIS.

May 23, 1902, I bought my first colony of bees. Prior to that time I was in the floral and market-garden business; and finding it necessary to have bees assist in fertilizing my vines I began looking for a colony. It was not necessary to look far, for bee-keepers were not very enthusiastic in our location. Finding one somewhat discouraged I asked him what he wanted for a colony. He said, "The bees, hives, and all are for sale." The price was agreed on. I bought



his eight colonies of bees, and what he had in the bee-line, for \$80, he assuring me that there was 200 pounds of honey in the hives; but when they were brought home I found there was not ten pounds in the whole eight, and they were already carrying out some of their brood, which, by the way, was about two to four frames in two full ten-frame stories.

As I think of it now it makes me think of a man trying to keep warm in a tobacco-shed. But that man believed in plenty of room and the let-alone method.

I at once sent for Mr. A. C. Allen, of Portage, Wis., a dear friend of mine, who came to my assistance, giving me many pointers, and helping me get the bees into small enough space so they could control the heat. I supplied them with honey and reduced the number from eight to six. That year was a very poor one. Nearly all the bee-keepers fed, and that away into July. The result was, I had to feed a good share of the summer; but it paid, for I put 33 colonies in the cellar that fall. The next year I secured an average of nearly 100 pounds of honey besides getting a large number of combs built with which to work.

In my visit with Mr. Allen I made known my desire to rear queens. Mr. Allen, being a very prudent man, said all he could to discourage me; but when he saw I was persistent he advised me to obtain Doolittle's Scientific Queen rearing and other standard works; also to subscribe for some of the bee-journals, which I did, and I thank God for it; for my success was due largely to these books and journals. Fourteen months from the time I bought the bees I took an invoice of the apiary, and here is one of the original copies. It was these results that made me realize there was profit in apiculture.

#### FINANCIAL STATEMENT OF APIARY FROM MAY 23, 1902, TO JULY 23, 1903.

|                                                                                                                                    |          |
|------------------------------------------------------------------------------------------------------------------------------------|----------|
| May 23, 1902, bought 7 colonies of bees, 33 old hives, 10 lbs. foundation, three-frame extractor, and a few other things, for..... | \$ 80 00 |
| August 15, 1902, one colony bees.....                                                                                              | 3 00     |
| 1000 lbs. sugar at an average of \$4.15 per cwt.....                                                                               | 41 50    |
| 45 lbs. foundation at 45c, and 50 top stories at 45c.....                                                                          | 42 75    |
| 1 queen for \$8.00; lumber and molding, \$7.00.....                                                                                | 15 00    |
| 750 brood frames, \$10.50; queen-cages and smoker, \$2.00.....                                                                     | 12 50    |
|                                                                                                                                    | \$194 75 |
| Sold 3200 lbs. honey for.....                                                                                                      | 262 00   |
| Increased to 105 colonies of bees worth \$2.00 each.....                                                                           | 210 00   |
| Sold 23 lbs. wax at 30c, and 29 queens for \$19.00.....                                                                            | 25 90    |
| Increased 750 good straight brood-combs, valued at 15c each.....                                                                   | 112 50   |
| Total income.....                                                                                                                  | \$610 40 |
|                                                                                                                                    | 194 75   |
| Actual gain (personal labor not included).....                                                                                     | \$415 65 |
| Actual gain per swarm in 14 months was \$51.95.                                                                                    |          |

From this report you may wonder how success came so soon after taking up bee-keeping. Well, I studied the books and journals, taking care of the bees the best I knew how, and, as a result, I have never lost a full colony and only three nuclei in wintering. If bee-keepers will see that their bees are heavy with good food, and not simply capped pollen, looking after the tempera-

ture and ventilation, bees will winter all right. My cellar has been flooded an inch or more two or three times, yet I have never had a dozen moldy combs. Provide each hive with a double thickness of burlap and set the cover so there will be a crack for moisture to escape. Remove the bottoms if this can be done; if not, remove the covers altogether, and just leave the burlap above the combs. I have wintered a number of two and three standard-frame nuclei, seldom losing one. It was through a desire to winter over some extra queens that I discovered the two-queen method of honey-production.

Early in my experience I learned that one of the first things to be considered is a nice lot of good straight all-worker combs. Many persons with good hives and bees are still clinging to combs with drone comb in them. These are worse than none if used in the brood-nest, for they occupy the space that might be used by good ones, for a good share of their profit is gone by producing drones.

Having learned that success in apiculture depends on the proper performance of many details, I was led to consider each manipulation recommended in the journals, and ask the reason why.

Here is where a great many fail: They do things simply because some one else does it that way. To succeed we must know why we do a thing, and then see that it is done at the right time and in the right way.

In further articles I will tell how to produce more honey from a given number of colonies, and also give a description of my two-queen system.

Madison, Wis., Jan. 29.

[It will be remembered that Mr. Ferris is the gentleman I introduced on the front cover page of our last issue as the three-year-old bee-keeper whom I thought would be able to instruct some of the Gamaliels at whose feet he had been sitting. We shall see.—ED.]

#### THE SCIENCE OF SUCCESSFUL WINTERING OF BEES.

The Effects of Moisture, and How to Dispose of it.

BY ALLEN LATHAM.

The wintering of bees has ceased to be a bugbear, and many bee-keepers are now as confident of getting their colonies through the winter as a dairyman is of wintering his cows. This success is not due to a scientific knowledge of the requisites for good wintering of bees, but rather to the blind following of methods which usually give satisfactory results. It has seemed to me desirable to write an exposition on the subject, and to deal with it, so far as lies within my power, scientifically. Such an article seems necessary at this time when certain authorities are staunchly advocating a method which is unsafe—safe, possibly, in certain winters,

but sure to bring disaster when the right combination of conditions arises.

All observers are well united in decrying moisture, whether in cellar or in outdoor wintering; and most methods which can be expected to give good results are planned, in a greater or less degree, to minimize moisture. That there are apiarists who are too indifferent to the presence of humid air about the bees in winter is abundantly testified to in the numerous articles which appear on this subject. That one can not be too zealous in his efforts to reduce the evil effects of moisture is the stand I take; and I hope, in what I have yet to say, to show that I am on solid ground.

Why is there moisture present about bees? and why is this moisture harmful, if persistent? are two questions which first engage our attention.

The winter food of bees is a mixture of carbohydrates—substances made up of carbon, hydrogen, and oxygen. In its decomposition and oxidation within the body of the bee there result two products—carbon dioxide and pure water. These products normally will both leave the body of the bee as gases—the dioxide diffusing into the air, the water vapor entering the air just as water leaves wet clothes and lets them become dry. It is thus evident that the air in and about a cluster of bees in winter is bound to become humid; and, if the circulation of the air is sluggish, the moisture will increase to the extent that combs, hive-walls, and, in the case of cellars, all surrounding objects will receive water by condensation. Thus, briefly, is the first question asked above answered.

The second question can not be so briefly answered, for we must first consider how the bee eliminates the water which results from the digestion of honey. The normal exit for this water is the spiracles (or breathing-pores) of the respiratory system of the bee. These spiracles open into bronchial tubes which ramify through the body of the bee, and through the delicate walls of these tiny branches the blood of the bee discharges surplus water and carbon dioxide exactly as the blood in our own bodies throws these substances into our lungs to be breathed out at the nose.

It would be indeed difficult to enter minutely into the phenomenon described above, and to state the laws which govern osmosis, diffusion, and kindred molecular activities of liquids and gases. Let it suffice to say that there exists a balance or level with these forces; and just as water will come to a level in different intercommunicating vessels, so will fluids come to a level on the two sides of an osmotic membrane. When this level is reached, the interchange, or the flow in either direction, will cease.

From the statements in the preceding paragraph we begin to see the harmfulness of moist air about the bees. If the air in the hive is humid the escape of moisture from the spiracles becomes lessened, and may cease altogether. Failing elimination through the

spiracles the water must be taken care of by the intestines of the bee, reaching them by way of the urinary organs. Such work put upon the urinary organs and the intestines is of small moment if bees can take frequent flights, and thus relieve the resulting discomfort.

Let it be understood that, under favorable conditions, the amount of waste matter in honey or other sugars used as food is insignificant. If all the water escapes with the carbon dioxide through the spiracles the residual fecal matter is astonishingly small in amount, and bees can let it accumulate for months without serious discomfort. If, however, a small drop of water is forced into the intestine of the bee, after a few weeks of confinement, the result is immediate uneasiness and restlessness. The desire to leave the hive causes much moving about, increased consumption of stores, and aggravated discomfort.

Thus is the second of the questions, Why is this moisture harmful? answered. In a few words the answer is, because it causes congested intestines and desire for flight, and results in an evil which becomes aggravated in increasing ratio.

A third question naturally arises at this point: How can we dispose of this moisture emanating from the bee's body so that it can not cause harm?

The methods in general can be brought under two heads: Either we can dispose of the water by the use of absorbent materials, or we can have it carried off by ventilation. In the case of outdoor wintering the absorbent in the shape of finely divided material above the brood-nest, with a slow upward movement of air, appears to be rather popular. In spite of its popularity, it is unsafe because the upward ventilation is regulated with such difficulty. If the movement of air through the porous cushion becomes stopped in any way, the upper strata of air in the hive become excessively humid, and death of the colony often results (that form of death with plenty of stores in the combs, the mysterious death which is made the subject of so many questions in the questions-and-answers department of our bee-periodicals). To help out the evil, there goes with this method of wintering bees the small entrance. That small-entrance fetish has too many devotees, and I fear that only dire calamity some one of these years will shatter that idol.

Absorbents are, so far as I know, never used in the cellar. That such could be used to advantage, such, for instance, as some deliquescent substance like calcium chloride, appears to me quite probable. In the course of another winter I hope to experiment along that line, but as yet I can give no definite statement.

Ventilation is the common resource of those apiarists who winter their bees in the cellar or repository; and let me say here that it is, for outdoor wintering, the *ne plus ultra*. The large entrance, not less than the equivalent of five square inches (I use



the equivalent of fifteen square inches in my own hives), when once adopted by a bee-keeper is not likely ever to be abandoned. I would not lead any one to think that a large entrance will pull bees through the winter when other essentials are lacking, for one has to meet and cope with many difficulties in this matter of wintering bees; but it will serve to take away the moisture from inside the hive sufficiently well to keep the bees in good health and quiet. It should be said that a large entrance should never be accompanied by upward ventilation, although absorbent cushions may be used. There must be tight covers so that no serious loss of heat takes place; but there should be *ample circulation of the cold air under the frames*. If the air under the frames is frequently changed, diffusion will keep the air above dry.

Cellar winterers have long since found that colonies do best if the entrance be extremely large, or the hive-bottom left off entirely. It cost many, many colonies of bees in late winter, and many more by "spring dwindling" after the hives were set out, before bee-keepers made this most important discovery: is it to cost an equal number of colonies before out-of-door winterers learn the same lesson? No, for God has given us the winds out of doors, and Nature can help the bees outside with the brisk winter winds, while the stagnant air of the cellar is out of reach of Boreas.

Allow me to return to the carbon dioxide and the water vapor thrown off by the bees. The former is a gas almost twice as heavy as air, and naturally sinks toward the bottom of the hive, and small indeed must be the entrance that will not take care of it. Far different is water vapor, which is only two-thirds as heavy as air, and hence tends to find its way to the upper portions of the interior of the hive. If the entrance is small this vapor must condense, or escape slowly upward or diffuse *slowly* downward. If the entrance is amply large to admit of a rapid exchange of air below, the diffusion of the vapor will be comparatively rapid.

The great advantage of a dry hive over a wet one in winter is especially noticeable when a day of moderate temperature occurs. The dry hive warms up in a short time, while the wet one may not get warm at all. Bees can take flight from a dry hive on days when it would scarcely be possible for bees to fly from wet hives. To understand this, one must consider the high specific heat of water. It will then be seen that a warm winter day will be nearly passed before the wet hive is sufficiently warmed for bees to be roused to flight, though the bees from dry hives are flying before noon. Again, it will require an unusual winter day to warm the wet hive so that bees can readily shift to unconsumed stores, whereas in the dry hive bees readily shift on almost any sunshiny day.

After twenty-one years of numerous and varied experiments in the wintering of bees, accompanied by a most careful observation of effects and search after the causes of

these effects, I have arrived at the results which I have outlined in this article. I would esteem it a favor for any one to point out an error in my deductions. I would urge every experimenter to test by actual trial the direful effects of moisture upon bee health. Above all, I would urge upon the devotees of the small winter entrance to be less prodigal of their advice to use such; for they are encouraging the adoption of a method of wintering bees which may some winter wipe out whole apiaries—a method which is usually safe, but sometimes full of calamity—a method which rarely gives best results.

Norwich, Conn.

[I believe the foregoing to be orthodox from the standpoint of practical bee keeping in the main; but if there is danger that there are some who will go too far with small entrances for outdoor wintering, there is equal danger that others may make their entrances *too* wide. For over thirty winters we have wintered from 250 to 500 colonies and nuclei outdoors. Over and over again we have proved to our own satisfaction that an entrance too large is quite liable to result in the death of a colony, even before the approach of spring. Some five or six winters ago we tested the matter over again, and found that in nearly every case where a colony had an entrance  $\frac{3}{4}$  deep by the width of the hive they either died outright or were so weak as to be practically good for nothing. A strong colony, according to our experience, will give best results with an entrance  $\frac{3}{4}$  by 8 inches wide. A correspondingly weaker colony must have an entrance correspondingly reduced in size. We have some weak colonies with entrances only 2 inches wide by  $\frac{3}{4}$  deep that winter nicely; yet this entrance is sufficiently large to carry off the excess of moisture. The only danger of a small entrance is that dead bees may clog it in late spring. In that case the colony will die because of the excess of moisture, the excess being absorbed in the bowels, and causing dysentery exactly as you describe. In saying this I wish to subscribe fully to your scientific deductions on the point. We make it a practice to examine the entrances occasionally; and if any are clogged, to rake them out.—ED.]

---

#### AVERAGE CONSUMPTION OF HONEY OF A FAMILY.

E. P. Coltrin says, p. 96, his family of five bid fair to consume 300 lbs. of honey, and asks if this is a fair average. This is 60 lbs. each, or 5 gallons. I do not know the average, but doubt its reaching 10 lbs. in the United States. For the past 20 years my family of two have used an average of two five-gallon cans, or 120 lbs.; and when we had cream of our own we used 180 lbs. I am the only one in my family who eats honey. A small portion was used in canning fruit and making jam. I never use sugar for any purpose, as I prefer honey.

Santa Barbara, Cal.

DELOS WOOD.

## SOME EXPERIENCE WITH A CHINESE BEE-KEEPER.

### Cutting Bees out of a Side of a Building.

BY LOUIS F. WAHL.

On the 6th of last May I was in Delta, Col. My eyes were always open and alert, especially to every thing pertaining to bee-keeping, and it wasn't long before I noticed flying bees at the side of a steam laundry. The very first discovery led me to inquire of the laundrymen as to the ownership of the building. They told me that Leung Chung (or Lon, as everybody called him), the Chinaman two doors from there, bought them for \$2.50, and was trying to get somebody to help him take them out. I then went to Lon's place of business. He was there with another man fixing up a hive ready to put them in. I told him my mission, and he looked with smiles, full of encouragement, and said, "I fix a big hive a big swam. Seven year ago they wint in I had a hose, and tried to stop 'em goin in, an' the more wet I make, the more they pile in. The honey been O. K. every year. I pay for them. I make a big hive to hold all. I wanta go China. I want exp'rence."

The description of his hive was 11 Hoffman frames with a space for the  $4\frac{1}{2} \times 4\frac{1}{2}$  beeway sections on the bottom. I tried to get him to cut the hive down to natural depth. He insisted with a "los, los o' bees; I want exp'rence."

Well, I encouraged him by saying it would do no harm in that country, where bees need no winter protection, and it could be cut off at any time.

Right here permit me to say I have seen hives with

cracks out of which bees were coming at all corners, and on top, with eight Langstroth frames of solid brood, the first of May. It was about the 1st of August before I could spare time to help him take them out. The day was set, when he prepared a good platform scaffold about six feet from the ground, and then with a short ladder we managed to reach the top board and begin sawing, he one side and I the other, taking off each in order till they were all off. A crowd gathered on the sidewalk, a safe distance away, and asked all sorts of questions, some trying to jolly Lon, who was witty enough to ignore their foolish jokes. After the boards were off and the picture taken we proceeded to transfer. We got five full Hoffman frames of brood and 50 lbs. of chunk alfalfa honey. We were lucky in finding the queen; and by smoking the bees after all the honey was scraped out of the building they settled down in the hive contented, which stood on the platform.

Just a few days before I left Colorado to



CUTTING BEES OUT OF A SIDE OF A BUILDING.



go home, Lon requested me to go up the Gunnison Valley about seven miles to his ranch of 80 acres. I accepted his invitation. Lon is a good horseman, and owns some good trotting stock. There are about ten acres of young apple orchard just beginning to bear fruit. At present some of the land is without water; but in three years after the Gunnison tunnel which the government is building is completed the water supply will be unlimited for that whole section of country. Lon also owns 30 fine colonies of Italian bees, all in good ten-frame standard hives. He let his ranch and bees out on shares; and to show you he was not to be fooled any more by American people he was shrewd enough, after the supers were on, to make marks on the backs of the hives, extending from the supers down on the hive-bodies, so he could tell if the supers had been taken off or not, or comb taken out of the lower story. We looked through some of the hives. I showed him the queen and some points about finding her, and different ways of manipulating bees, hives, etc.

On our way home he told me of the lot of wild flowers in China. He said, "I don't know if hon' in them or not. I wan' to go home fo' yea' an' see; them come back an' sell my prop'ty, and go home to China an' keep bee." I asked him why Chinamen al ways went into the laundry business when they landed in this country, and if that was all the men did in China. He said, "No, but I tell you I come here, you see I hire for cook \$50.00 a month. I work one month all right, so next month boss say, I can't pay this month; you work a month more, then I pay you both, or else you go. See? Well, I work another month, and no mon'; then I find out he got none. How I get a judgment? No good; \$100 no good. What I live on? I then start wash. First week I make 7 or 8 dol; then if some don't pay wash, I don't lose all."

Chili Center, N. Y.

#### A CHEAP HOME-MADE STRAINER.

How to Fasten the Cloth to the Can.

BY G. A. DEADMAN.

I suppose the majority of the readers of GLEANINGS keep a cow; and not only so, but the most of you use a metal strainer or a strainer with pail for straining the milk. Many of you may know that cloth is much better for this purpose than any metal can possibly be; but because you did not know how to keep it in place easily you have continued in the old way. For a number of years I have used a rubber band large enough to go over the top of the can and around the cloth strainer until, happily, I thought of the clothes-pins. If there is anything better I should like to hear of it. For the strainer I find a medium grade of factory cotton very good. If too light it does not keep in place so well, and may not do good

work. If too heavy it will not strain fast enough. About the best at 5 cts. per yard will do nicely. A piece a yard square will make four.

I do not know that I would have mentioned this in GLEANINGS if it were not for the fact that this plan is very handy at times when having a little balance of honey that requires to be strained or restrained; but for honey, unless it is hot, thin cheese-cloth is better. The good wife will find it very handy when making jelly, maple syrup, and such like. I have never tried the clothes-pins when straining honey in a large way, generally using a strap with a buckle. Those



HOW TO HOLD THE CLOTH WHEN STRAINING HONEY.

of you who have tried the thin cheese-cloth and a strap to hold it in place are no doubt well satisfied, although the Alexander pail, as recently illustrated in GLEANINGS, may at times be better, especially when doing it on a large scale. I like to know that no fly nor any thing else can get into my honey, and a strainer-cloth strapped over the honey-can is good for this, if nothing else. When it can be strained so easily there is really no excuse for not doing it. There may be a little of the last when drawn off that will require to be restrained; but this is a small matter. I do not like bits of wax scales or cappings to rise to the top of the honey

when put into pails, and there is no excuse for it. I have bought honey more than once, however, that had this objectionable feature.

Brussels, Ont.

[It is these simple cheap devices that help to lighten the burden, and at the same time increase our profits in the bee business. So simple a thing as a clothespin, applied at the right time, is often overlooked. I have often seen my mother strain out starch precisely in this way; and the illustration herewith will be a reminder to bee-keepers how they can strain their honey. — Ed.]

to yield a crop of honey. The average has been about 40 or 50 lbs. per colony, although as much as 150 lbs. of extracted honey has been obtained per hive. The honey is mostly light amber. Several varieties of the sages are to be found in the hills, and afford good pasturage for bees. Other honey-secreting flowers abound.

Mr. K. finds that it does not pay to use the solar extractor for any thing but cappings and new combs. For old combs he uses a German wax-press. Before he began the use of the latter he believes he must have thrown away over \$100 worth of old combs.



THE HOME OF PATRICK KEATING NEAR HACIENDA, CAL. THE APIARY IS A FEW FEET UP THE HILL, PARTIALLY SHOWN AT THE LEFT.

### A VISIT TO A CALIFORNIA APIARY.

The Use of Beeswax among Horticulturists.

BY W. A. PRYAL.

I am sending you several pictures showing the apiary, home, and a solar wax-extractor belonging to Mr. Pat Keating. His property is known as the Pat Keating farm. He has kept bees at New Almaden some 15 years, but before coming to California he was in the business at his old home in County Tipperary, Ireland, where he used a hive much like those he now uses, except that they were more like the double-walled hives used in the Eastern States.

This California apiary has contained as many as 200 colonies, and has never failed

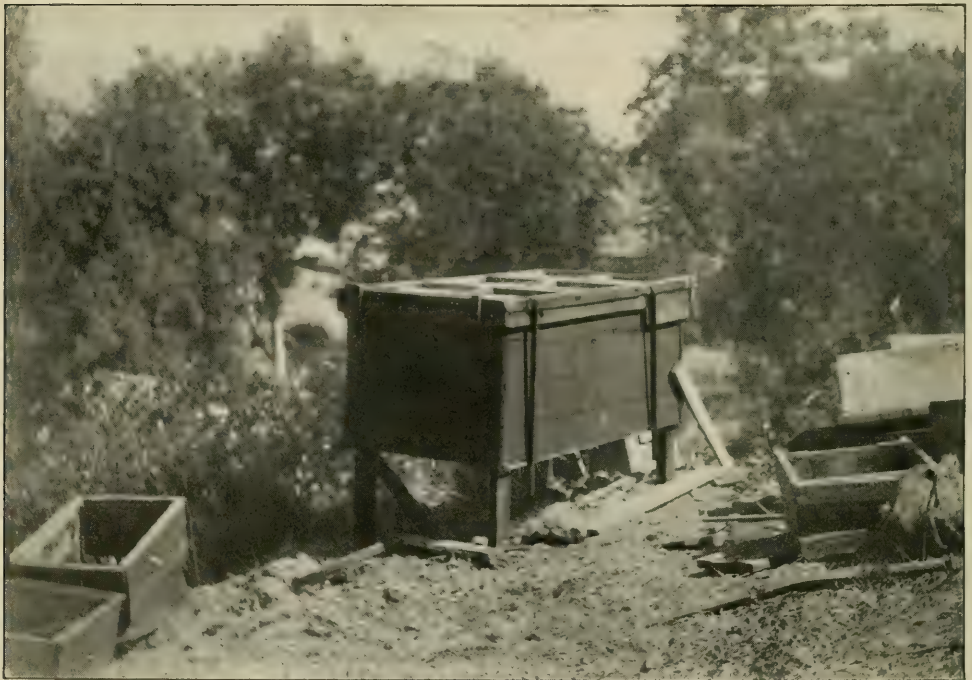
The wax-extractor pictured is 4 ft. long, 2 ft. 4 inches wide, and 2 ft. deep. A sheet of Russia iron, three-quarters the size of the inside of the box, and raised to about six inches of the top, supports the combs to be melted. Six or eight combs can be inserted at once, and, if new, will melt down in a very short time. Mr. Keating sells all his old and black wax to a man in Santa Clara Valley, who makes a business of manufacturing grafting-wax. As stated before by me, the valley just named is one of the largest and best fruit-growing localities in the world, consequently much beeswax is used by its horticulturists. The wax-maker referred to seems to prefer the old wax for his purpose.

San Francisco, Cal.





PARTIAL VIEW OF THE APIARY OF PATRICK KEATING, HACIENDA, CAL.



PATRICK KEATING'S SOLAR WAX-EXTRACTOR.

# THE WIRE-CLOTH SEPARATOR CON- DEMNED.

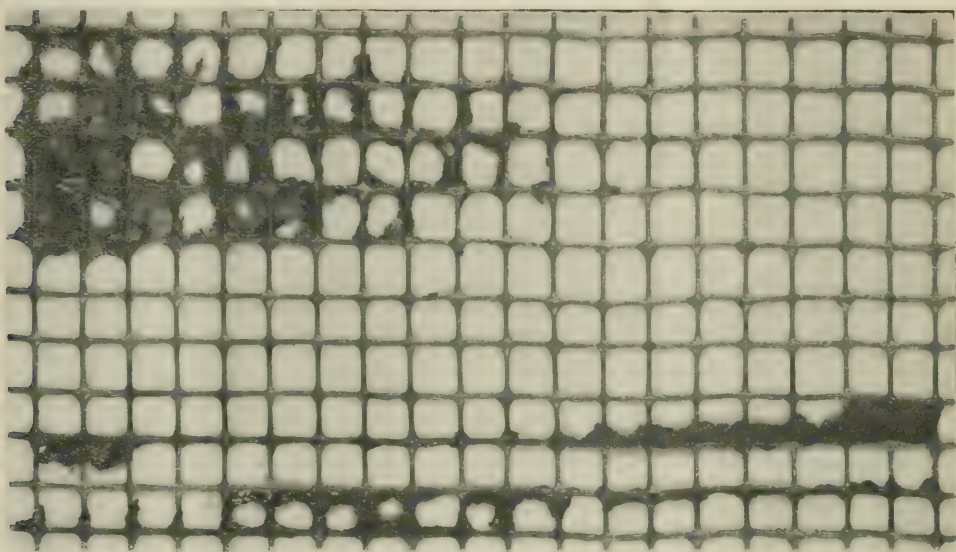
Brace Combs and Propolis; Tinker Zinc Better  
than Wire Cloth.

BY C. H. DIBBERN.

I have read and reread your editorial on pages 278, '9, with a good deal of interest and *astonishment*. Now, I have a good deal of respect for the opinions and experience of Mr. House and Mr. Salisbury, as well as your own; but your conclusions are so diametrically opposed to all my experience that I feel it a duty to bee-keepers to sound a warning note before a lot of money is wasted. I gave these separators a very thorough trial some twenty years ago. I can not now bring myself to believe that my conclusions were not good. I will now simply give my

fault to clean, and the brace-comb nuisance seemed to increase the longer I used them. Then I found that some seasons the bees would make a thin comb on the separators, thinking, probably, it was some new kind of foundation, notwithstanding full sheets were used in the sections.

I now became thoroughly disgusted with them, though I continued using some of them for a number of years. I think it was about 1892 that Mr. Betsinger took out a patent on wire-cloth separators, and cautioned bee-keepers against using them before paying him a royalty. I well remember laughing to myself while reading it, feeling that he was welcome to all he could make out of it. During the last ten years all my wire-cloth separators have been piled away on the shelves in the shop with a lot of other abandoned things.



WIRE-CLOTH SEPARATOR SHOWING HOW THE BEES BUILT COMB ON IT.

experience, and bee-keepers can form their own conclusions.

It was in 1886 that my attention was drawn to some wire cloth we had in the store, used principally for sand screen. I thought it would make a good separator. That year I tried some 200 of the separators; and to say that I was delighted with them expresses it mildly. The next season I cut up several rolls of the wire cloth, making about 1000 more separators. That season my enthusiasm began to wane, as I began to notice a good deal of brace-comb; and then, too, the bees would daub lots of propolis where the separators pass between the section. Still I was not satisfied that these objections could not be overcome, and continued to use all of them the next year; in fact, I used more or less of them for about ten years. I soon found they were very dif-

Now, as there is a possibility that the separators I used were made of a different kind of wire cloth from that you now have under consideration, I will inclose a piece of a separator I used. This was used more than ten years ago, and still shows the fish-bone of a piece of comb the bees attached to it. Since reading your article I have been thinking of various ways of overcoming my objections. The only way to clean effectually the separators is to boil them; but that soon seems to cause them to rust. Perhaps this might be obviated by drying them immediately and dipping them in linseed oil. That, too, might overcome the trouble of excessive propolizing and brace-combs. I tried to have the mill making the wire cloth pass the cloth through heavy rolls, so as to make it thinner, and not leave so many rough places for the bees to daub up, and make them easier to scrape,



but they had no machinery suitable for that kind of work.

For the past year I have experimented with the Tinker excluder zinc for separators, and so far I think it the best separator made. The fences, however, are hard to beat; and, with the plain sections, they seem to be just the thing; but for the beeway sections, is there any thing better than the old tin separator?

Milan, Ill.

[The sample of wire cloth smeared up with comb or wax we had photographed and engraved exactly as it was. The mesh of wire cloth is the same as that used so successfully in York State by Salisbury, House, Greiner, and others.

I well remember when this wire-cloth separator was first brought out, for I stepped into GLEANINGS editorial chair about that time. There were then reports that the bees would build films of wax on the wire, and otherwise smear them with propolis. It is probable that these unfavorable reports at the *very start* is what caused them to be dropped prematurely; but certain it is that several of the York State bee-keepers in late years have made a great success with them.

While they admit that bees will smear wax on them at times, they claim this is true only of certain colonies and in certain seasons, and that, even where the separators are daubed, they can be easily cleaned by immersing them in hot water. You refer to this, but urge as an objection that the separators so treated will rust. I can hardly see why this should be so; for in the illustration here shown it appears that the wire cloth was galvanized, for the zinc spelter can be plainly seen that solders the wires together. A galvanized metal is not liable to rust if it is immersed in hot water only once a year for cleaning; and usually any thing of this nature taken out of boiling water will dry almost immediately because of the acquired heat. If the hot water did not clean them perfectly I would use a little common lye, as Emma Wilson recommends; and if there were danger of rust, throw the separators, immediately after cleaning, into a box of sawdust, and then give them a good shaking. They will come out dry, I will guarantee. This method of quick drying small metal articles that have been immersed in water or other liquids is well known to manufacturers.

But, friend D., I really believe you are offering testimony that is favorable rather than otherwise. You say that you tried 200 of them the first season, "and to say that I was delighted with them expresses it mildly." You had clean separators to start on. Now if, the *second* season, you had immersed them in a solution of hot lye and water, and dried them in sawdust, I infer that you would have been "delighted" with them the next season; for your chief and only objection was the building of wax on the mesh of the cloth; and because they were smeared up you abandoned them. If there is any one among our contributors who can make

a balky thing work, I believe it is yourself. I would respectfully suggest that you gather together your old wire-cloth separators and clean them with a lye solution as recommended. If there is one colony inclined to build on to the cloth, requene it.

We have never tried these wire-cloth separators; but I was so favorably impressed with what I saw in York State that I am forced to believe that what several good bee-keepers *can* do, a lot more, including yourself, can likewise do. Now that this subject is up for discussion, we should be glad to hear from those who have tested these wire-cloth separators in years gone by, no matter what their testimony may be.

I might add further that some of the York State bee-keepers use these separators with plain sections, in order that the bees may have a free passageway across the surface of the sections and through the wire cloth from one section to another.

Twenty years ago you probably were using beeway sections. These, you can readily see, would cause a much larger amount of propolis, because the edges of the sections would come in contact with the wire cloth. The separators that have been used in York State do not touch the plain sections at any point except at the extreme ends, the sections being locked closely together in straight lines, with the separator exactly half way between them, also on a straight line.

So far the Root Co. has not been able to solve the problem of making these separators cheaply; but many of the benefits of them might be secured by using the four-beeway section, and then going to the hardware store and purchasing a roll of wire cloth. This can be taken to a tinshop and cut up into desired sizes. Plain sections require having the separators bound with folded tin, top and bottom, to hold the separator straight.

This reminds me that N. N. Betsinger was a user of plain sections over twenty years ago; and when I met him in a convention some six or eight years ago he called my attention to the fact that we were resurrecting an old idea of his.

I think you are mistaken as to the date of the Betsinger patent on wire-cloth separators. I was told it ran out about a year ago. That would make the date of the patent about 1888. How long prior to this he may have been using them I do not know. Perhaps Mr. S. D. House, a neighbor of his, could tell us. Indeed, we should be pleased to have him give us his experience, for Mr. House is the man who obtained the idea of Mr. Betsinger, and who has recently brought the merits of the device before the bee-keepers of his State.—ED.]

---

On page 402, 1905, I read "Swarming was induced by the flora from cleome." What kind of cleome have you that yields nectar in June? Here we have five kinds, and count on a bloom about the 15th of July. Occasionally, but rarely, about one out of 4,444,444, will bloom in June. It lasts until frost. JAMES H. KING.  
 \*Carlton, Col.



#### AN UP-TO-DATE YOUNG BEE-KEEPER.

I am a boy thirteen years of age. I have been keeping bees for three years. A man who lived about a mile from our house first got me interested in my little pets. He moved to Missouri last year, and left me without anybody to advise me; but I find all the advice I need in my bee-books and GLEANINGS, which I could not do without. Last year I secured 75 sections of honey from one colony, and also three swarms. I now have three colonies of Italian-Carniolans and one colony of hybrids. They are all in Dovetailed hives. I am wintering them outdoors. I always wintered them in the cellar until this time. I have six empty hives, and all my other supplies all ready for next season. We had been having a very mild winter until about a week ago, when it turned pretty cold.

Last summer I made me an observatory hive in which I watched the bees rear a queen. I think the Italian-Carniolans are great bees for comb honey, but they are awful cross; but I don't mind a few stings.

J. R. MCCORKLE.

Wingate, Ind., Feb. 11.

#### ADDRESSING FARMERS' INSTITUTES ON THE SUBJECT OF BEES.

I send you a copy of a paper containing a synopsis of a paper read before a farmers' institute here this week. I dealt principally with pollination of plants and the part played by bees, etc. Incidentally I touched on the spraying question, and I believe some good was done. There was quite an interest taken in the matter, and I believe this is a good field to work, and I should be glad to see it covered next winter.

Why can we not systematically (and without much expense) arrange to have some practical bee-keeper present a few of these ideas before each county and township institute in the States. The subject of my paper was "The Bee as the Farmer's Friend." I showed how certain crops, as clovers, etc., and fruits, depend on the co-operation of the bee. I gave details in regard to pollination and other points that were new to most of the audience, and showed why spraying during blooming time is injurious. Of course, these things are ancient history to the advanced bee-keepers, but were well received, and many inquiries were made afterward, especially in regard to the time and manner of spraying. Why not organize some plan to present some of these things next winter?

Another point I had nearly forgotten.

The question was asked, "Is it policy and profitable for each farmer to keep bees to fertilize his crops?" I answered, "No, it is not good policy, nor is it profitable for each farmer to keep bees unless he loves their company. It is policy and profitable to encourage the specialist in your immediate vicinity by buying his honey." As a consequence of this free advertising I had 20 or more neighbors ask for honey. I could have sold 500 lbs. if I could have supplied it; but I sold out long ago. I believe there is fertile ground in this thing, good enough to pay to cultivate it.

Redkey, Ind.

GEO. W. WILLIAMS.

[You are surely on the right track. A bee-keeper who is progressive enough to give an interesting talk at a farmers' institute ought to make quite a name for himself in his locality, and it pays to have such a name.

Almost any bee-keeper with a few years' experience ought to be able to give such a talk; for, as you say, the facts given might be ancient history to a bee-keeper, though entirely new to those present.—ED.]

#### BEES IN CELLAR RESTLESS.

I should like to ask a question in regard to wintering bees in a cellar. My cellar is dry, with a window in one side, and a pipe running into the chimney to take off the foul air. I am keeping it at about 45 degrees. The bees are very restless this winter. I have a canvas screen hanging in front of them to keep the light from them. Is that right? If not, please advise.

JAMES B. GOFF.

Dominion City, Man., Feb. 16.

[I think your trouble is in not having your cellar dark enough. Your canvas screen, unless black in color, would let in altogether too much light to the bees. Your better way is to make the cellar perfectly dark. During the spring, if the bees are still uneasy, carry them out for a flight, and, if not too late, leave them out. If cold weather continues, or is liable to continue, put them back in. Bees that get uneasy will often quiet down very readily if they can be given an outdoor flight.—ED.]

#### LARGE ENTRANCES PROPOLIZED NEARLY SHUT IN WINTER.

There has been quite a little comment lately on bee-hive entrances. Please accept my mite. I have for several years contracted to 1½ to 2½ inches about Nov. 1, and all supers off L. hives; but this fall I have them 2½ to 4½, and to-day I notice one of my best colonies with a 4-inch entrance ¾ deep, and facing the southeast, has procolized the entrance, leaving three peep-holes that you could not put a hazelnut in. If the entrance were one inch deep, two bees can just pass easily in each. What antics bees do play when left to their own will!

San Diego, Cal.

E. F. PORTER,



## A SWARM ENTERING A HIVE.

In your comment on page 155 you say that I did not send a picture of the bees running into the hive. I am now sending one which is so good I want you to see it.

Ayer, Mass.

F. P. BRIGGS.

## HIVE-CARRIERS.

In reading your article in the last issue about carrying bees from the cellar I thought

of how your men had to stoop down to pick up and put down their load of bees; and if it would be acceptable I should like to give you a description of our method of carrying bees in and out of the cellar. The side pieces of our carrier are made of inch pine, 3 inches wide and 7 feet long, and are rounded down to 2 inches in width at the ends to fit the hands better. They are made into a light frame by nailing cleats 17 inches long between them, and 20 inches from each end we have a pair of legs  $9\frac{1}{2}$  inches long. By using this carrier with the short legs you do not have to bend over so much when you pick up and put down your load at each end of the journey to and from the yard. We have a two-inch strip nailed across the top of the side-pieces, 17 inches from one end to prevent the hives from sliding when we go down the cellar steps, which are at an angle of about 30 degrees, and the short legs do not interfere in any way. By making the side pieces of  $1\frac{1}{2}$ -inch lumber you would get a better handle, and your carrier would not weigh over 12 lbs., and would be an improvement over the two loose pieces you mention as now using.

W. W. CARY.

Lyonsville, Mass.

## OUR HIVE-CARRIER; THE ADVANTAGE OF THE LEGS.

*Mr. Editor:*—Your plan on page 280, of carrying bees on a stretcher, or bee-carrier, as we always called it, is all right, but I believe I can suggest a point or two that will make the work of handling the same quite a little easier. I have used such a rig to carry into and out of the cellar for many years, and know from experience that it has saved us many backaches. I would not be without one, if I had a cellar to winter in.

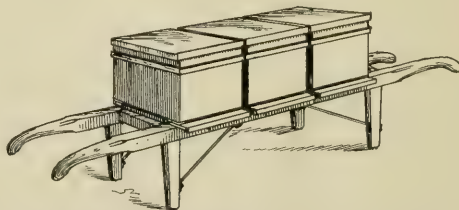
If you would supply your stretcher with legs, like the one in the accompanying cut, you would find it a great improvement. In loading up as well as unloading, an almost unlimited amount of stooping down, lifting up, and letting down again, which forms the hardest part of all the work, would be saved.

Then, again, it is not only on level ground where the stretcher can be used to advantage, but on uneven and even on quite steep



A SWARM ENTERING A HIVE.

grades also. Although the bottom of my bee-cellar at my former home was on a level with the outside (a very desirable feature), it was quite a little pitch to get to it and from it with the bees. We never had any trouble in carrying up or down on ac-



count of hives slipping on the carrier; but if there should be any danger it could be easily prevented by driving a few headless

nails at proper distances in the upper edge of each side-piece. To carry three hives at a time it would be safer to load three abreast instead of one on top; but we generally found that, when hives are well provided with stores, two at a time make a fair load.

I can hardly emphasize too much that an easy passageway in and out of the cellar, especially if the cellar-bottom is not on a level with the outside, is of great importance. In building anew, or preparing a cellar already built for a bee-repository, this feature should receive the first consideration. It reduces the labor in two directions—saves time and makes the work easier. It would be a well-paying investment to provide a passageway that would admit of carrying the load right to the place of its final storage.

LaSalle, N. Y.

G. C. GREINER.

[These hive-carriers are alike in principle, and hence we have had only one illustration made. They are, unquestionably, better than the two plain poles which we illustrated on page 280. While this carrier would cost a little more, it would be a great deal more convenient, and save unnecessary and excessive stooping. It is so good, in fact, that we have marked it to be incorporated in the next edition of the A B C of Bee Culture. The same kind of carrier is used in factories, in brick-yards, and in many other lines of industry where there is uneven ground and the load requires gentle handling.—ED.]

#### A COMBINED HIVE-TOOL AND FRAME-TONGS.

While I was taking GLEANINGS I noticed several descriptions of hive-tools, and you partly described one you intended putting out (five tools in one, I think). Now, instead of sending you a description of the one I made, and which I find very convenient, I send you the tool itself; and if the weather in Ohio is like ours here you will probably soon find occasion to use it, which I hope you will do and be pleased with it, though I do not make any for sale. I think the uses for which it is intended will suggest themselves



without description. With it you can take hold of a frame and handle it without pinching a bee or breaking the comb; pry covers loose; pry loose and move frames, remove bee-glue, etc.

As I did not get to feed bees in the fall, I am now feeling outside nearly every day, weather being very warm. I may be wrong in feeding, as it may start brood-rearing too soon, but I feared starvation.

Rockville, Mo.

M. A. BARNETT.

[T. G. Newman, something like twenty years ago, used to advertise quite extensively what I think he then called the Jones

frame-pliers. The jaws were quite similar in shape to what you show. The handles, however, did not have the hook and the blade, and in these respects your tool would be superior. But the average bee-keeper does not seem inclined to take kindly to tongs. The Jones tool was left out of supply catalogs at the time, if I am correct, simply because of the little demand for them.—ED.]

#### SHADE FOR BABY NUCLEI.

I infer from your article, and the illustration of your baby-nuclei yard, that they are exposed to the full force of the sun unshaded. My experience is that setting them in the ground unshaded has not been favorable. Does having them suspended on the T supports make a difference? and do you prefer them placed in the sun or shade?

Prophetstown, Ill.

HENRY STEWART.

[A part of them were exposed out in the open sun, and others were in the shade. We could not determine which lot did better. If any thing, those out in the sun fared better than those in the shade; and this is the opinion entertained by Mr. Pratt. But a good deal will depend on locality. Possibly your sun is a good deal hotter than ours in summer.

The baby nuclei are put on stakes only as a matter of convenience, to avoid stooping in handling the small frames. There was no other advantage and no disadvantage that I remember.—ED.]

#### MOVING BEES WITH ENTRANCES OPEN; SELLING HONEY AT AUCTION.

I notice that you wish to hear from people having had experience in moving bees in hives with open entrances. I have moved bees without closing entrances, but did it after night. Quarts of bees clustered quietly at the entrances. It would be necessary to cover the hives with sheets in the daytime. There is much less danger of smothering when the entrances are kept open.

A good way to sell extracted honey in quart cans is at public sales. Some have sold as much as \$25.00 worth at 55 to 65 cts. a quart at once, by giving samples and selling at the highest bid.

Milroy, Pa.

A. H. KANAGY.

[A good deal of bee-moving is done at night; and it seems to me it would be perfectly feasible to leave off the entrance-strips, because, even if the bees did get to flying out in the dark, they would not be able to do much damage to horses or men.—ED.]

#### DRONES IN WORKER-CELLS.

Will drones hatch in worker-cells? Would not such eggs be laid by a drone-laying queen or fertile worker? CHARLES WARNER.

Wait, O., Feb. 3.

[Yes, drones will hatch in worker-cells. Eggs producing them may be laid either by laying workers or by drone-layers.—ED.]



## WASHINGTON AS A HONEY STATE.

Will some one tell me what he knows about Washington as a honey State, especially the southwest part, south of Tacoma, where the heavy timber has been cut off? I spent two weeks in that part of Washington last summer, but did not have a chance to learn much about bees there. I could not find any apiaries except a few colonies owned by farmers. Does the red or white fir tree furnish any nectar for honey? If so, what kind of honey is made from either?

Rocky Ford, Colo.

E. J. JOHNSON.

## CAUCASIANS IN THE UNITED STATES IN THE EARLY '80'S.

On page 1240 E. F. Phillips speaks of the Caucasian bees as recently introduced. Some year in the 1880's Capt. Hetherington divided with me the four colonies that he imported. I have two of them. I liked them well, but their swarming was constant. See what I have to say in regard to it in the *American Bee Journal* in the '80's, published previous to Mr. Newman's selling out, under the head of "Asiatic Bees."

Capt. Hetherington condemned them. My bees were well marked. I could distinguish them plainly. They were of a dull brownish red. They are a very hardy race of bees, and make their capping frost-white.

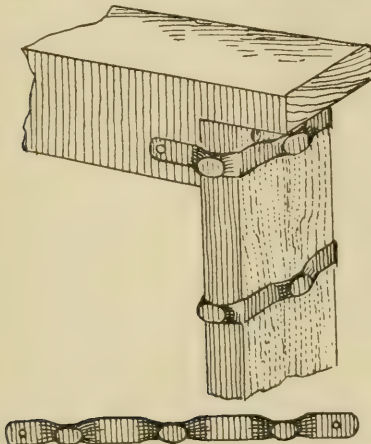
Tully, N. Y.

J. W. TAFFT.

[Dr. Phillips, in speaking of the recent importation of Caucasians, could not mean by that expression that they were a race new to this country, as I happen to know he well knew of the earlier importations by others.—Ed.]

## A METAL SIDE AND END SPACER FOR BROOD-FRAMES.

I am sending you a drawing of my idea of the way the metal spacers should be made. If the upper one were nailed to the top-bar I do not see why it would not strengthen the



frame corner. I should not want the lower spacer as now made, because bees would surely fill in between with propolis, in most

localities (ask Dr. Miller). It might be better to have just two pieces to one frame—one at each end of top-bar, but stamped three places, and put on the other way, so as to form the end-spacer as well.

Chadbourn, N. C.

K. B. MORRIS.

[It would be perfectly feasible to put on spacers such as you show; but I think you would find they would not work as freely, when so adjusted, as by the plan we originally showed—the embossed strips running perpendicularly up and around the top-bar.—Ed.]



[As promised in our last issue we now take pleasure in offering to our readers a series of articles, or, rather, a book, detailing Doolittle's method of controlling swarming when running for comb honey at outyards—a method whereby he is able to make a substantial increase in the crop of honey. Nor does it require the presence of any one at the outyards except to carry out the manipulations prescribed, take off the honey, and—well, perhaps we had better let Mr. Doolittle tell his own story about his system, in his introductory words. That reminds us that he will probably have it published in book form at the close of this series of articles, and hence the preface.—Ed.]

## PREFACE.

Immediately upon the publication of "Scientific Queen-rearing," in 1889, I began work upon the problem of non-swarming, either with or without manipulation, putting fully as many years and as much thought into this problem as I did to bring about the matter published in the queen-book. It is not my intention, in this work, to go over all the ground "traveled" during the past sixteen years, used in fully perfecting the plan as given in this book, as the book is written for the specialist, and particularly for one having or desiring to keep bees in out-apiaries.

While the book is intended for the specialist, it is none the less desirable for the plain, every bee-keeper, with his one-home apiary, or for the amateur with his five to ten colonies; and because this book is for the specialist in bee-keeping I have not gone into first principles or the A B C of our pursuit, as the specialist has passed these rudimentary things long ago. There are plenty of good books before one, and all who are desirous of learning of the "foundation structure," therefore, have no need of repeating here.

For these reasons I have "jumped right into the arena," without fear or asking any favors, and told the reader, in as simple language as I could, and as briefly as possible with a full understanding of the plan in sight, just what was done at the twelve different visits I made to the out-apiary, during one year, and the results accruing there-

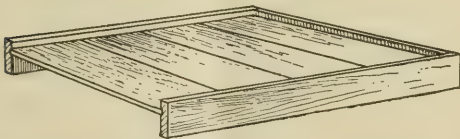
from; and I do not think that I have exhausted the subject, but I have given the *first principles* the same as I did in "Scientific Queen-rearing." While I have been digging out the plans as given in this book, others have been building many different structures on the queen-rearing principle I gave, for which I am glad; but they have not undermined the principle, nor brought it to naught.

And now I send this non swarming-section-honey-producing principle out, expecting that others will build different structures on it; and if they do, I shall be glad again. I cheerfully and freely give the principles in this system to all, hoping and believing that the same will prove as efficient in the hands of others as they have with me.

### CHAPTER I.

#### AN AVERAGE OF 114½ POUNDS OF SECTION HONEY PER COLONY IN A POOR SEASON, AND HOW IT WAS DONE.

The sun rose bright and clear on the morning of April 14, 1905, the morning of my sixtieth birthday; and as old Sol peered over the hill-top in all his golden splendor, kissing the swelling buds and cheering all animated nature with the intuition that "spring has come," I proposed to Mr. Clark, my partner, that we go over to the out-apiary, five miles distant, and set the bees out of the cellar, the bees in the home apiary having been set out two or three days previously. The horse was soon hitched up, as the roads were too muddy and full of deep ruts for the auto, and we were at our destination before nine o'clock, with the stands all prepared for the bees.

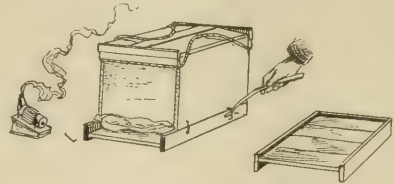


DR. MILLER'S BOTTOM-BOARD, SUMMER SIDE UP.

As I use the Dr. Miller bottom-board, the same having a two-inch deep side for wintering, and a three-eighths-inch-deep side for summer, a reserve board was placed on the stand of No. 1, row No. 1, summer side up, for the first colony taken out to be placed upon. Before going to the cellar, two smokers were set to burning—one in the bee-yard, side of stand No. 1, row 1, and one at the cellar door just outside. Besides this last smoker, there was placed a soaking-wet (right-sized) piece of cotton cloth at the cellar door, ready for immediate use as soon as any hive was brought out, for there is nothing that will keep bees from pushing out of their hive before you want them to like a wet cloth.

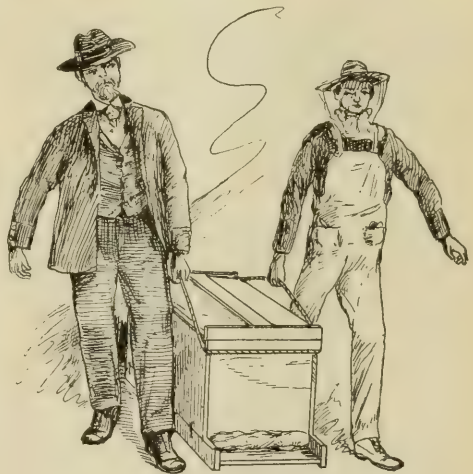
Colony No. 1 was now brought through the cellar door; and while Mr. Clark shut the door, so the bees remaining in the cellar might be kept as quiet as possible, I put the wet cloth over the entrance of the hive,

and then sent a few puffs of smoke in at the entrance through a little hole made by turning back one corner of the wet cloth. A loud roar soon told that this colony was in good condition. A rope was now put under the cleats to the hive, when the same was carried to the bee-yard (Mr. Clark on one



REMOVING THE STAPLES.

side, Doolittle on the other), and set down by the side of the stand it was to occupy. The crate staples which held the bottom-board to the hive were now pulled out by a prying motion with a piece of a wagon-spring, fitted so it would just slip through between the wood of the hive and the top of the staple; then a little more smoke was used to drive the bees back so they would not be in too big haste to come out of the hive when the same was lifted from the bottom-board it had previously occupied, to the one on its own stand. The bottom-board No. 1 had occupied all winter was now turned summer side up and placed on stand No. 2, when colony No. 2 was brought out in the same way No. 1 had been, and placed on it, and so on till all were out.



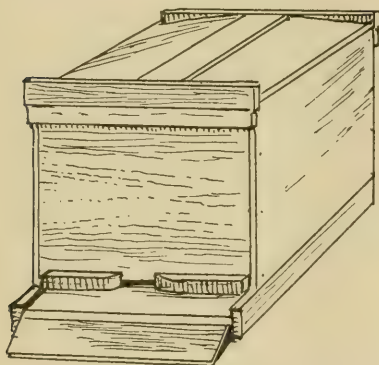
USE OF A ROPE IN CARRYING A HIVE.

In this way all dead bees, dirt, etc., which had accumulated during the winter were at once done away with, leaving all sweet and clean, and in a prosperous condition. Owing to too much work of all kinds for two or three years previous when I was alone, the bees at the out-apiary had been allowed to become reduced in numbers to 21 colonies in the fall of 1904, one of which was queenless



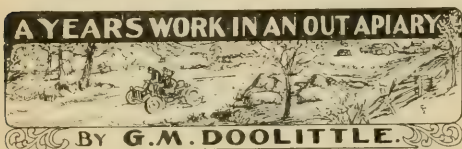
and weak in bees. An inventory taken after all were out gave 11 good colonies—5 fair, 3 weak, and 2 dead—the dead ones being the queenless colony, and one which was made by setting an upper story off late in the season, thinking it had a queen because the bees did not go down through the bee-escape when it was put under to rid the hives of honey from bees.

After the bees had settled down a little from their first flight, two or three that seemed light in stores when putting them on their stands were fed by exchanging two frames of empty combs for two full combs of honey left over from the year before. The entrances were now adjusted to suit the size of the colonies, 3 inches by  $\frac{3}{4}$  being given the good colonies; 2 by  $\frac{3}{4}$  for the fair, and  $\frac{3}{4}$  by  $\frac{3}{4}$  for the weak.



ENTRANCES ADJUSTED.

Next, each hive was looked after to see that all was as tight as possible about the top, and that every thing was in good condition for leaving till pollen became plentiful from the elm and soft maple, when we started for home. This was what was done on the first visit for the season of 1905.



BY G. M. DOOLITTLE.

## CHAPTER II.

Ten days later, April 24, the elm and soft maples were in full bloom; and as the day was fine I went to the out-apiary again, arriving there about nine o'clock. I found the bees were almost rolling over each other, carrying in the yellowish-green pollen from the elm and the greenish-pink from the maples.

During the season of 1904 some 70 combs of honey in Langstroth frames, averaging about 7 pounds each, had been left for spring

use, after seeing that all colonies had enough for winter, these being kept, with other combs more or less empty, for a purpose which will be explained further on. Each hive was now opened, beginning at No. 1 on the first row, to see that each had a good queen and honey enough to make them "rich" to a prosperous degree till fruit-trees came into bloom, from three to four weeks later. Any colony that did not have 20 pounds of honey was given one, two, or three of the seven-pound combs till it did have that amount; and if any colony had more, none of it was taken away, as there is nothing which gives better results in bees in the spring than to have the colony so rich in stores that it feels no need of retrenching.

In fact, after trying all other plans for stimulating brood-rearing at the out-apiary I feel to say there is nothing that comes "anywhere near in sight" of this plan of "millions of honey at our house." All talk about daily feeding, as practiced by Mr. Alexander and others, is of no use at the out-apiary, for the apiarist can not be there to attend to it. And, even if he could, results show that the "millions of honey at our house" plan, followed by what is to come hereafter, will outstrip it by far in the race for bees in time for the harvest.

I have dwelt on this matter, as I consider it one of the most important things when an out-apiary is worked for comb honey. After seeing that all had 20 pounds or more of honey, the entrances were enlarged to about 5 inches in length for the best colonies, to 1½ inches for the weaker ones, or enough so the bees would not be crowded till the next visit, which would be nearly a month later, or during fruit-bloom. A careful inspection of the brood showed that all the queens were good, as all brood was in compact form, with eggs on the outside of the outside combs to the brood-nest (not brood-chamber), all the cells within this circle of eggs being occupied with one egg in each.

I have noticed for years that a poor or failing queen does not lay like this, but "scatters" to a greater or less extent according to her poorness. Where I find queens that are poor, as I sometimes do at this time of the year, they are killed, and one of the weak colonies, with its good queen, is united with the colony from which the queen has been killed. By attending to this queen matter when taking off the clover or bass-wood honey each year, superseding all queens more than three years old, and those younger which may show signs of failure, the problem of poor queens in the spring is practically solved. Far better supersede at that time than in the spring.

This is something well worth "pasting in the hat." A careful look over the yard, the last thing, to see that all was in "applepie" order, and I was soon gliding in the auto over the road toward home at the rate of fifteen miles an hour, which is fast enough, considering the roughness of the roads and our hilly country. The above was what was done at the second visit.



#### MORE ABOUT POULTRY IN THE SOUTHWEST FLORIDA KEYS.

The hen I mentioned that stole her nest and came off with a brood of twelve chickens about Feb. 1, a little later became troublesome in the garden, and so Mr. Shumard caught her and put her over the fence with the rest, supposing she would call the little chicks. Well, either she did not succeed in calling them or else they preferred to stay around the house (that "pocketful of wheat" was a factor in their decision), even if it made "a home without a mother;" and although the temperature went as low as any time during the winter, and we had some cold storms of 24 hours' duration, these little chaps that never *knew* what a shelter was are now the strongest and healthiest chickens I ever saw. At night they stayed in the woodpile of round logs and limbs, and were scudding about when it was raining considerably, evidently because they liked the fun of it, and nothing else. As there were three broods to be fed out of that "pocket" I finally made a little enclosure that would admit the chicks but keep out any of the older ones that occasionally "jumped the fence;" and during the rainy days they would go "streaking it" for the wheat (ten rods away) whenever they got hungry, in a way that was really comical. As nearly as I can make out, they took care of *themselves* when not over three weeks old. Just think of it! a climate where there is no need of incubator, brooder, coops of any sort, nor even a *natural mother* after they are three weeks old! All you need to do is to get rid of their natural enemies of the island, and give Nature "full swing."

I questioned Mr. S. about insect enemies; and, as nearly as I can make out, he procured his stock from some that were absolutely healthy and clean, and has been very careful ever since about taking any chances in the way of infected fowls. It is no more than fair that I should add his egg-yield has fallen off a good deal since he fenced the poultry off on the north part of the island. Laying hens, or at least *his* laying hens, seem very fond of human companionship. I can not avoid the conclusion that they like to have their nests near where the family live, and that they take a sort of pride in making everybody aware of the fact when an egg has been laid. There is some excitement in being chased off the garden; and when they are once convinced their owner loves and admires them; they don't mind having a "scrap" or two occasionally.

They like to be around where there is something "doing."

Poultry are very fond of "donax," and it would be an ideal animal food were it not for the trouble of getting them out of the sand. I suggested teaching them to follow the waves and help themselves; but they say poultry are rather shy of salt water. Ducks will go right into the salt water and help themselves; and if they can thrive on animal food alone, *here* is the place where the owner would have nothing to do but to *gather his eggs and sell them*.

I saw quite a flock of wild ducks feeding on donax this morning. Not long ago, I am told, a nice flock of tame ducks came along the beach, and were taken up and cared for, and, up to the present time, nobody knows where they came from. These things I have mentioned may seem at first glance trivial; but they tell us what is possible, and, with a little care and investigation, I think a great business might be worked up here with very little expense for fixtures.

#### GREEN FOOD FOR FOWLS AND CHICKS.

From the great avidity with which fowls here devour green stuff in the garden I am convinced it will pay well in eggs to grow something to supply this craving. Lettuce is all right, and I have been experimenting on other garden stuff. I had three rows of spinach in my little enclosure of two-foot netting. While this kept out the grown fowls, the two-inch mesh admitted that brood of twelve at their pleasure; and as soon as my spinach took on its second leaves they followed the rows from end to end, snipping the green shoots every morning. I have been wondering if this daily ration of young spinach, with the wheat, has not something to do with their wonderful agility, strength, and endurance. With the ants and other insect food they get, does it not make just about a "balanced ration" that our experiment stations talk about so much?

#### THE BEES ON OUR ISLAND.

Although we have had drones flying to some extent for more than a month, I am ashamed to confess I have not at this date a single young laying queen. The drones reared occasionally in worker-cells by our imported Caucasian either did not answer or the weather was hardly warm enough, and still enough so to favor the meeting between drones and queens. On the 14th of March I saw a young queen that was hatched on the 6th leave her nucleus hive. I called to some friends near, and in about twenty minutes she came back with very plain evidence of fertilization. To-day, March 16, I sat down in front of the same nucleus hive to see how much pollen was coming in. Just about the time a queen begins to lay, pollen usually begins to come in pretty lively. To my surprise, this queen came out of the entrance, walked around on the front of the hive, and then went back inside. I called Mrs. Root. The queen soon came out again, took wing, and was gone about ten minutes. This she did three times—the last time being gone



twelve minutes. I should like to ask those familiar with such things if it is usual for young queens to go out unattended after fertilization. I must confess I have not read closely what has been written of late in regard to the matter. I remember that, years ago, there were a few who declared a queen is sometimes, if not always, fertilized more than once before she commences laying. Has any thing new come up in regard to this matter of late? Do queens ever go out to take another look at "all outdoors" before retiring and making maternal duties the all-absorbing end and aim of life?

*Later.*—To-day (March 17) on opening the nucleus hive to see if the queen was laying I found her on the combs, with plain evidence *once more* of fertilization. I do not see how there could have been any mistake.

One other thing I have noticed in connection with this incident: When any of our young queens are of the proper age to take their wedding-trip I notice a dozen bees or more on the front of the little hives near the entrance, at about 2 or 3 P.M. Whenever I see this cluster, if I watch pretty closely I usually see the young queen come out soon after. During the rest of the afternoon there are more or less bees "nosing around" where she crawled over the front of the hive when getting ready to fly. One queen took wing from the top corner of a hive, and I saw bees hanging around the corner for several hours after. No doubt their acute sense of smell enabled them to track her in something the same way a bloodhound follows the scent of a fugitive. The bees have a rather different motive, however, for theirs is devotion and loyalty to their "beloved queen." They, it would seem, in very truth "love the very ground she walks on;" and, while I am about it, I like to see a young man so devoted to the girl of his choice, the queen of his heart and life, that he loves the very spot where her foot has pressed the green grass; and when these two keep it until they are nearly seventy years old, as a rule I should consider them "near to the kingdom of heaven," for they are, in one very important respect, just where and just as God intended and wants them to be.

#### OUR IMPROVED CHESTNUTS: GRAFTING CHESTNUTS, ETC.

*Mr. A. I. Root:*—I commenced to bud and graft when I was but ten years old. I tell you this so you may know my experience in grafting, for I had much trouble in the beginning to graft the chestnuts as successfully as every other kind of fruit. The best way in this section is to cut the grafts before the buds swell in spring; tie them in bundles, and put them in the cellar. If they shrink a little it will not hurt them. Then wait with your grafting until the leaves on the trees you want to graft are from  $\frac{1}{4}$  to  $\frac{1}{2}$  inch long. Since I follow this rule, from 75 to 90 per cent of my grafts will grow. This way you can graft the chestnut successfully till the leaves are half grown. The reason for waiting is this: The chestnut-tree starts late in spring; but when it does start it does so with a rush. This bursts your grafting-wax, lets in air, and means the death of your graft. What I have done and what I know about the big chestnuts I will tell you next.

About twenty years ago I grafted the first big chestnuts on my own farm. In three years I had a lot of the

finest chestnuts I ever saw, and they are good, too, boiled or roasted. I don't think green chestnuts of any variety ought to be eaten. Since then I have grafted them by the acre for farmers in the neighborhood. All together I grafted eight acres, besides hundreds of single trees; but like you, Mr. Root, I am getting too old to climb trees. I am only two years younger than yourself. If you have not done so already, I would advise you to plant some chestnut-trees right at your home in Medina, and don't plant them all in the woods for the squirrels, for you will find they go for your chestnuts before any other nuts.

Yes, the trees bear as young as you are informed. I have seen little trees bent down until the big heavy burrs were resting on the ground, and big trees that looked more like weeping willows than any thing else. I have often seen half a dozen of the big burrs hanging on a limb not bigger than a common leadencil.

Now for the best varieties. The great Paragon is by all odds the great leader here of all the different kinds tried so far. The Numbo is also a good one, but it does not bear quite so abundantly. The Spanish is not worth raising here. It is too bitter; besides, the kernel is in sections of all shapes; and that bitter skin around the kernel is between all the joints, making it taste more like an acorn than a chestnut. Don't cut any grafts from a tree in full bearing. If you do your grafts will bloom the same year they are grafted. This will injure the grafts greatly.

You tell your friend in Michigan to get a good grafter next spring, and get that fine row of trees grafted. In a few years he will have something to make his heart feel glad, and a wonder for the neighbors. If you have not the Paragon chestnut (for you must have it) I can send you a boxful of grafts. I charge you nothing for them. If you agree to pay the freight, say so and you shall have them next spring. J. H. BUPP.

Loganville, Pa., Dec. 11.

[Perhaps the good brother who writes the above did not intend it for print, and I am afraid I shall get him into trouble by printing his last paragraph without his knowledge or consent; and I would suggest to him that he had better put a price on his chestnut grafts, say sufficient to cover postage and to give him something for his trouble. I am sure the readers of GLEANINGS would prefer to get them that way rather than have him send them free of charge. I fear I shall not be able to accept his kind offer, owing to a multitude of other cares. The information he has given will probably be valuable to a great many.—ED.]

#### Regarding Our Advertisers.

F. W. Bird & Son, E. Walpole, Mass., manufacturers of the famous paroid and Neponset roofing papers, publish a very interesting and instructive booklet of farm building plans which they will send free upon request. This booklet has proven to be so popular that the third edition has already been published. It is, indeed, well worth sending for and every one of our readers should have a copy. Cut out this notice, or mention GLEANINGS, and send a two-cent stamp. The booklet will be mailed to you at once.

The demand for a small amount of power which can be applied to several uses, exists on every farm. In grinding, sawing, pumping, and in numerous other operations, some easily applied power would mean a great saving of labor and time. Bee-keepers have many uses for small engines or motors. If you have felt the need and want to know how to accomplish your work as quickly as possible, you should purchase a gasoline-engine. We recommend the use of gasoline-engines in preference to those run by any other fuel. The Lyons Engine Co., Lyons, Mich., who have a page ad. in this number of GLEANINGS, manufacture a very high-grade, medium-priced engine, and are prepared to furnish three or four different styles and sizes. If you will send for their catalog and mention GLEANINGS we are quite sure that your inquiry will be taken care of carefully and full information furnished to you.

# Joseph Horne Co.

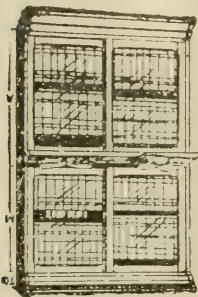
Pittsburgh, Penn.

## Ready-to-make Garments. What are They?

They are shirtwaists, kimonos, and matinees, correctly cut to fit women of all sizes. They are of dozens of different materials. They require but little fitting, as they were cut by an expert. Any one can make her own waists or negligees by means of these Ready-to-make Patterns.

A few prices:

|                                                                                                                                 |        |
|---------------------------------------------------------------------------------------------------------------------------------|--------|
| SHIRTWAISTS—of India linen, four sizes, 32 to 44 bust measure, each.....                                                        | 45c    |
| SHIRTWAISTS—of fancy chevot, in three styles, sizes 32 to 44 bust measure.....                                                  | 65c    |
| SHIRTWAISTS—union linen, in four styles, 32 to 44 bust measure, each.....                                                       | 75c    |
| SHIRTWAISTS—of butcher's linen, 95c; of very fine India linen with embroideries and insertions.....                             | \$1.50 |
| KIMONOS—of Arnold flannellettes, percale designs, with contrasting bands as a trimming; full length, \$1.45; short kimonos..... | 85c    |
| MATINEES—of silk, dainty Jap printings, with bands of contrasting solid color material, each.....                               | \$2 50 |



## SECTIONAL BOOKCASES

Sliding doors, adjustable shelves, in Quartered Oak and Mahogany. Send for illustrated free catalog.

The Cleveland Desk Co.,  
CLEVELAND, O.

Office and Library Furniture.

## HERE IS A WINNER.

|                                                                                 |       |
|---------------------------------------------------------------------------------|-------|
| The Modern Farmer and Busy Bee.....                                             | \$ 50 |
| American Bee Journal (new subscribers).....                                     | 1 00  |
| Farm Money Maker.....                                                           | 50    |
| Agricultural Epitomis.....                                                      | 25    |
| And your choice of Langstroth on the Honey-bee,<br>or A B C of Bee Culture..... | 1 20  |

**All for \$1.85.** \$3 45

The American Boy, the Cosmopolitan, or Pearsons, may be substituted for A. B. J. Ask for other substitutes. We can save you money on any paper. Let us have a list of what you want. Address quick, THE MODERN FARMER, 307 N. 3d Street, St. Joseph, Mo.

**65c** for 25 NAMES—For names and P.O. of 25 farmers and 15c (stamps taken) we will send for 2 years the Farmer's Call—regular subscription price, 40c a year. F. C. is a weekly, 25 years old; 1300 pages a year; sample free. Farmer's Call, Quincy, Ill.

## WANTED.

Local representative to handle the sale of our new Unrivaled Series of Charts and Surveys showing every State and foreign country; reliable, historical, and descriptive matter beautifully illustrated. We anticipate sale large enough to net our representatives from \$300 to \$800 in every county. Address  
RAND, McNALLY & Co., Chicago, Ill.

## BANKING BY MAIL

**4 Per Cent INTEREST**  
Compounded Twice a Year!

Assets of over one-half million and the management of prudent men of solid financial standing give this bank every element of safety.

Send to-day for particulars, explaining how you can open an account safely and conveniently by mail.

Under ordinary circumstances all or any part of your deposit may be withdrawn at will.

## THE SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.  
E. B. SPITZER, Cashier.

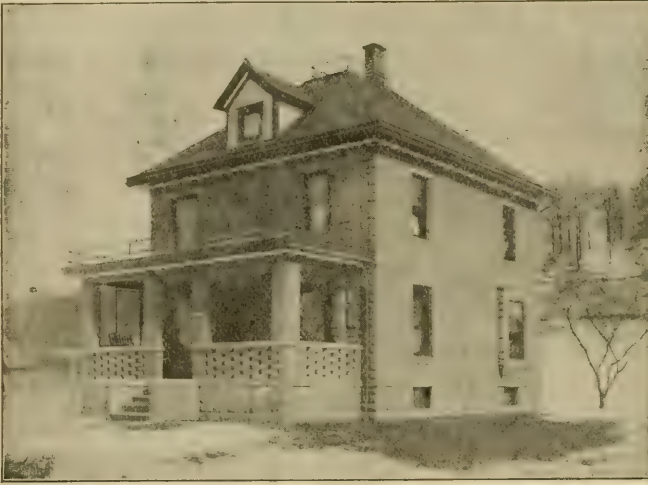


## THERE'S MONEY IN FARMING

If you understand modern methods and farm INTELLIGENTLY.

Every reader of GLEANINGS who is interested in farming or gardening, in the growing of fruit or of flowers, is invited to send for a free copy of our 80-page catalog and full information in regard to the Home Study Courses in Agriculture, Horticulture, Landscape Gardening, and Floriculture, which we offer under Prof. Brooks, of the Massachusetts Agricultural College, and Prof. Craig, of Cornell University. Home Correspondence School, Dept. 12, Springfield, Mass.





A Plain  
Attractive and  
Comfortable Home  
Built of Hollow  
Concrete  
Building-blocks

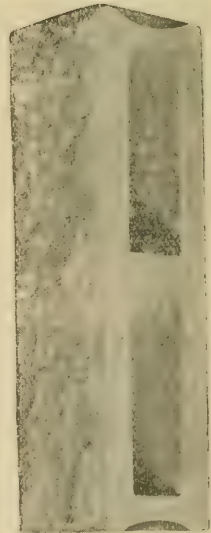
## Concrete - Building - Blocks

**M**ANY of the readers of GLEANINGS IN BEE CULTURE have undoubtedly noticed our advertisement at one time or another. In fact, hundreds have written us saying, "I saw your advertisement in GLEANINGS." As a result we have sold a large number of machines to readers of this valuable publication, and we deemed it no more than courtesy to those with whom we have had the pleasure of doing business to thank them, through this medium, for their patronage, and, further, state that we are in the market again this year with all the machines we advertised and sold last season, besides several new and distinct types. The concrete-building-block business has assumed such enormous proportions—the product displacing every other building material—at once and apparently for all time wherever established, that we feel warranted in predicting that the time is fast

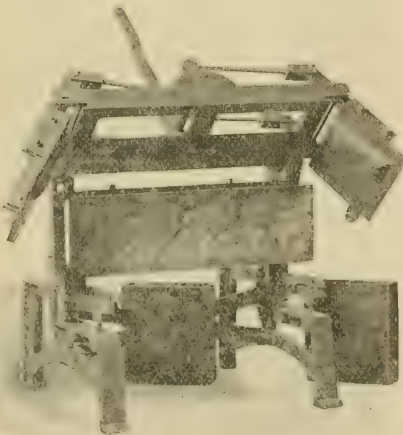
approaching when one who is thinking of erecting a building, no matter whether it's house, barn, business block or factory, will give no other material even a thought.

**THE BUILDING OF HOMES** has changed as much as has the method of doing any other work in the past decade. As is true in the case of modern machinery, "Necessity has become the mother of invention."

**THE GREAT ONSLAUGHTS** made upon the vast forests of the country have greatly reduced the available supply of building timber. Brick and stone have substituted wood very satisfactorily in most cases, but at a prohibitive cost. Only within the past few years has a cheaper substitute than either of these, one which rivalste its cost wood itself, been found. No other



One Style of Block



One of the Large Machines

form of construction allows such a free range for the carrying-out of the architect's or owner's artistic conceptions. Wonderful combinations and arrangements are not only possible but easily made.

**THE GREAT SECRET** in the making of blocks lies in the ability of the one who constructs the block-making machines. The machine must make a perfect block. It must be strong enough to allow severe tamping of the material, and it must be so arranged that the removal of the block can be quickly and easily accomplished without risk of breaking.

We have experimented and devoted all our energies to manufacture a machine which shall include every desirable feature which our building experience has shown us a machine should include, and we believe that we have satisfied every conceivable need.

**SINCE THE SALE OF OUR FIRST MACHINE** we have many times received very cordial letters from users. The universal opinion is that we have realized every needed feature.



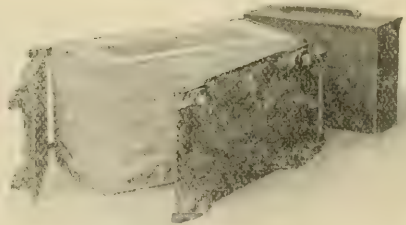
Concrete Lawn-vase



This House Embodies with Its Beauty the more Attractive Feature of Moderate Cost

**THE PRICE** at which this **BEAUTIFUL** and **SUBSTANTIAL** material can be produced, of course depends entirely on these two items: Cost of Portland cement, sand, and gravel or crushed stone. These are the only elements that enter the composition. There is no secret process in connection with their manufacture. With the instructions we send with our machines any one can, in a few minutes, learn to make a perfect block.

Space does not permit us to go into detail concerning our different machines; but to any one who is interested we shall be pleased to mail our new descriptive circular and price list. We have outfits ranging in price and product to suit one who may want to build a few blocks for his own use to those suitable for a contractor or one who may want to establish a factory.

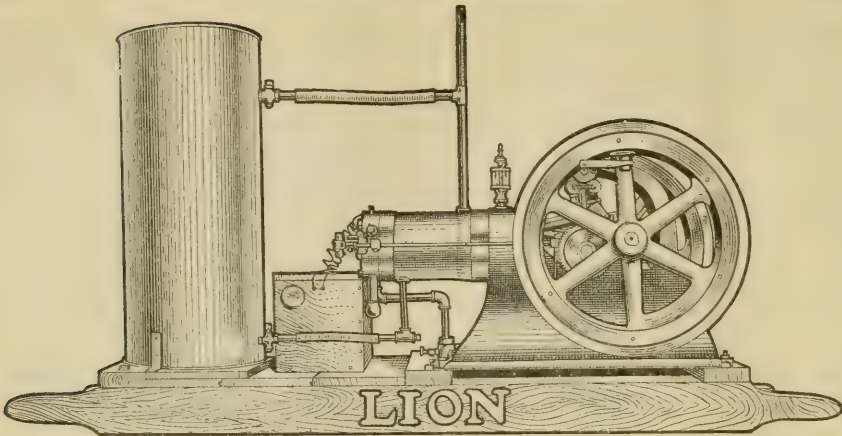


Small Machine

# Medina Concrete Company

22 Court Street, Medina, Ohio





## IT'S READY TO OPERATE

There's no firing-up—no waiting for steam with a **Lion** Gasoline Engine. It is **always ready to operate**. Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

## *The Lion Engine*

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

**We sell direct from factory to buyer**, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion** engine and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion** engine. It is free if you mention this paper when you write.

**Lyons Engine Company**  
LYONS, MICHIGAN



# EVERY FARMER NEEDS A GOOD TELEPHONE

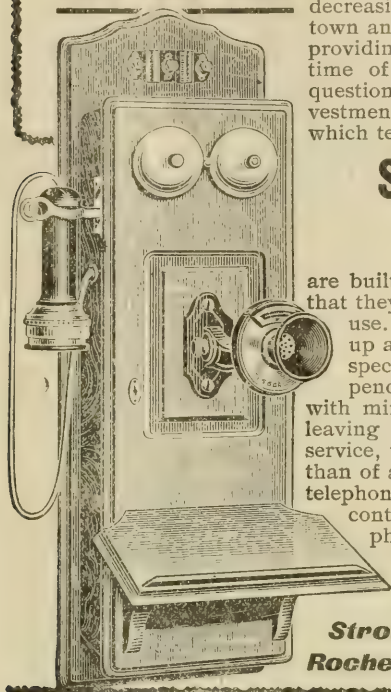
**IT'S CHEAPER TO  
TALK THAN WALK**

A telephone on the farm is a "saver" in a great many ways. It increases the working force by decreasing the necessity for so many trips to town and to the neighbors. It adds security by providing means for quick communication in time of misfortune and distress. There is no question as to the telephone being a paying investment for the farmer. The only question is, which telephone is the best for the farmer to buy?

## Stromberg-Carlson Telephones

are built better than the ordinary telephone, so that they are especially adapted to the farmer's use. Every piece and part that go to make up a complete telephone are made by skilled specialists in our own plant—the largest independent telephone factory in the world—made with minute care and thoroughly tested before leaving our hands; that's why they give best service, that's why there are more of them in use than of all others combined, that's why it is the telephone to buy. Many other good reasons are contained in our new book, "How the Telephone Helps the Farmer," which will interest you if you are going to buy one or a hundred telephones. Write today—ask for book 36-L—we send it free.

**Stromberg-Carlson Tel. Mfg. Co.**  
**Rochester, N. Y. Chicago, Ill.**



# PAROID

Before you buy roofing for any building, from a small mill or factory, it will pay you to get samples and complete proofs of quality from the oldest makers of ready roofing in America. (We originated the roll of roofing ready to lay with fixtures packed in the center.) Our concern was

**Founded in 1817**

We can show you why "Paroid" is the best of them all—lasts longer and saves most in repairs. Drop us a postal to-day.

**F. W. BIRD & SON,**  
East Walpole, Mass.  
New York, Washington, Chicago,  
Hamilton, Ont.

# ROOFING

# SPRAY PUMPS

The Pump  
That Pumps

SPRAY  
PUMPS

Double-acting, Lift,  
Tank and Spray

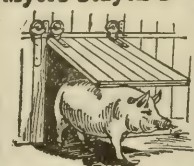
**PUMPS**

Store Ladders, Etc.

**HAY TOOLS**

of all kinds. Write  
for Circulars and  
Prices.

**Myers Stayon Flexible Door Hangers**



with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.  
**F. E. MYERS & BRO.**  
Ashland, Ohio.

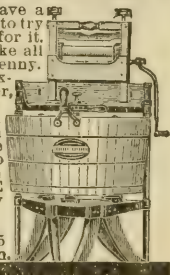




For Heavy Loaded Party Lines  
**"ELLIOTT" TELEPHONES**  
 Bona-Fide "World Beaters." 18 Years Experience. Extra Powerful High Grade. Guaranteed to Ring 25 to 40 Phones on one line, loud and clear. Space too small here to name many valuable features of "ELLIOTT" Phones. Be wise, write for elegant Catalog, now ready, ask for our Special Offer on First order from your section. You'll not regret it.  
**ELLIOTT TELEPHONE & ELECTRIC CO.**  
 Indianapolis, Ind.

## 1900 Washer FREE!

Any worthy person can have a "1900" Gravity Washer free to try four weeks just by writing for it. We pay the freight and take all risk. You don't risk a penny. Test it four weeks at our expense. If you like the Washer, keep it on the "1900" plan, which we will explain to you. If you don't like it return it at our expense, so you are nothing out. Washes a tub full of dirty clothes clean in Six Minutes. Get it FREE by addressing a postal today to "1900" WASHER CO., No. 5663 HENRY STREET, BINGHAMTON, N. Y., or 355 Yonge Street, Toronto, Can.



### THE "BEST" LIGHT

Made in  
Over 100 different styles.  
100-Candle Power  
Light at a cost of  
2c per week.

More brilliant than Acetylene or Electricity. No Grease—Smoke—Dirt or Odor.  
Agents Wanted Everywhere.

**THE BEST LIGHT CO., 306 E. 5th St., Canton, O.**



**AGENT IS ALL IT COSTS** to write postal for our big **Free Bicycle** catalog showing all models at lowest prices. **DO NOT BUY** a bicycle or a pair of tires until you learn our **marvelous new offers**. We ship on approval without a cent deposit, **prepay freight**, allow **10 Days Free Trial**—All our new and wonderful propositions with catalogues and much **valuable information** sent you **FREE** for the asking. **WE WILL CONVINCE** you that we sell a better bicycle for less money than any other house. Buy direct from the factory. If you want to **Make Money or Earn a Bicycle** write for our **Special Offer**. **TIRES, Coaster-Brakes**, built-up wheels and all sundries at half usual prices. **Do Not Wait**, but write us a postal today and learn everything. Write it now.  
**MEAD CYCLE CO., Dept. M-188 Chicago, Ill.**



**EXTENSION AXLE NUTS CURE WABLES.**  
 Make old buggies run like new. Quick sellers. Very profitable for agents. **Exclusive Territory.**  
 Hardware Specialty Co., Box 535, Pontiac, Mich.

## Make Your Grocery Money Buy Both

### GROCERIES AND FURNITURE WITHOUT EXTRA COST

Do you know that you can get these nice things for your home without extra cost by buying your groceries **direct from us**? The same amount of money you are now paying out for groceries will get both groceries and these beautiful premiums, or your choice from nearly 1000 more shown in our big free catalog. Every day you buy or use tea, coffee, soap, baking and washing powder, flavoring extracts, etc., which if purchased on our "Factory to Family" plan—**direct from the maker**—can be had for same prices or less than you are now paying the regular dealer and in addition we give these nice premiums. If you buy \$2 worth of groceries we give a \$2 premium; with \$5 worth a \$5 premium; with \$10 worth this \$10 couch or chair or any other \$10 premium you select from our catalog. Why not make your grocery bill pay your furniture bill—or furnish your home without extra cost? You will be surprised how quickly you can get these useful, beautiful articles. To convince you that the groceries and premiums we furnish are high-grade we send both on 30 days trial. We even allow you to use them—test them—and if not satisfactory you can return them at our expense and your money will be returned without a question. That proves our goods are right—our premiums are right—our dealing with our customers is right—honest.

### GROCERIES AT HALF PRICES ON OUR "FACTORY TO FAMILY PLAN"

If you don't need the premiums you can get our high-grade groceries for just one-half what regular dealers charge. We give you a Pure Cream Tartar Baking Powder for only 12½c which dealers sell at 25c a can; a 25c bottle of Lemon or Vanilla Extract for 12½c; Family Laundry Soap at 2½c a bar (regular price 5c a bar); box of Fine Toilet Soap (3 bars) only 12½c for which dealers ask 25 to 30c. In fact, we save you one-half on everything we make. Then we have another saving plan—we call it our "Club of 10 plan" which is fully explained in our large free Furniture catalog and style Book. You ought to send for this money-saving book today.



**CROFTS & REED**  
 915 Austin Avenue  
 Chicago.

## How Your Money Comes Back on this Vehicle.

Because we manufacture it and know of what it is made and how it is made and all about it, we can sell it on terms never before offered. Just read—

First, we send it to you to try 30 days. If you are not satisfied, you're nothing out.

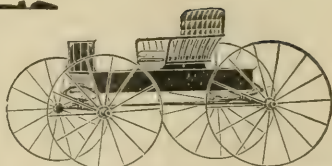
### THREE FULL YEARS GUARANTEE.

But if you like it, (as you will) you buy it at just about half dealer's price—and you have exactly the same right of return and money back for three full years.

That's our guarantee. If any defect or fault appears, if it is not what it should be or what we represent it to be, call for your money.

That's our plan. It's the way we are dealing with hundreds of vehicle buyers. It's a guarantee that we toe the mark—build honestly and deal straight. It accounts for all our buyers being satisfied. Don't forget that we are factory people. We buy nothing but materials. We make everything we sell, and sell everything direct to users.

That accounts for the extraordinary low prices we make. Same low prices on all classes of vehicles. Two special bargains right now in our general catalogue. Write for free copy, for free copy.



ON TRIAL

The Progressive Vehicle Mfg. Co., Dept O. Ft. Wayne, Indiana.

## Have You Seen the New Split Hickory Vehicle Book?

Top Buggies



From \$35 to \$50

This is an illustration of our new 1906 Split Hickory Special. You can't see from this small illustration just what it is like. Our catalog shows it gotten up in 19 different styles. We can furnish it any way you want it and ship it promptly. The price is \$50.00 with a legal binding guarantee for two years, and shipped anywhere to anyone on 30 Days Free Trial.

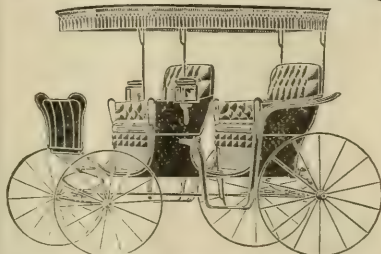
for one. It costs you nothing but a penny for a postal, or a two-cent postage stamp. You can't know what our great proposition is until you get our catalogue. You may not think you will be interested—perhaps you may not. We do not sell every one, but we can save you money. We guarantee every vehicle that we manufacture for two years. Our Guarantee is a legal one and it means full value to every purchaser.

Split Hickory Name Plate on a vehicle stands for quality. It stands for fair treatment, and if our goods are not satisfactory after you have given them 30 Days Free Trial, they cost you nothing.

The new catalogue tells you all about the factory we have equipped in which we manufacture our SPLIT HICKORY SPECIAL TOP BUGGY. It tells all about the saving that you make in buying from headquarters, how you save the dealer's and middleman's profit, which is at least \$25 on a buggy like our Split Hickory Special. We want you to know all about our plan. Will you write for our new catalogue today?

The Ohio Carriage Mfg. Co., H. C. Phelps, Pres.  
Station 293, Cincinnati, Ohio

## 33 Years Selling Direct

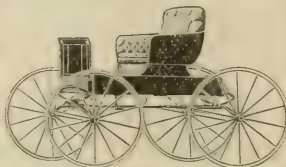


No. 309. Canopy Top Surrey. Price complete \$83.  
As good as sells for \$35 more.

Our vehicles and harness have been sold direct from our factory to user for a third of a century. We ship for examination and approval and guarantee safe delivery. You are out nothing if not satisfied as to style quality, and price.

We are the Largest Manufacturers in the World

selling direct to the consumer exclusively. We make 300 styles of Vehicles, 65 styles of Harness. Send for large free catalog.

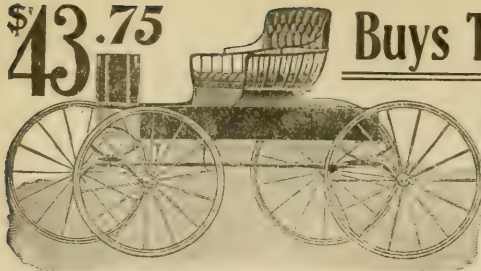


No. 721-1/2. Driving Wagon with Large Phaeton Style Seat and 1-1/4 in. Cushion tires. Price complete, \$65.50. As good as sells for \$25 more.

ELKHART CARRIAGE & HARNESS MFG. CO.,  
Elkhart, Indiana.



\$43.75  
43



## Buys This Rubber-Tire Wagon

**Union Quality. Fully Guaranteed.** Best hickory wheels;  $\frac{1}{2}$ -in. Rubber Tire; long-distance, dust-proof, high-arched axles; oil-tempered springs. First-quality material and finish. Worth nearly double our **Factory Price**. We ship for your examination, without a cent in advance, if desired, and allow

**30 DAYS FREE TRIAL**

Money refunded on all purchases not satisfactory. You save dealers' profits. We build 150 styles of Vehicles, from \$26.50 to \$150. 50 styles Harness, \$5 to \$60. Write to-day for our 200-page illustrated Style Book. Free for asking.

**Union Buggy Co., 45 Saginaw St., Pontiac, Mich.**

### No Money in Advance

Vehicles and harness sold direct from factory at lowest factory prices.

### Genuine Free Trial.

No money, no note to sign, no deposit. "Anderton" Vehicles must sell themselves. Two years approval test, backed by \$25,000. bank deposit put up as a guarantee to make you sure of your money back. Write for our free 110-page illustrated catalogue No. 21. It fully explains our offer.

**THE ANDERTON MFG. CO.,**

41 Third Street,

Cincinnati, Ohio.



\$35.50

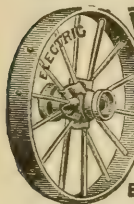
## Paint Without Oil

**Remarkable Discovery that Cuts Down the Cost of Paint Seventy-Five Per Cent.**

**A Free Trial Package and a Big Book Telling All About Paints and Paint-Making are Mailed Free to Everybody Who Writes.**

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powderpaint. It comes to you a dry powder and all that is required is cold water to make a paint weatherproof, fireproof and as durable as oil paint. It adheres to any surface, wood, stone or brick, it spreads and looks like oil paint and yet only costs one fourth as much. For many purposes it is much better than oil paint and is indispensable to every property owner.

Write to Mr. A. L. Rice, 553 North St., Adams, N. Y., and he will send you a free trial of his new discovery, together with color cards and his valuable book on Painting, all free. This book lets you into all the secrets of paint-making, exposes fake paints, tells you what kind of paint to use for different purposes and shows you how you can save and make a good many dollars. Write today and the book and free trial of Paint will be sent you by return mail.



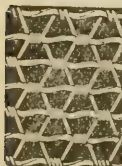
### WAGON SENSE

Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

### Electric Handy Wagon.

It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

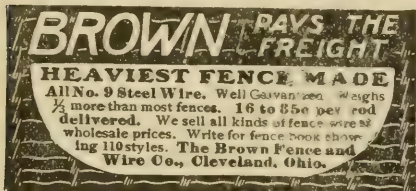
**ELECTRIC WHEEL CO., Box 95, Quincy, Ill.**



### FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today

**COILED SPRING FENCE CO. Box 101 WINCHESTER, INDIANA.**



### BROWN PAYS THE FREIGHT

### HEAVIEST FENCE MADE

All No. 9 Steel Wire. Well Galvanized. Weighs  $\frac{1}{2}$  more than most fences. 16 to 35¢ per rod delivered. We sell all kinds of fence at wholesale prices. Write for fence book showing 110 styles. The Brown Fence and Wire Co., Cleveland, Ohio.



### POULTRY FENCE

that keeps stock out of your poultry yard, stands up stiff on few posts and requires no top rail or bottom board, is our specialty. You can't afford to buy poultry fencing without knowing more about the PAGE. Write us.

**Page Woven Wire Fence Co., Box 6473, Adrian, Mich.**

### LADIES WANTED

### ON SALARY

for a large established firm to solicit and demonstrate a modern toilet soap, distinctly different from all other soaps. No traveling. Easy sales everywhere. Write for particulars and free sample.

**The D. Co. 715-725 S. W. St. Canton, O.**

### HOW TO BUILD INCUBATORS AND BROODERS



A 10-year-old boy can do it with Peerless plans. Anyone can build successful machines and make money making them for others. These illustrated plans complete, showing every step of construction, are free with every request for our new Incubator and Brooder Supply Catalog. It tells all about the New

### ACME COMPOUND WAFER REGULATOR and AUTOMATIC LAMP

Combined damper and flame regulation, saves  $\frac{1}{2}$  the oil, will fit any machine. Write for catalog. **H. M. SHEER CO. Dept. 38, Quincy, Ill.**

**PLANS FREE**

# INVESTIGATE THE POULTRY BUSINESS



Write for a free copy of my  
book describing

**Profitable  
Combinations  
of Egg, Broiler  
and Roaster  
Farms**

It gives the prices paid for eggs and poultry week by week for the past three years. It tells how and when a hatch taken off each week in the year could be most profitably marketed. It shows how you can make \$2.00 on a large winter roaster. It tells what profits can be made with each of the popular breeds, and the costs of production.

I have helped thousands to make money with poultry. My Model Incubators and Brooders are used on the money-making farms. It is my business to teach those who use them to do so profitably. Whether your needs are small or large, I will furnish without charge, estimates and plans for a complete equipment that will insure success without your spending a dollar uselessly. Send for my complete literature.

**CHAS. A. CYPHERS**

3927 Henry St.

Buffalo, N. Y.

## METAL MOTHER BROODER- HATCHER



Is a marvel; does double work; successfully broods one batch while running another hatch. Gets the kind of chickens we all like. A complete incubating and brooding plant for only \$7.50. Our all metal system is absolutely fire proof, will hatch hen, duck, goose and turkey eggs equally well and at the same time. Our Brooders are made for convenience, economy and to raise healthy chickens.

Hatchers \$5.00, Brooders \$5.00, Brooder-Hatchers \$7.50. Catalog free. Write now.

**\$5** CYCLE HATCHER CO.,  
Box 223, Salem, N. Y.



# Let Me Tell You the Special Price On This Genuine 1906 Chatham Incubator

YOU see we make more incubators than any other concern in the world.

We have two big factories equipped with every up-to-date labor-saving appliance. We buy lumber in immense quantities.

And turn out from six to seven hundred Incubators a day.

This means high grade machines at low cost.

Now we are after the trade with an Incubator of up-stairs quality at a down-stairs price. And to prove to you that Chatham Incubators are the best made, we are willing to let you try one 84 days **FREE**.

## GEM INCUBATORS AND BROODERS

Time tested and proven success: thousands in use, sold direct to you at wholesale prices. You get the maker's guarantee and save the middle-man's profits. The Removable Chick Tray and Nursery—a feature no other has—explained in our ad. It's free. Write for it today.

Gem Incubator Co., Box 53, Trotwood, O. **\$4<sup>88</sup><sub>up</sub>**



## Take Your Choice.

Guaranteed Self Regulating Incubators at \$1 and \$2 per month. Let **RENT** rent pay for it. We pay freight. Buy on **40 Days Trial** or buy parts and plans and build one. Prices, ready to use: \$5.00 up. Free catalog—tells all.

BUCKEYE INCUBATOR CO., Box 84, Springfield, O.

## \$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Matches every fertile egg. Write for catalog to-day.

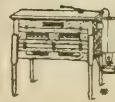
GEO. H. STAHL, Quincy, Ill.



## BANTA Incubators & Brooders

Backed by 14 Years  
of Successful Use by

poultrymen all over the world. No guesswork. They are automatic in regulation and ventilation. Fully guaranteed to give YOU satisfaction. Send for free book. **BANTA-BENDER MFG. CO., Dept. 23, Ligonier, Ind.**



## WATER GLASS EGGS

Preserve them for many months just as fresh as the day they were laid with

### WILLET'S WATER GLASS PRESERVER

The only sure way of preserving eggs to sell at high prices. Pure water glass. Cost, about 1c per dozen. Pint, 15c; quart, 25c; gal. \$1. Circulars free for postal. **Willet's Water Glass Egg Preserver Co. Box 63, Anderson, Ind.**



## LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Churches and Churches. Address **COILED SPRING FENCE CO. Box 148 Winchester, Ind.**



Try It  
84 Days  
**FREE**

You can take off four hatches, and, if the machine isn't exactly as represented send it back at our expense. Could we make a fairer offer?

But we go further even than this and guarantee every Incubator we sell for five years—a direct iron-clad guarantee. Send for our **FREE** Catalog today.

Your name and address on a post card mailed at once gets the whole story by return mail.

**The Manson Campbell Co., Ltd.**

216 Wesson Avenue,

Detroit, Mich.



# 85 BEST Farm Gates

## SOLD to ONE MAN

and are now in actual everyday use on his farm. This certainly is pretty strong evidence of the superiority of the BEST GATE. A good gate is necessary to complete the fences on a well kept farm. It will more than pay for its first cost in one season in the time and labor it saves the farmer in passing through it, or in driving from one field into another.

Shelbyville, Ind., March 3, '06.  
Best Gate Co., 67-69 E. Jackson St.

Shelbyville, Indiana.

Dear Sirs:—Please deliver to bearer, Albert Luther, six 12 ft. **BEST Gates** for Fairland farm. This will make **eighty-five BEST gates** bought of you for our farms in this county, many of which have been in use several years. They are **light, durable**, and do not sag or warp, and **have not cost one cent for repairs**. In view of these facts, I will continue to buy **BEST Gates**, and no doubt will have one hundred or more in use before fall. Very truly yours,  
J. B. HAMILTON.

# The BEST Gate

is certainly just what its name implies—it is the BEST for any purpose. It is light, strong and convenient to handle. The frame is made of select hard pine and strongly braced. There are **TEN STRANDS OF HIGH CARBON COILED SPRING STEEL WIRE** on this gate which are attached to the frame work with a **PATENT RACHET** so as to allow for tightening when needed. You cannot reproduce this gate for less than **50 PER CENT MORE THAN WE ASK**. We sell the **BEST GATE**

## Direct from Factory to User

and **PREPAY THE FREIGHT** as far as 300 miles from Shelbyville. **PRICE \$5 and upward** according to the size of gate. The illustration below shows the strength of the **BEST GATE**. It is not an exaggeration for this gate will hold a weight of more than 700

lbs. without buckling or sagging. Write for our booklet, it describes The Best Gate more thoroughly than we can in this advertisement.



### THE BEST GATE CO.

Dept. L

Shelbyville, Indiana.



## PIONEER GUARANTEED NURSERY STOCK AT WHOLESALE PRICES

All stock guaranteed disease free and true to name.  
Hart Pioneer Stock is pure bred and produces heavy crops.  
Value received for every dollar sent us. No Agent's Commission  
WRITE FOR COMPLETE PRICE LIST. WE WILL SAVE YOU MONEY  
**HART PIONEER NURSERIES, Est. 1867 Fort Scott, Kan.**



❖ 60 ❖

### Beautiful Flowers FREE

**25c.** to pay the cost of packing and postage. You will receive this Grand Collection of Beautiful Flowers, and our New Seed List, the only liberal offer ever made, and a Coupon Check that will give you one of the finest Farm Papers published, by sending for this grand offer:

#### 25 Packages Seed

|                            |                          |
|----------------------------|--------------------------|
| 1 pkt. Snowball Aster.     | 1 pkt. Morning Glory.    |
| 1 pkt. Apple Bloss. Balsam | 1 pkt. Mixed Calliopsis. |
| 1 pkt. Mixed Portulaca.    | 1 pkt. Mixed Calendula.  |
| 1 pkt. Mixed Sweet Pea.    | 1 pkt. Mixed Nigella.    |
| 1 pkt. Sweet Mignonette    | 1 pkt. Mixed Phlox.      |
| 1 pkt. Sweet Alyssum.      | 1 pkt. Sunflower.        |
| 1 pkt. Sweet William.      | 1 pkt. Sweet Rocket.     |
| 1 pkt. Mixed Poppy.        | 1 pkt. Carnation Pink.   |
| 1 pkt. Mixed Candytuft.    | 1 pkt. Mixed Four o'Clk. |
| 1 pkt. Mixed Larkspur.     | 1 pkt. Mixed Marigold.   |
| 1 pkt. Mixed Pansy.        | 1 pkt. Mixed Petunia.    |
| 1 pkt. Mixed Nasturtium    | 1 pkt. Mixed Zinnia.     |
|                            | 1 pkt. Mixed Verbena.    |

**25 Bulbs, a Beautiful Collection,** sent with this order, including Hyacinths, Tulips, Crocus, Tulip-roses, Gladiolus, Caladium, Oxalis, if you will send at once 25 cents in silver or stamps. Address

**E. C. HOLMES, Somerville, Mass.**

## Vaughan's Seed Book

152 PAGES—READY NOW

FREE, Write or Call

**Vaughan's Seed Store**



### HOW TO GROW CACTI

is fully explained in the new book just issued, "Cactus Culture for Amateurs," 80 pages, finely illustrated, describes 500 varieties. Tells where found, treatment to produce bloom, soil, how to graft, how to grow from seed, and where to get all rare Cacti and Succulents, price 25c. 40-page catalogue of Cacti, and nice sample Cactus (named) 10c. E. Texensis (like cut) 25c. Old Man (genuine) 50c. 10 nice Cacti, all different, \$1.00. Circulars free. The Callander Cactus Co., Dept. 48, Springfield, Ohio.

### HARDY EVERGREENS

Invaluable in both ornamental and protective planting. The Cedars, Firs, Spruces and Fines offer a wide variety for these purposes. We grow a large assortment and offer strong, well rooted stock. Complete horticultural establishment—nearly forty years old. 1200 acres. Full line of seeds, plants and trees of all kinds. Free catalogs. Address

**Jewell Nurseries**

Lake City, Minn.  
Box 12



### THE BEST STRAWBERRY

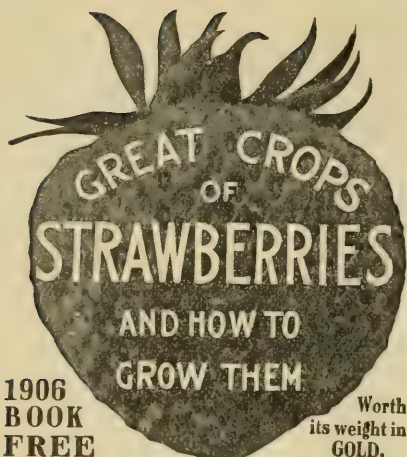
is Senator Dunlap—large, fine colored, very productive. Catalog of strawberry and other berry plants FREE.  
L. J. Farmer, Box 608, Pulaski, N. Y.



### THE BEST RASPBERRY

is Plum Farmer; early, large, enormously productive. Catalog of raspberry, strawberry and other berry plants free. Write for it NOW.  
L. J. Farmer, Box 608 Pulaski, N. Y.





The Book that beats them all because it tells how big crops of big fancy strawberries can be grown every year and how to pick and pack them for big prices. It keeps Experienced Growers posted on new discoveries in plant breeding and latest cultural methods. It takes beginners through a complete course of instruction; tells just when and how to do everything to get **Big Results**, and how to start a Profitable Berry Farm with little capital. Beautifully illustrated with photo-engravings. Don't order your plants until you read this book. It is free.

R. M. KELLOGG CO., BOX 400 THREE RIVERS, MICH

A beautiful colored plate of our

### New Eaton Red Raspberry

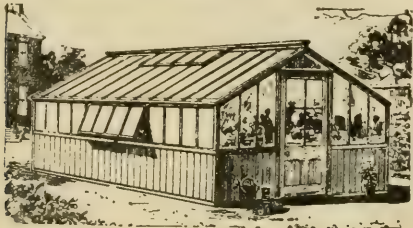
and our strawberry catalog of valuable information about varieties with instructions for beginners. Free to all.

THE FLANSBURCH & POTTER CO.,  
Leslie, Michigan.



## PLEASURE AND PROFIT

A Premier Greenhouse will keep you supplied with flowers, fruits, and vegetables all the year round. Saves its cost in a season; gives tone to your residence, and creates a pleasant and profitable hobby.



The illustration shows a Premier Greenhouse—length, 12 feet; width, 8 feet; height, 8 feet. It has double walls, double-strength glass, plant-tables, etc., fitted complete; built in sections, and can be erected in two hours. The price is \$63.00.

George B. Clementson, Esq., Lancaster, Wis., writes: "The Premier Greenhouse is the most attractive proposition for the plant-lover I have ever seen."

Catalog and price list on application. Greenhouses from \$20.00. Conservatories, Garden Frames, Summer Cottages, Auto-houses, Poultry-houses, and Portable Buildings of every description.

Charles H. Manley,  
Dept. B C, Premier Manufacturing Works, St. Johns, Mich.

## Just a word!

It is now so late that garden seeds should reach the planter without delay of getting catalog first. Below are two of our most popular offers. Write us, and seeds will come by return mail.

### A Complete Garden for \$1.00!

Catalog Price, \$2.00

One packet each of the following:

Mattituck Cauliflower,  
Grand Rapids Lettuce,  
Scarlet Globe Radish,  
White Globe Turnip,  
Nuevo Tomato,  
Golden Heart Celery,

Danvers Carrot,  
Fordhook Cucumber,  
Giant Gibraltar Onion,  
Vegetable Marrow,  
Chinese Giant Pepper,  
Rockyford Muskmelon,  
Wakefield Cabbage.

One pint each of following:

Alaska Peas,  
Golden Bantam Sweet Corn,  
Champion Peas,  
Evergreen Sweet Corn,  
Golden Wax Beans.

### OUR SPECIALTIES FOR 50c

One packet each of the following:

Golden German Beans,  
Mattituck Cauliflower,  
Giant Gibraltar Onion,  
Vegetable Marrow,  
Nuevo Tomato,

Wakefield Cabbage,  
Grand Rapids Lettuce,  
Earliana Tomato,  
Fordhook Cucumber,  
Evergreen Sweet Corn.

Catalog Price \$1.10

Catalog Free on Request

**E. C. GREEN & SON**  
Seedsman - - MEDINA, OHIO

## Forest Tree Seeds and Seedlings

To close out I offer the following seedlings at prices named, f.o.b.:

### Catalpa Speciosa:

6 to 12 inches..\$1.50 per M.; \$12.50 per 10M.  
1 to 2 feet..... 2.50 " 20.00 "

### American Linden (Basswood):

Collected Seedlings:

6 to 12 inches..\$3.00 per M.; \$20.00 per 10M.  
1 to 2 feet..... 5.00 " 40.00 "

### Althea Rosea: (Seedlings Mixed Colors)

6 to 12 inches..\$2.00 per M.; \$18.00 per 10M.  
1 to 2 feet ..... 3.50 " 30.00 "  
1 to 2 feet ..... 3.00 " 25.00 "

Send for prices of other seedlings, seeds, etc. Our catalpas are from finest strain of Nebraska-grown seed.

Forest Nursery and Seed Co., McMinnville, Tenn.

### EAR SEED-CORN!

Four of the best varieties for sale. Tested, and guaranteed to show good germination, or your money back. Thirty choice ears for 75c or one bushel in crates for \$1.75. Same price for graded if wanted. If you want good ear seed corn write before it is all sold.

Yenn Brothers, Riverside, Iowa.

## 450,000 TREES

200 varieties. Also Grapes, Small Fruits etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. Lewis Roessch, Fredonia, N. Y.

## Special Notices

*By Our Business Manager*

Elsewhere in the department of Pickings, in this issue, is a translation from *L'Apiculteur*, wherein it is stated that the United States government appropriates annually \$50,000 for apiculture. This is an error. The actual amount is only \$8000.

### MAPLE PRODUCTS.

The weather is proving to be favorable for the production of maple sugar and syrup, and we hope to have soon a plentiful supply. We have been filling orders for syrup, but little sugar has been offered us as yet this season. Price for syrup, \$1.20 per gallon; 6 gallons or over at \$1.10; maple sugar at 12 cents per lb. in 10-lb. lots or more.

### SWEET-CLOVER SEED.

We have secured several lots of white sweet-clover seed unhulled, much of which we have used in filling accumulated orders. We now have a limited quantity to offer at the following price till further notice: Per lb., postpaid, 23 cts.; not prepaid, 14 cts.; 10 lbs., \$1.20; 25 lbs. or more, at 10 cts. per lb. All kinds of clover seed seem to be scarce, and high in price this spring. For other clovers we refer you to The Wood Co., of Medina, O.

### HANDY NAILING-BLOCK.

If you have ever tried nailing up hives, frames, or other fixtures on a heavy block of iron you will appreciate its advantage over a wooden bench. We have made a supply of blocks 21x3x1 1/4 inches, weighing about 20 lbs. each, planed true on one side, which we can offer at \$1.00 each. A large slab, 16x24, would be worth \$5.00. The small block can be let into a slot in your bench, and you will find it a great advantage.

### PRICES ON SUPPLIES.

The time for early-order discounts is past, and net catalog prices will rule for the present. As to how long they can remain where they are is a question. We are paying as much for beeswax as we paid any time last season, and more than we were paying as early in the season, notwithstanding the price of foundation is 2 cts.

a pound lower than it was last year. If price of wax advances much more we shall be compelled to raise the price of foundation.

Pine lumber has made phenomenal advances in the past few months. Some kinds of southern pines have doubled in price, while the lower grades of white pine have gone up already from 25 to 50 per cent, with the prospect of further advances. Those who have to pay present market prices for a supply needed this season will find their margin of profit pretty well wiped out. On top of this advance another dilemma stares us in the face. The grade of lumber which we have used for years in cutting into hives is one for which there has been a very limited general demand; and, considering the small waste in our short cutting, we have been able to buy it much below its real value compared with the same product cut from higher grades which would produce no better hives, and very few more of them, with some less care in cutting up to avoid waste.

The mills are discovering that they can work up this lumber into other uses which bring larger returns, and are making but very little of this grade compared with what they have made heretofore. What the outcome will be is hard to see at present, but it looks very much like still higher prices for hives if we continue using white pine. We have enough on hand and engaged to keep us going till next fall or winter without any change in price or lowering of the quality. We may find before another season that it will be necessary to make two grades at different prices—a high grade of clear lumber for those who are willing to pay for such, and a lower grade for those who can not afford the higher price, and can put up with a poorer grade of material.

### ANNOUNCEMENT.

In the April 15th number of *GLEANINGS* we expect to begin a series of articles on "Bee-keeping in the United States." These articles will cover all of the leading bee States, arranged as nearly as possible in the order of their honey seasons. Thus, Alabama, where the season will be in full swing by middle April, will come first.

The following points will be discussed in each article: "Sources of honey, or honey-plants;" "Leading honey-producers, names and photographs;" "Extent to which bees are kept;" "Honey production; value and amount of crop;" "Wax production;" "Queen-breeders, names and photos;" "Markets. What becomes of the honey raised in Alabama? Leading home and export markets."

We will try to announce each time just which State is to be discussed next. Our very best efforts will be given to make these articles as interesting and as complete and accurate as can possibly be done.

We should like to get our April 15th number into the hands of as many Alabama bee-keepers and farmers as possible. We should appreciate your assistance. Will you not kindly send the names of any of your Alabama friends to whom you would like to have us mail a copy, free of charge, of course? We shall appreciate the favor, and no doubt your friends will be very glad to read about this great industry in their own State. Send lists of names to Circulation Department *GLEANINGS* IN BEE CULTURE, Medina, Ohio.

No. 80 Iron Age  
Pivot Wheel  
Riding  
Cultivator



are shown. They are weed killers, crop makers and labor savers. The No. 1 Wheel Hoe with its attachments enables one man to accomplish more and better work than three men by any other method. The No. 80 Riding Cultivator is wonderful for its adaptability to varying work and conditions. Send for the **New Iron Age Book** which describes the full line of Iron Age Seeders, Wheel Hoes, Cultivators, Horse Hoes, Fertilizer Distributors, and a full line of Potato Machinery consisting of Planters, Sprayers, Cultivators, Diggers. Free on application.

BATEMAN MFG. CO., Box 120, Grenloch, N. J.

## KEEP AHEAD OF THE WEEDS

Poor crop weather seems to be the best kind of weather for weeds. The user of Iron Age Implements has the advantage in any kind of weather because he can get over his crop oftener, cultivate it better and kill the most weeds with the least amount of labor. Two of the famous

## IRON AGE IMPLEMENTS



No. 1  
Iron Age  
Double  
and Single  
Wheel Hoe



----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

# BEE-KEEPERS' SUPPLIES

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

**EVERYTHING USED BY BEE-KEEPERS.**

Headquarters for the Danzenbaker Hive.



## New Metal-spaced Hoffman Frames are Here in Stock

### Conversation with Wilson

"Good evening, Mr. Wilson. Come in and have a chair. I haven't seen you since you sent to Pouder for those supplies. Have they arrived yet?"

"Yes, they came long ago, and we have them all put together and painted. Bob put most of them together. You see Bob has been making fun of 'Mandy and me for having the bee-fever; but since Pouder sent those supplies he has the fever as bad as any of us. I heard him ask his ma when she was going to have a quilting-bee, and he wants me to have a husking-bee. Those supplies surely are fine, and how nice every thing did fit! Well, Mr. Smith, I hear you have been over to Indianapolis, and I came over to ask if you saw Pouder, and if you had a talk with him about spring feeding."

"Yes, I had quite a visit with Pouder. He is certainly well equipped to handle a lot of business. We had a long talk about spring

feeding and several other subjects. I was a little surprised when he told me that he is opposed to spring feeding unless colonies have been neglected in the fall. If they have been neglected they must, of course, be fed; but they should have candy, no feeder being satisfactory in cool or cold weather. Pouder thinks that all feeding should be done in the fall and there is no danger of overfeeding. He says that, while others are worried about their bees starving in February or March, he rests easy, knowing that his have an abundance; says he thinks spring feeding often starts spring dwindling, and it sounds pretty reasonable to me."

"How about feeding in the spring just to encourage brood-rearing?"

"Well, we were talking about that too. He says that, when they have an abundance of stores, and are left alone, such colonies build up faster for him than those trifled with."

### BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight; always be sure to attach name to package.

CATALOG FREE

**WALTER S. POUDER,**  
513--515 Massachusetts Ave.,      INDIANAPOLIS, IND.

# Bee = keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

## Good Goods, Low Prices and Prompt Shipments

are the **POINTS** in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

**Page & Lyon Mfg. Co., New London, Wis.**

### **Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!**

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

**BEES AND QUEENS**—Orders booked now for spring delivery.

**HONEY AND WAX**—We handle honey and wax. Write for particulars.

#### **The A. I. Root Co.**

Northwestern Branch,  
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

### Do you want Results?

The Best Results will  
be Obtained by Using

## **Dittmer's Foundation**

Now is the time to get your bee-supplies and make them up for the coming season. We make a specialty of working beeswax for cash.

Beeswax always wanted. A postal card will bring you our catalog, which also contains valuable information for beginners.

**Retail - Wholesale - Jobbing**

Our warehouse is well stocked with bee-supplies of all kinds.

**Gus Dittmer, Augusta, Wis.**





H. M. ARND, MANAGER

# YORK HONEY AND BEE CO. Not Inc.

141 ONTARIO STREET : CHICAGO, ILLINOIS

CARRY A FULL LINE OF

## Lewis Bee-supplies and Cornell Incubators and Brooders

and poultry-supplies at factory prices. Write for the 1906 catalog of either or both. Honey for sale. Beeswax wanted; 28 cts. cash, or 30 cts. when taking bee-supplies in exchange. Early-order discount, two per cent for March.



## Michigan Distributors

—FOR—

### G. B. Lewis Co.'s Beeware, Dadant's Foundation.

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service. Regular discounts allowed.

**SPECIAL.** A quantity of Dovetail and Wisconsin hives, slightly discolored by water, in packages of five at \$1.25 per hive for 1½-story 8 frame; 10-frame, \$1.40 per hive. Satisfaction guaranteed.

**ADVANCED BEE-VEIL.** Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

### A. G. Woodman Co.,

Beeswax Wanted.

Grand Rapids, Mich.

## Southern Bee-keepers !

If you want bee-keepers' supplies of best quality and for the least money possible, you should buy them from the WHITE MANUFACTURING COMPANY. Situated, as we are, right near the great pine belt of North Texas, Louisiana, Arkansas, and Indian Territory, we can secure the best material possible at least cost, thus enabling us to give entire satisfaction. Catalog and price list free.

**White Manufacturing Co. - Blossom, Lamar Co., Texas**

## BEE - SUPPLIES

Distributing-house for Lewis' Goods,  
Dadant's Comb Foundation, etc., at  
Factory Prices.

Every thing the bee-keepers need. No order too large for us, nor none too small. Cash orders before February, 6 per cent discount.

### FINE EXTRACTED HONEY

The best the world can produce. Sample sent, 8 cents. How much can you use? We always buy beeswax. Catalog and "Special" free.

### C. M. SCOTT & CO.

1004 E. Washington St.

Indianapolis : Indiana

## Our Specialties

Cary Simplicity Hives and Supers,  
Root and Danz. Hives and Supers;  
Root's Sections, Weed Process Foundation, and Bingham Smokers.

*Bees and Queens in their Season.*

*32-page Catalog Free.*

**W. W. Cary & Son,**  
Lyonsville, Mass.

# BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

## Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.  
Trester Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.  
T. B. Vallette & Son, Salina, Kansas.

### BINGHAM

Original  
Direct Draft  
CLEAN  
Bee Smokers



Pat'd 1878, '82, '92 & 1903

## Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and *last*; don't *spit fire*; don't *go out*; don't *daub* themselves all over. We are the most extensive *exclusively* bee-smoker makers in the world.

**T. F. Bingham - Farwell, Mich.**

Chico, California, October 28th, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.  
J. M. RANKIN.

# A Prosperous

Season is yours.....

if you take time by the forelock, and be prepared for the season when it comes. **DON'T** put off ordering your supplies until you need them. Order now, and get the discounts.

I have a full line of Root's Goods, and sell them at factory prices and discounts. Send me a bill of what you want and let me tell you what I will deliver them at your depot for. Send for my 36-page catalog—it will be sent free—also a full description of the Hilton Chaff Hive and Supers, with a comparison made by the Michigan State Agricultural College between the single and double walled hives. All free for the asking. Cash, or goods in exchange for wax.

**Geo. E. Hilton, Fremont, Mich.**

# WISCONSIN BASSWOOD FOR SECTIONS

We make them and the very best of **Dovetailed Hives**, **Shipping-cases**, and a full line of **Bee-keepers' Supplies** always on hand. We make very prompt shipments. Let us hear from you.

**Marshfield Mfg. Company**  
Marshfield, Wisconsin



# The Quality of Bee Supplies

OUR Bee-supplies are made from the best material, by the most skilled labor. We give an article of superior merit at a great reduction in price. We can do this because we are located in the heart of the lumber district and get our power from the well-known Falls of St. Anthony. Our catalog is a valuable book as it is full of information for the bee-keeper not usually found in a catalog. Write for it to-day.

## Minnesota Bee Supply Co.,

20 Power Building,

Minneapolis, Minn.



### Everything for the Bee Keeper

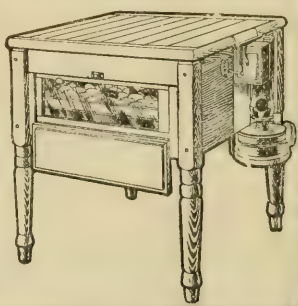
will be found in our Illustrated Catalogue No. 40. It contains a full line of Hives, Supers, Followers, Sections, Section Holders, Frames, Extractors, Smokers, etc. All these and many other essentials are manufactured by us. Everything is guaranteed to be right and of best quality. Our prices are so reasonable that any bee keeper may afford the best supplies. We cannot tell you here of all the good things in this book. Better send for a copy today. We mail it free, together with a copy of the **Progressive Bee Keeper**, a splendid monthly publication devoted to bee interests. It will help you start right and keep you right after you are started. It is invaluable as an aid to every bee keeper. Ask for the paper and the book.

**We Sell the Best Incubators and Brooders.**

Delivered at your station, prices the lowest. Write us at once and save money. Address

**LEAHY MFG. CO., 15 Talmage St., Higginsville, Mo.**

Branches at Omaha, Neb. and East St. Louis, Ill.



## Bees, Queens, and Bee Supplies.

We manufacture standard dovetailed bee-hives and supplies cheaper than you ever bought before. Our queens and bees stand at the head in quality. Untested, 75c each; \$4.25 for 6, or \$8.00 per dozen. Tested, \$1.25 each; \$12.00 per dozen. Select tested, \$1.50 each. Special prices to dealers in large lots on application. State agents for Dittmer's foundation. Catalog free.

THE BEE AND HONEY CO.,

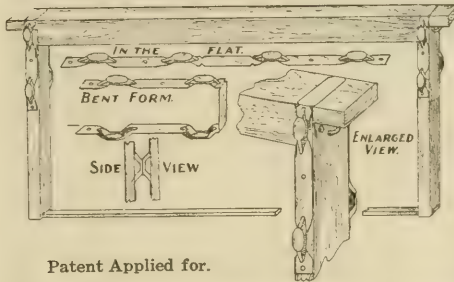
Will Atchley, Prop., Beeville, Bee Co., Texas,

## If You Want Root's Goods

I have them at Root's prices. Also A B C of Bee Culture—one of the best books printed on bees. Catalog free. Address as below.

D. Cooley, Kendall, Michigan

# Metal-spaced Hoffman Frame IN GREAT DEMAND.



*Has come to stay. Can be used interchangeably with regular Hoffman frames. Has all the advantages of the regular Hoffman. Is not affected by propolis. Can be handled without pry or screwdriver. Has no rights or lefts, and, therefore, can not be put up wrong. See full description in 1906 GLEANINGS, page 16.*

**PRICES.**—Metal-spaced Hoffman frames—100, put up, \$4.50. In flat—10, 35c; 100, \$3.00; 500, \$14.00. Metal spacers only—30c per 100; \$2.50 per 1000. Hives with metal-spaced frames, 5c extra each body, 8 or 10 frame, put up or in the flat.

**The A. I. Root, Company, Medina, Ohio.**

## CLASSICS FOR A SONG!

Hundreds of the world's best at 1c to 15c. List free. "Bargains in Worth While Books." Big catalog free. Any book supplied. Lowest prices anywhere.

■ **Where is It?** Unique index to everything—3 and 10c. Library of Universal Literature. All times; all languages. The best—one-fourth the cost of others.

**Perfect Pamphlet Preserver.** 12mo, 10c; 8vo, 15c; magazines, 20c. Looks like a book; stronger; simple as tying a shoe.

**The Ideal Cyclopaedia.** One of the largest, latest, and best for use at any price, at one-third cost of any rival. ALDEN BROTHERS, Pubs., 405 Bible House, N. Y.

## Convention Notices.

THE ANNUAL CONVENTION OF THE NORTHERN MICHIGAN BEE-KEEPERS' ASSOCIATION WILL BE HELD AT KALKASKA, MICH., WEDNESDAY AND THURSDAY, APRIL 4 AND 5, 1906.

Morning, afternoon, and evening session in Court-house.

The following prizes are offered: Class A.—Best 10 lbs. red-raspberry comb honey. First prize—Observatory hive, by A. I. Root Co. Second prize—One year's subscription to *American Bee Journal*, by Geo. W. York.

Class B.—Best 10 lbs. comb honey, any variety. First prize—600 No 1 Lewis sections, by A. G. Woodman. Second prize—One year's subscription to *Bee-keepers' Review*, by W. Z. Hutchinson.

Class C.—Best 10 lbs. extracted red-raspberry honey. First prize—500 No. 1 Lewis sections, by A. G. Woodman. Second prize—One year's subscription to *Bee-keepers' Review*, by W. Z. Hutchinson.

Class D.—Best 10 lbs. extracted honey, any variety.

First prize—One year's subscription to *American Bee Journal*, by Geo. W. York. Second prize—One tested queen, delivered in July, by Geo. H. Kirkpatrick.

Class E.—Best single section of honey. First prize—One Standard Cornell smoker, by E. M. Hunt.

Class F.—Best 10 lbs. beeswax. First prize—One Bingham smoke engine, by A. G. Woodman.

Appearance, quality, and condition for market to be considered in the above.

We will have a selection of the A. I. Root Co.'s lantern-slides, and show you some interesting pictures. We expect Geo. W. York and W. Z. Hutchinson to be present, and also a goodly number of prominent bee keepers from various parts of the State. W. Z. Hutchinson, Flint; E. D. Townsend, Remus; Geo. H. Kirkpatrick, Kalkaska, will read papers on interesting topics.

Special rates given at the Manning House. We are going to have a good time, and we invite you to be there.

IRA. D. BARTLETT, Sec.

THE FIFTEENTH ANNUAL MEETING OF THE CONNECTICUT BEE-KEEPERS' ASSOCIATION WILL BE HELD IN THE CAPITOL, HARTFORD, ROOM 50, WEDNESDAY, APRIL 11, 1906, 10:30 A.M.

All bee-keepers should make an extra effort to attend this meeting. Try to bring a friend also.

Topics for discussion: 1. The best method for putting starters in sections; 2. Your best way to prevent swarming; 3. Swarming devices, pro and con; 4. Large and small hives compared; 5. What is the best way to increase? 6. Best use to make of second swarms; 7. How did your bees winter? How many colonies have you? 8. What do you do with sections after removing them from the hive? 9. Handling the divisible brood-chamber; viz., single frames; 10. How do you manage the old colony after the first swarm has left? 11. How do you ripen or thicken extracted honey? 12. Can new combs be made out of old ones by cutting them to one-half inch thick or less, and would they be good as new ones?

Please bring something for the exhibition-table, or a question for the question-box.

MRS. E. E. SMITH, Sec.



## Every Bee - Keeper Knows the Worth of a Good Queen

Knows the worth of a good strain of bees, and also knows how worthless is a poor queen and inferior bees. Try our strain of three-banded Italians. They are bred for business, and will not disappoint you. Home-bred and imported mothers. Tested, \$1.00 each; untested, 75 cts. each; \$8.00 per dozen. Send for price list.

**J. W. K. SHAW & CO.** 

Loreauville, : : : Louisiana

## Tennessee-bred Queens

From Extra Select Mothers

Three-band from dark leather imported; Moore's long tongue or my own; Golden from Laws, Doolittle's, or my own; Caucasians and Carniolans from direct imported. No disease. Contracts with dealers a specialty. Apiaries from 3/4 to 7 miles apart. Write name on postal, and get circular and what others say.

**JOHN M. DAVIS**  
Spring Hill, Tennessee, U. S. A.

## REAR YOUR OWN QUEENS

If you desire to rear queens by a natural, practical method, send for a copy of my book, "IMPROVED QUEEN-REARING." The outfit will cost you little or nothing, and the book will tell you how to prepare all that is needed. Price, by mail, 50c per copy. Address Henry Alley, - - Wenham, Mass.

## California Sage Queens

For the coming season I am breeding choice Italian queens from best honey-gathering strains of bees that are hustlers. No disease of any kind has ever been in or near my apiary. Prices: Choice untested, \$1.00; six, \$5.00; dozen, \$9.00. Tested, \$1.50; six, \$8.00. No small or inferior queens sent out.

**J. W. GRIFFIN**  
528 Gladys Av., Los Angeles, Cal.

## TAYLOR'S ITALIAN QUEENS FOR 1906

Leather-colored and golden Italians. I have made it a specialty for 18 years to breed for the best honey-gatherers of these races, and I have not been able to get any other stock that will store as much honey as my strains, gentle and beauties. Untested, 75 cts. each; \$8.00 per dozen. Tested, \$1.00, or \$11.00 a dozen. Select tested, \$1.50. Breeders, \$3.00 to \$5.00 each. I guarantee safe arrival on all queens. Untested Caucasians, queens, \$1.00 each. Send your orders to

 **J. W. Taylor, Beeville, Texas**

## QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatever ye would that men should do to you, do ye even so to them."

MALAN BROTHERS, Luserna, San Giovanni, Italy.

## COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.

## Quality Queens

Are the Best Italians yet.

Send for circular. 

**H. H. JEPSON,**  
182 Friend St., - Boston, Mass.

## GOLDEN ITALIAN QUEENS

For season of 1906. Same old stock.

Write for circular, prices, etc.

**J. B. CASE, Port Orange, Fla.**

1906 Italian and Caucasian Queens. Price list now ready. Write E. E. LAWRENCE, Doniphan, Mo.

PRICES for Maturing Brood this Season will be same as in 1904, when I practically sold out my apiary. Will furnish queens at equally low prices, untested or tested, during May and June. Brood-combs wired; in nuclei or in bulk, to reinforce weak colonies. B. F. AVERILL, Howardsville, Va.

## I. J. STRINGHAM

OF 105 PARK PLACE

## New York

furnishes every thing a bee-keeper uses. Strong colony of bees, with tested Italian queen, in Dev'd hive complete, \$8.75; in a chaff hive, \$9.50. Three-frame nucleus, with Italian queen, \$4.25. Silk-faced bee-veil, 40 cts. postpaid. Italian queens, \$1.00. Catalog of bee-supplies free.

Apiaries, Glen Cove, Long Island.

**A. H. Reeves, Perch River, Jefferson Co., N. Y.**

DISTRIBUTOR OF ROOT'S GOODS FOR

## NORTHERN NEW YORK

BEESWAX WANTED

## If You Want the Bee-book

that "covers the whole apicultural field more completely than any other published," send \$1.20 to :: ::

**Prof. A. J. Cook, Claremont, Calif.**

FOR HIS

## "Bee-keepers' Guide"

Liberal Discount to the Trade.

## CARNIOLANS OUR SPECIALTY

WE HAVE bred this race of bees for twenty years, and find they are among the gentlest bees known. Very hardy and prolific, and the best of honey-gatherers, and their combs are of snowy whiteness. We are wintering fifty select imported and two hundred best select tested Carniolan queens for early orders. Also breeders of Golden and Leather Italians. One untested queen, \$1.00; six for \$5.00; twelve for \$9.00. Tested, \$1.50. Best breeder, \$3.00. Best imported, \$5.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in U. S. or Canada. Descriptive list free.

F. A. Lockhart & Co.—Last Friday I was in the New York office of The A. I. Root Co., and saw a three-frame nucleus of Carniolan bees with queen, which they had just received from you. They were the finest Carniolans I ever saw, entirely free from any trace of yellow markings, and I at once bought them, though the Root people were not very anxious to sell them. I am writing you to-day to ask if you can ship me at once a three-frame nucleus of Carniolans with plenty of drone brood. Send by express to me at Columbia University.

J. H. MCGREGOR.  
Department of Zoology, Columbia University,  
June 17, 1905. New York.

**F. A. Lockhart & Co., Lake George, New York**

## SWARTHMORE

Russia, to be mailed direct to customers in sealed cages (which assures them genuine), \$10.00 each in May; \$8.00 in June. Safe arrival guaranteed. Italian, Carniolan, Banat, Cyprian, German Black, and the "funny little bees" from Japan, also direct to customers from their native lands. Home-bred Golden-all-over Queens as usual. Send for circulars.

1000 Nuclei

E. L. PRATT, SWARTHMORE, PENN.

Four Mating-yards

## Italian and Caucasian Queens and Bees



Choice homebred and imported stock. All queens reared in full colonies.

### PRICES FOR APRIL ITALIANS

|                               |        |
|-------------------------------|--------|
| One tested queen .....        | \$1.65 |
| One select tested .....       | 2.20   |
| One breeder queen .....       | 3.30   |
| One comb nucleus, no queen .. | 1.50   |

Untested queens in May. Safe arrival guaranteed. For prices on quantities, and description of each grade, send for free catalog.

J. L. Strong, Clarinda, Iowa, U. S. A.  
204 East Logan Street

## A Poor Excuse

is said to be better than none, but when you get an

### EXTRA HONEY QUEEN

you get a queen that does not need an excuse. They are the best it is possible to produce. Satisfaction, or your money refunded. From this location we can fill early orders.

#### Prices

|                |                 |                 |
|----------------|-----------------|-----------------|
| One.....\$1.00 | Six .....\$5.00 | Twelve ..\$9.00 |
|----------------|-----------------|-----------------|

**Francis J. Colahan**

**Bernardo, San Diego Co., Calif.**

## Do You Want to Improve Your Stock?

Are your bees cross? Do they make a good surplus? Do you want a nice queen—one that will please? If so, write for circular.

A. W. Yates 3 Chapman St., Hartford, Connecticut

## DOOLITTLE & CLARK

are booking orders for their famous Italian queens. Now is the time to order breeders. Send for circular.

| Grade.                      | One    | Three  | Twelve |
|-----------------------------|--------|--------|--------|
| Untested .....              | \$1.00 | \$2.50 | \$9.00 |
| Select Tested .....         | 1.50   | 4.00   | 14.00  |
| Tested (1905 rearing) ..... | 2.50   |        |        |
| Select Breeding .....       | 5.00   |        |        |
| Extra Select Breeding ..... | 10.00  |        |        |
| Two-frame Nuclei .....      | 2.50   | 7.00   | 25.00  |

**DOOLITTLE & CLARK**  
Borodino, Onondaga Co., New York

## Rose Lawn Queens

### Italians Caucasians Carniolans

Bred in the purple. No finer on earth. Try one of our pure Gold strain, line bred for color and gentleness. Three bands of the "pat-'em-on-the-back" kind that will eat out of your hand. Caucasians from imported breeders direct from the Caucasus. Separate mating yards. A strictly modern plant. Standard prices and honest treatment. Ask for our catalog.

### Rose Lawn Apiary, Lincoln, Nebraska

Frank G. Odell, Proprietor

### Now Ready, Italian and Red-Clover Queens

I guarantee safe arrival and perfect satisfaction. Untested, 60 cts.; select untested, 75 cts., or \$8.00 per dozen. Tested, \$1.00, or \$10.00 per dozen. Breeders, \$1.50 each.

**R. O. COX,**  
Rt. 4, Greenville, Ala.

### TRY ONE OF MY \$100 RED CLOVER BREEDER'S DAUGHTERS.

After May 1st, untested, 50c; 13 for \$6.00. Select untested, 75c; 13 for \$9.00; tested, \$1.00; 13 for \$12.00; select tested, \$1.50 each. Breeders, \$2.50 each. Extra select breeders, \$3.00 each. Nuclei, \$1.75 per frame without queen.

**H. A. ROSS,**  
1709 UPPER 2D ST., EVANSVILLE, IND.



## Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws apiaries, and double your crop of honey.

### I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season.

I also offer another car of bees the coming season.

**PRICES:** Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

**W. H. LAWS, BEEVILLE, BEE CO., TEXAS.**

## Caucasian-and-Italian-Queens from California

Prices: CAUCASIAN—One tested, \$3.00; one best breeding, \$6.00; one imported from Caucasus, \$7.00. ITALIAN—One untested, \$1.00. six for \$5.50, 12 for \$10.00; one tested, \$1.50; one best breeding, \$5.00. Caucasians bred from the best imported breeding queens. Italians bred from breeding queens we procure from principal breeders of this country who have the best honey-gatherers. Nuclei and full colonies of bees. Send for particulars, and see our adv. in GLEANINGS, February 1st.

**A. E. Titoff, Ioamosa, San Bernardino Co., California**

## CAUCASIAN QUEENS!

For beginners, the timid, and the city bee-keeper Not stingless, but gentle. With this race many will master the art of handling bees I breed HIGH-GRADE ITALIAN QUEENS also. The demand for these queens is great; the supply is limited. Write for particulars today. Address

**Robert B. McCain, Yorkville, Ills. R. F. D.**

## Our Queens Won't Cost You Money! They Will Save It!

They are bred from pure Italian stock, red-clover strain; hardy Northern grown. Prompt shipments at these prices:

Untested.....\$1.00; \$5.00 for six  
Select tested.....1.50; \$7.50 for six

For prices in larger numbers and breeders write us. Orders for delivery after May 15th now being booked. Get your order in early.

Handsome booklet mailed free upon request.

**B. C. Terry Co., Hinsdale, Ill.**

## Superior Stock

I make a specialty of long-tongue  
Italian, Carniolan, and Caucasian,

Rearing only from best stock obtainable. My Italian queens are unexcelled; my Carniolans and Caucasians from best imported queens. All races bred in separate yards to insure purity. A postal will bring my price list for 1906.

**CHARLES KOEPPEN**

Fredericksburg, Va.

## PURE ITALIAN BEES!

The most beautiful, gentle, prolific, best working, and being long-tongued, best honey-gatherers. **Prizes**—VI. Swiss Agricultural Exhibition, Berne, 1895; Swiss National Exhibition, Geneva, 1896; Bee-keeping Exposition, Liege, Belgium, 1895; Universal Exposition, St. Louis, U. S. A., 1904.

**The Highest Award.** Extra select breeding Queen, \$3.00; six, \$16.00; dozen, \$30.00. Selected Queen, \$2.00; six, \$11.00; dozen, \$20.00. Young fertilized queen, tested, \$1.50; six, \$9.00; dozen, \$16.00. Special prices for 50 and 100 queens. The addresses must be clear; payments by postal money orders. If by chance a queen dies upon the journey she is to be returned immediately, with a postal certificate, and another queen will be sent gratis. Address

**Anthony Biaggi,**

Pedeville, near Bellinzona, Italian Switzerland. This country is politically the Switzerland Republic, but lies geographically in Italy, and possesses the best kind of bees known. Bee-keepers of the Far West can give their orders to my brother Stefano (Stephen) Biaggi, farmer, resident at Wash, Plumas Co., California, who will kindly collect orders. In writing, mention GLEANINGS.

## Pure Caucasian Queens!

Bred in their purity, at the foot of the glaciers, 1½ miles high, by "Etablissement d'Apiculture Mont Jovet, Albertville, Savoie, France, official breeder for U. S. Government." We supply, too, imported Caucasian queens. Safe arrival guaranteed. Select untested queen, \$2.00; six, \$11.00; twelve, \$20.00. Select tested queen, \$2.50; six, \$14.00; twelve, \$25.00. Full rates on application. English correspondence.

## QUEENS.

Italian, Carniolan, and Carni-Italian Cross.

Can supply select untested queens at 75c each; three for \$2.00; six for \$3.50. I am now booking orders for early delivery.

**George W. Barnes,**

138N. Pleasant St.

Norwalk, Ohio.

# BEES and QUEENS.

## The Three-banded Long-tongued Strain of Italians.

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

### Superior Qualities.

Honey-gathering, size of bees, non-swarming, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price.

### Quality Our Motto.

1300 colonies to select from.

Untested queens.....\$1.00; 6, \$5.00; 12, \$ 9.00  
Select untested queens..... 1.25; 6, 6.00; 12, 11.00  
Tested queens..... 1.50; 6, 8.00; 12, 15.00  
Select tested queens..... 2.00; 6, 11.00.  
Breeding queens, \$3.00 to \$5.00.

Yours for best service,

**The Victor-Knolle Apiary Co.,**  
Hondo, Texas.

**Red-clover Queens from Westwood Apiary**  
will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.  
Henry Shaffer . . . . . Westwood, Ohio

### MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, \$1.00; six, \$5.00; twelve, \$9.00. Tested, \$1.50; six, \$8.00. Best breeders, \$3.50. Safe arrival guaranteed.

**W. H. Rails, - - - Orange, Calif.**

**H. C. Simpson, Catawba, S. C.**

Dealer in

### BEE - KEEPERS' SUPPLIES!

Breeder of Italian bees and queens.  
Root's Goods a specialty.

### ITALIAN QUEENS AND GLEANINGS.

For \$1.10 I will send GLEANINGS one year, new or re-natal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

**W. T. CRAWFORD, Hinston, La.**

**IMPORTED - CAUCASIAN - QUEENS**  
are the mothers of my stock. Prices: Tested queens, \$3.00; untested, \$1.50; red-clover Italians, Carniolans, and Carnio-Italians bred from best stock obtainable. Prices: Tested queens, each \$1.50; warranted, each \$1.00; untested, 6 for \$5.00; untested, 12 for \$9.00. After May 15, by return mail. Satisfaction guaranteed

Rev. J. G. Baumgaertner, New Memphis, Ill.

## CARNIOLAN and ITALIAN QUEENS!

Ready to mail by April 15th. Quality of the highest, prices the lowest. Write me.

**Grant Anderson - Salina, Texas**

# Aliso Apiary

For queens, bees, nuclei, supplies, etc., send for price list.  
Root's standard goods. Address

**ALISO APIARY, El Toro, Orange Co., Calif.**

## From Long-tongued Imported Italians.

Trial queen, 60c; only one at this price. Untested, 75c; \$7.50 per doz. Tested, \$1.25; \$12.00 per doz. Breeders, \$2.00 to \$3.00. Send for particulars.

**E. E. MOTT, Glenwood, Mich.**

## Boston Headquarters — FOR — Bees-Queens-Supplies

**H. H. Jepson - 182 Friend St.**

## Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:

Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

**H. M. PARKER, Jr.**

**James Island, South Carolina**

## Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

**The JENNIE ATCHLEY CO.,**

Box 18, Beeville, Bee Co., Tex.

**Queens!** Select three or five banded, \$1.00; tested three or five banded, \$1.25. Ready for delivery April 1st. Write for circular. Daniel Wurth, 1111 No. Smith Street, San Antonio, Texas

## Italian and Caucasian Queens

**ITALIANS.**—Golden or leather-colored or honey queens. Before July 1st: Untested, \$1.00 each; 6 for \$5.00; 12 for \$9.00. Warranted, \$1.25 each; 6 for \$7.00; 12 for \$13.00. Tested, \$1.50 each.

**CAUCASIANS.**—Untested, \$1.20 each; 6 for \$7.00; 12 for \$11.00. Warranted tested, \$1.50 each.

**TWO-FRAME NUCLEI.**—No queens, \$2.50; 6 for \$14.00; 12 for \$27.00. Add price of any queen wanted. Nuclei ready by June 1st. Queens ready in May. Breeders from \$5.00 to \$10.00. Book your order now. Safe arrival of all stock guaranteed.

**D. J. Blocher, Pearl City, Illinois**



## Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—Bee-men to write. C. W. WAUTEL, Folkston, Ga. Best location; two railroads.

**WANTED.**—To exchange a Winton automobile for bees or other offers. E. M. GRAVES, Wakeman, O.

**WANTED.**—Excluding-zincs, eight and ten frame, 2d-hand. JNO. H. KOONTZ, Stewardson, Ill.

**WANTED.**—To exchange typewriter for three-frame nuclei or queen bees to be delivered before May 10. WM. DAVENPORT, Wilmette, Ill.

**WANTED.**—To exchange a pair of pea-fowls for a pair of Angora pups, or something of equal value. MRS. M. M. GERBER, Route 6, Florence, Ala.

**WANTED.**—Good colonies of bees for cash. State price and quantity. F. H. FARMER, 15 Chardon St., Boston, Mass.

**WANTED.**—Bees on shares. Raise fancy and No. 1 comb honey only. Arrangement will make will please you; long experience; Christian preferred. M. LOVEJOY, 259 West 37th St., New York.

**WANTED.**—Refuse from the wax-extractor, or slumgum. State quantity and price. OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—Old books on bee culture, especially from foreign countries. Please state titles, authors, year of publication, edition, binding, condition, number of pages, and price wanted. A. L. BOYDEN, Medina, Ohio.

**WANTED.**—Italian bees in the South for early Northern trade. Prefer them from some point near the ocean routes. State what you have to offer, with full particulars. Want also about 200 untested Italian queens. Box 10, care of GLEANINGS, Medina, Ohio.

**WANTED.**—Every bee-keeper who takes GLEANINGS to send in the subscription of one or more friends. For three new subscriptions at \$1.00 each we will give a copy of the 1905 edition of A B C of Bee Culture. Sample copies to show your friends will be sent upon request. THE A. I. ROOT CO., Medina, Ohio.

**WANTED.**—Beeswax. We are paying 28 cts. cash or 30 cts. per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 East Erie St., Chicago, 44 Vesey St., New York city, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.

THE A. I. ROOT COMPANY, Medina, Ohio.

**WANTED.**—To exchange 500 chaff hives, also Carniolan queens, for honey (hives in flat). Both are as good as can be produced. I have a good market for best quality of white-clover honey and a little buckwheat, but can not raise profitably. Will allow Chicago price for honey. No poor grades of honey wanted. W. W. CRIM, Pekin, Ind.

**WANTED.**—Bees to work on shares. I have as good a location, I think, as can be found in the States; two good flows in one season. My crop last year was 16,000 lbs. from 135 colonies. If your bees are not paying you, write me and I will work them for you and give you half the profits. I have a good cellar for wintering. Can move your bees successfully if you are at a distance. Can refer you to the banks here, any business house in town, or The A. I. Root Co. F. W. MANLEY, Sandusky, Mich.

## Help Wanted.

**WANTED.**—Nurses. The Western Pennsylvania Hospital and Eye and Ear Hospital offer exceptional advantages for training. References required. Apply Superintendent's Office, 1945 Fifth Av., Pittsburgh, Pa.

**WANTED.**—Young man to help in large apiaries, and do some general work around home. Experience in bee-keeping not necessary. No one wanted who uses intoxicating liquor, tobacco, or profane language. J. A. GREEN, Grand Junction, Colo.

## Wanted, Situations.

**WANTED.**—Young man to take care of an apiary of 300 colonies, and carefully pack supplies for shipping. TRESTER SUPPLY CO., Lincoln, Neb.

## For Sale.

**FOR SALE.**—Pedigreed red Belgian hares. Write A. ZIEGLER, Bippus, Ind.

**FOR SALE.**—My entire bee-keepers' supply business. All inquiries answered. C. J. LAMB, East Calais, Vt.

**FOR SALE.**—25 colonies of bees in new eight and ten frame hives at \$3.50. W. D. SOPER, Jackson, Mich.

**FOR SALE.**—Good typewriter, also Water Spaniel dogs and pups. G. C. DEAN, New Milford, Pa.

**FOR SALE.**—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog. F. R. DANIELS, 117 Florence St., Springfield, Mass.

**FOR SALE.**—Best land for bee-keepers, farmers, dairymen. Cheap. Write us. WRIGHT-ROBINSON, Cumberland, Wis.

**FOR SALE.**—Root's bee-supplies at factory prices; full colonies Italian bees; queens in season (catalog free); Plymouth Rock chickens and eggs; incubators, brooders, poultry food, etc. H. S. DUBY, St. Anne, Ill.

**FOR SALE.**—Cheap, a place of four acres in one of the best locations for bees in New York State. Have taken 300 lbs. of comb honey from one colony in a season. G. H. ADAMS, Box 976, Schenectady, N. Y.

**FOR SALE.**—Trees by mail; one-year-old peach and apple trees, 10c each; \$1.00 per dozen. Guaranteed true to name and free from disease. G. A. HAPER, Bathtown, Ill.

**FOR SALE.**—40 supers in flat, 4x4 plain sections, price \$10.00; thirteen 4x5 supers, nailed and painted, \$5.00; 1000 sections, 4x5 plain, \$2.50; 1000, 4x5, \$3.50. Write for particulars. J. E. BRANDON, Rt. 1, Montgomery, Ind.

**FOR SALE.**—Or exchange, old wooden-wheel clock, Mann bone-cutter, 12-foot steel wind-mill, 50-foot tower, shaft, pumping-jack, nearly new. E. K. MEREDITH, Batavia, Ill.

**FOR SALE.**—About 300 sixty-pound cans; mostly new, good condition, new cases, two cans to a case; 40 cts. per case, f. o. b. Preston.

M. V. FACEY, Preston, Fillmore Co, Minn.

**FOR SALE.**—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to FRANK S. STEPHENS, (Root's Goods.) Paden City, W. Va.

**FOR SALE.**—Bees; the right kind, right prices. Safe arrival and satisfaction guaranteed. Ask for illustrated Outfits for Beginners, price list, and our hints on buying bees. MASON SUPPLY CO., Mechanic Fs., Me.

**FOR SALE.**—Thoroughbred Italian bees and queens; no better in existence. Full colony bees, \$5.00; queens, untested, 55c; tested, \$1.00. Please write. F. M. MAYBERRY, Obelisk, Pa.

**FOR SALE.**—Fine garden property; three acres with buildings, 40 colonies of bees and supplies, 65 apple, pear, and plum trees, one acre of wheat, 40 grapevines; small fruits, hedges, ornamental trees. Price \$600; half down. **MRS. JOHN H. THOMPSON, Woodstock, Ont.**

**FOR SALE.**—100 colonies of pure Italian bees in eight or ten frame new Dovetailed hives with Hoffman frames; tested queen in each colony. Price \$6.00 each. In lots of ten, \$5.00 each.

**F. A. GRAY, Redwood Falls, Minn.**

**FOR SALE.**—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season.

**W. N. CANNON, Greenville, Ala.**

**FOR SALE.**—25 colonies of bees in 10-frame Simplicity and one-story chaff hives; also 75 empty hives and 150 supers with sections and foundation complete; also about 200 shipping-cases, carriers, etc. Will sell at a bargain because my health has failed.

**G. P. KIME, Route 1, Isleta, Coshocton Co., Ohio.**

**FOR SALE.**—Three untested Italian queens for \$1.00 after July 1, if ordered now; warranted pure mated, 10 cts. extra. Satisfaction, or money back. Only 300 at this rate. All you want as long as they last. Orders filled in rotation. Particulars free.

**S. F. TREGO, Swedona, Ill.**

**FOR SALE.**—Fine home in Glenwood, Wis.; one large house and two lots in the city, and two acres with large building 25x100 feet (very suitable for bee-supply factory), 150 colonies of bees all in good condition; one of the best white-clover and basswood localities for bee-keeping. Write for particulars.

**J. GOBEL, Glenwood, Wis.**

**FOR SALE.**—20 swarms of bees; 10 in Hilton's chaff hives (Hoffman frames), and 10 in single-walled hives in cellar now; queens pure Italians from Quirin. \$5.00 each is the price for the whole lot. Have also 40 hives (two-story), 100 frames of empty combs—clean and nice, 60 or more supers—part of them with comb half down, and a pile of material in lat. Will close out whole outfit at \$150 cash.

**N. L. HIGBEE, Elsie, Mich.**

## Poultry Offers.

**FOR SALE.**—Fifteen Barred Rock eggs for \$1.00; 100 for \$4.00. **MRS. W. L. BENNETT, Rt. 1, Crooksville, O.**

**FOR SALE.**—Choice R. C. Brown Leghorn eggs, 75 cts. per 15. **HENRY TIEDEMANN, Hammond, Ind.**

**FOR SALE.**—Twenty White Rock eggs, \$1.00. **F. E. SCHRIVER, Rt. 2, Forest, O.**

**FOR SALE.**—15 White Wyandotte eggs, \$1.00; nice cockerels, \$1.00 each, Duston strain; seed corn. Circular. **J. F. MICHAEL, Winchester, Ind.**

**FOR SALE.**—White Wyandotte eggs, \$1.00 per 15; \$2.00 per 45, or \$4.00 per 100. **CHAS. W. BARNES, 138 N. Pleasant St., Norwalk, Ohio.**

**FOR SALE.**—Eggs from R. C. Buff Orpingtons; best layers; large size. Satisfaction guaranteed. **ANDREW MANZ, Bronson, Iowa.**

**FOR SALE.**—White Plymouth Rock eggs, \$1.50 per 15. Celebrated Fishel strain direct. Satisfaction guaranteed. **LOUISE ARMERUSTER, Kurtz, Ind.**

**FOR SALE.**—White Wyandotte cockerels, Duston strain, fine birds, at \$2.50 each. Also eggs for setting, at \$1.00 for 15. **C. A. GRAVES, Shelby, O.**

**FOR SALE.**—Eggs to set. Fine Barred Plymouth Rocks 15 for \$2. No better stock raised anywhere. Orders promptly filled. **G. H. CRUZAN, Jacksonville, Ill.**

**FOR SALE.**—Rosecomb Buff Leghorn eggs, \$2.50 for 15, \$10.00 per 100; largest breeder and finest flock in the world; largest and best layers of all Leghorns. Gold Dust (original). **F. BOOMHOWER, Gallupville, N. Y.**

**FOR SALE.**—Eggs for hatching from a superior egg-producing strain of S. C. White Leghorns, \$2.00 for 15, \$3.75 for 30, \$10.00 for 100.

**J. F. RASCH, Marilla, N. Y.**

## Blacks and Hybrids.

Notices in this column are inserted free, and the publishers assume no responsibility for sales made. We believe, however, that every advertiser will do just as he promises.

**FOR SALE.**—25 black and hybrid queens after May 1, at 25 cts. each; five for a dollar. **J. G. BAUMGAERTNER, New Memphis, Ill.**

**FOR SALE.**—30 blacks and hybrids, last season's queens, for \$8.00 if ordered now; to be delivered May 1. Perfect satisfaction. **J. C. COX, Ft. Deposit, Ala.**

**FOR SALE.**—Hybrid queens. Will have half a dozen or more about May 15th to 20th at 30 cts. each, or \$1.50 for six. All are young queens. My bees are hustlers. See A. B. J. for Sept. 28, 1905.

**SIMEON G. KILGORE, Route 1, London, Ohio.**

**FOR SALE.**—Blacks (Italian queens) bred from my best after years of selection from 1500 queens. Mated, 75c; prolific layer, \$1.00; select and tested, for honey, \$2.00. **G. E. MOE, Candelaria, Cuba.**

## Regarding Our Advertisers.

The Best Gate Co., Shelbyville, Ind., have a full-page ad't on p. 456. This is a new ad't in GLEANINGS, and we hope that any of our readers who realize the need of a good gate and that such a need exists on their own farm, will write to this company. There is no doubt about the value of the Best gates; just read their ad and see for yourself.

Most people who live in rural districts have not the means of obtaining a good light better than lamps—without paying an exorbitant price. To such we are sure that the "Best" Light Co.'s ad. on page 452 will strongly appeal. Here is an exceedingly good light at a low cost; and not only is the first cost low, but the after expense for operating. We should be glad to have every one of our readers send for literature telling about this wonderful light. Address The Best Light Co., 306 E. 5th St., Canton, O.

The Mugler Engraving Co., of Cleveland, Ohio, have an ad. on page 403. We are very glad to carry this advertisement, as we feel that many of our readers will be pleased to know of a good reliable place where they can have plates for printing made. When we say that the Mugler Co. have made GLEANINGS plates for some time past we are sure that you will not doubt their ability to execute good work. They are prepared to make every thing in their line, from a photograph to an electrotype. You should correspond with them if you are thinking of having illustrations made for your printed matter.

Perhaps some of our readers are expecting to build this spring a house, a barn, some out-buildings. We wish to call the attention of such to the merits of concrete building-blocks. We have used them and shall use them in new buildings now under contemplation. On pages 448 and 449 of this issue you will find the advertisement of the Medina Concrete Co., manufacturers of concrete-block machines, 22 Court St., Medina, Ohio. We are well acquainted with the men who make up this company—have known them for many years. We know that the firm is reliable, and will keep every promise. We have just printed a very attractive booklet for them which contains 20 illustrations of homes built of blocks, blocks and block-building machines, also much valuable information about the ease, cost, etc., of building with blocks. If you ever build you should have a copy of this valuable booklet, and we hope that you will send for one to-day. We can not say too much in favor of concrete block or of the Medina block-machines.



# The Big Two of the Poultry Press

go every week to thousands of exclusive readers who buy liberally in the desire to beautify their Rural Homes.

## The Feather

The most conservative and instructive of all monthly journals devoted exclusively to the advancement of poultry culture in all its branches.

## The American Fancier

The great weekly journal devoted to the interest of the business in all its branches, goes continually on Saturday to those most interested in standard-bred poultry.

THE ADVERTISER looking for profitable returns can not afford to neglect the advantages to be gained from the use of the advertising pages of *These Two Journals*.

## Begin Now, the Harvest is at Hand

For special rates send to publishers of this journal or to the home office of the two publications.

**The Howard Publishing Co.**  
714 12th St. N. W., Washington, D. C.

# Poultry Magazine,



Monthly, 50 to 100 pages, its writers are the most successful Poultrymen and women in the United States. It is

## The POULTRY TRIBUNE,

nicely illustrated, brimful each month of information on How to Care for Fowls and Make the Most Money with them. In fact so good you can't afford

to be without it. Price, 50 cents per year. Send at once for free sample and **SPECIAL OFFER TO YOU.**

R. R. FISHER, Pub., Box 85, Freeport, Ill.

## \$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size 8x11½ inches) of valuable poultry, pigeon, and pet-stock reading, costing you thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

**Poultry Item : : Fricks, Pa.**

## DO YOU RAISE CHICKENS?

If so, you will find *The Poultry Gazette* a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cts. a year. If you have poultry to sell, *The Poultry Gazette* can sell it for you.

*The Poultry Gazette*, Dept. B, Clay Center, Neb.

## You Need It. : : : :

If you have only a few chickens;  
If you are at all interested in poultry;  
If you are breeding for fancy points;  
If you cater to the market trade;  
If you are in the business on large scale, you need

## Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. a year, but we offer it **AT HALF PRICE** for a short time to introduce it to readers of *Gleanings*. Send only 25 cts. and get it a year; or, if you send us \$1 for a year's subscription to *Gleanings* in *Bee Culture*, we will send you *Ohio Poultry Journal* for a year free. Address *Ohio Poultry Journal*, Dept. 14, Dayton, Ohio.

## Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.



## Greider's Fine Catalog

of Prize-Winning Poultry for 1906. This book is printed in several beautiful colors and is larger than ever. Contains a Fine Chromo of lifelike fowls. It illustrates and describes 60 varieties of poultry, ducks, geese, pigeons, etc. It shows best

equipped poultry yards and houses—how to build houses; cure for diseases; Best Lice Destroyer; how to make hens lay; poultry supplies and all kinds of information indispensable to poultry-keepers. Prices of eggs and stock within reach of all. Send 10 cents for this noted book.

B. H. GREIDER, RHEEMS, PA.

## BUFF ORPINGTONS!

I offer 12 eggs from purebred imported stock for \$3.00; 12 eggs from birds not especially mated, \$1.00. Thirteen early hatched chicks (cockerel and 12 pullets) if ordered before June 1, \$12.00; from first-class laying strains.

M. H. WINEBRENER,  
Importer and Breeder, Walkersville, Md.

## Wood-working Machinery.

For ripping, cross-cutting, mitring, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog A. The Seneca Falls Mfg Co., 44 Water St., Seneca Falls, N. Y.



Foot  
and Hand  
Power



## Free! Free!

Our catalog of berry-plants, 32-quart berry crates and baskets. Special prices for Feb'y orders.

**H. H. Aultfather**  
Box 3 Minerva, O.

TO THE  
**BEE-KEEPERS**  
OF CANADA

WE ARE pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we are not able to offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers. Moreover, what we do list we propose to keep in large quantities, and will be able to ship promptly.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

**E. GRAINGER & COMPANY**

Deer Park

**Toronto - Ontario - Canada**

CANADIAN AGENTS FOR  
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

**Root's**      ❁      ❁      ❁  
**Bee - supplies**

You know what this means. Four carloads of new goods on hand. Our business increased last year 100 per cent over 1904. This is proof that we are saving our customers money. Why not let us do the same for you? Low freight rates from Toledo. Large discounts. It tells the story. Two per cent discount this month on bee-supplies. . .

**Model Incubators. .**  
**. . . . and Brooders**

Made by Charles A. Cyphers. Poultry-supplies of all kinds. Eggs for setting and stock for sale. Our new eighty-page illustrated catalog describes all of these well-known goods. Sent free. Don't be without it. Don't delay. Send to-day.

**Griggs Brothers**

523 Monroe St. : Toledo, Ohio

**Bee-Supplies**

For Southern

Bee-Keepers

I have been over 20 years in the bee-supply business, manufacturing hives and fixtures, and raising bees and queens. With all this experience and the excellent facilities I have, I am able to fill your orders promptly, and give absolute satisfaction. Though I make my own hives I carry a complete stock of The A. I. Root Company's manufacture. Just specify "Root's Goods" and you will get them.

**Bees and Queens**

I breed with scientific, intelligent methods, from the best Imported and Long-tongued stock. Cheap queens may be had elsewhere. My stock is worth every cent of the price. You will be pleased with it. I GUARANTEE IT.

**64-page Catalog**

of Supplies and Bees sent free. Tell me you saw my ad. in GLEANINGS.

**J. M. JENKINS**

**WETUMPKA : ALABAMA**

**CENTRAL**  
**PENNSYLVANIA**

I am in an unexcelled position to furnish bee-keepers within a hundred miles of Williamsport with Root's bee-keepers' supplies. We have four railroads and three express companies — Adams, American, and the United States. Can deliver goods with great promptness, and save you freight charges. Wholesale or retail. Also can supply you with pure-bred Italian and Caucasian bees in season. Write for our price lists.

**E. E. PRESSLER**

**WILLIAMSPORT, PENN.**



# SUPREME EXCELLENCE

is only another name for OUR Make of

## BEE-KEEPERS' SUPPLIES

Have you ever used them? If not, give us a trial order this spring. We will do our best to please you. Our prices are as low as any; and if our goods aren't as we claim you'll not have to pay for them.

We have published the AMERICAN BEE-KEEPER for nearly sixteen years. It is the largest and best illustrated magazine of its kind for the price. Edited by two of the most experienced bee-keepers in America; monthly; 50c a year. Sample copy and our large illustrated price list of supplies free on application.

**The W. T. Falconer Manufacturing Co.**  
Jamestown, New York

Dadant's

## Foundation

It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!  
No sagging; no loss.  
Twenty-eighth Year.  
We Guarantee Satisfaction.  
Wax Worked into Foundation.

~~~~~  
Bee-supplies of All Kinds

~~~~~  
Beeswax wanted at all times.  
Send for Our 1906 Catalog.

~~~~~  
Dadant & Sons, Hamilton, Ill.

New Goods-Big Stock

New Warehouse, Root's Goods,
Prompt Shipment, Low Freight.

Everything for the Bee-keeper at Savannah, Ga.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory.

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog sent free. Correspondence solicited. .

HOWKINS & RUSH

124 West Liberty Street

SAVANNAH - - GEORGIA

GLEANNINGS

IN BEE CULTURE



THE A. I. ROOT CO.
MEDINA, OHIO

Eastern Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter.

Our New Manager at Washington, D. C.

Mr. H. G. LaRue is now the manager of our branch at 1100 Maryland Ave., S. W. Mr. La Rue is a bee-keeper of considerable experience. He is also a graduate of one of the best business colleges in Ohio. Our customers are assured of prompt and satisfactory treatment. Freight and boat rates from Washington to the South are very low.

The A. I. Root Company
1100 Maryland Av., S. W.
Washington, D. C.

Bee-Supplies

For Southern Bee-Keepers

I have been over 20 years in the bee-supply business, manufacturing hives and fixtures, and raising bees and queens. With all this experience and the excellent facilities I have, I am able to fill your orders promptly, and give absolute satisfaction. Though I make my own hives I carry a complete stock of The A. I. Root Company's manufacture. Just specify "Root's Goods" and you will get them.

Bees and Queens

I breed with scientific, intelligent methods, from the best imported and long-tongued stock. Cheap queens may be had elsewhere. My stock is worth every cent of the price. You will be pleased with it. I GUARANTEE IT.

64-page Catalog

of Supplies and Bees sent free. Tell me you saw my ad. in GLEANINGS.

J. M. JENKINS
WETUMPKA : ALABAMA

MISSISSIPPI

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders.



Bees and Queens from Select Stock

Correspondence Solicited.

GEO. A. HUMMER,
BRAZELIA, - MISSISSIPPI
Shipping-point, Macon

PENNSYLVANIA

April is the best month to buy supplies. Get everything in shape before the swarms come.

ROOT'S GOODS AT ROOT'S PRICES

We handle the trade in Pennsylvania for these goods, wholesale and retail. Best shipping facilities. Big stock.

Frank W. Prothero
Successor to Prothero & Arnold
Dubois, Clearfield Co., Pennsylvania

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusively, at Root's Factory Prices.

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

ST. LOUIS.—There is no change in our honey business. The market drags along slowly at quotations same as last. We quote fancy white comb honey, 13 to 14; No. 1 at 12 to 13; amber, nominal at 11 to 12; there is, however, none of the latter description on the market. Extracted California light amber, 6 to 6½; Spanish needle, 6½ to 7; Southern, in barrels, 4¼ to 4½; in cases, 5 to 5½. Beeswax, 30 to 30½.

R. HARTMANN & Co.,

April 10. 14 So. Second St., St. Louis, Mo.

CINCINNATI.—There is no material change in the honey market since our last report. The demand does not come up to expectations, which, in all probability, is due to the inclement weather of the past month. Continue to quote amber in barrels at 5¼ to 6½. Fancy white extracted, in crates of two 60-lb. cans, at 6½ to 8½. For choice yellow beeswax we are paying 30 cts. per lb. delivered here.

THE FRED W. MUTH CO.,
51 Walnut St., Cincinnati, O.

April 4.

SCHENECTADY.—Notwithstanding the lateness of the season there is still a very good demand for honey, and we look for a continuance of the same until after Easter. No change of note since our last quotations.

CHAS. McCULLOCH,
Schenectady, N. Y.

April 9.

KANSAS CITY.—The honey market is considerable firmer, and stocks are getting low. We are quoting fancy white at \$3.35 per case; amber and off grades sell at 25 to 30 cts. per case less; extracted, 6 to 6½.

April 9 C. C. CLEMONS & Co., Kansas City, Mo.

CHICAGO.—The best grades of comb honey are scarce, and sell at 15 cts. per lb; off lots are of uncertain value, ranging in price from 10 to 14. Extracted meets with fair sale at 6½ to 7 for white, and 6 to 6½ for amber, with off flavors 1 ct. less. Beeswax sells at 30 cts. on arrival.

R. A. BURNETT & Co.,
April 7. 199 South Water St., Chicago, Ill.

BOSTON.—New honey is practically closed out with a good demand, fancy white bringing 16. There is still quite a large stock of old, which is moving extremely slow. Strained honey brings from 6½ to 7½.

BLAKE, SCOTT & LEE Co.,
31-33 Commercial St., Boston, Mass.

April 7.

ATLANTA.—Honey market is at a standstill with us, and there will be very little doing till the new crop begins to move. We quote: Fancy white, 12½ to 14; No. 1, 10 to 11. Beeswax firm at 30 for No. 1 stock.

JUDSON HEARD & Co.,
Atlanta, Ga.

April 10.

PHILADELPHIA.—The call for honey is falling off; while the supply is not abundant, yet it equals the demand. We quote: Fancy white comb, 16 to 17; amber, 13 to 14; white-clover extracted, 7 to 8. Beeswax, 28. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
10 Vine St., Philadelphia, Pa.

April 9

BUFFALO.—Honey is all cleaned up in our market. There has been an advance and a very good demand at the advanced price. It is scarce in the country, and we think it will stay high until next crop is ready for market. We quote: No. 1 to fancy white comb, 15 to 16; No. 2, white comb, 12 to 13; No. 1 buckwheat, comb, 12 to 13; No. 2 buckwheat, comb, 11 to 12; white-clover extracted, 8½ to 9; amber extracted, 7 to 7½; dark extracted, 6 to 7. Beeswax, 30 to 32.

W. C. TOWNSEND,
Buffalo, N. Y.

April 10.

TOLEDO.—The market on comb honey at the present time is very hard to give, as no one has any honey to quote prices on. Fancy comb would bring very readily 16; No. 1, 15; and almost anything, 14. Extracted in barrels is at a premium. No one has any to offer. Beeswax is firm at 28 to 30.

GRIGGS BROS.,
April 9. 521 Monroe St. Toledo, Ohio.

NEW YORK.—Demand for comb honey is fair, especially for the better grades, and fancy white is selling at from 14 to 15; No. 1 at 13; light amber at 11 to 12. No more demand for dark comb honey. Extracted is in good demand, mostly California, at unchanged prices. Beeswax is firm at 29 to 31, according to quality.

HILDRETH & SEGELKEN,
82 Murray St., New York.

April 10

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.

O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

FOR SALE.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.

HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

THE FRED. W. MUTH CO.,

51 WALNUT ST.,

CINCINNATI, OHIO.

FOR SALE.—Thirty 5 gallon cans of clover honey. Single can, 7½ cts. per lb.; two or more at 7 cts.
C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT,
199 South Water St., Chicago, Ill.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. GRIGGS BROS., Toledo, Ohio.

WANTED.—Comb and extracted honey. State quality, quantity, and price. JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Carlot or less quantity of fancy comb honey, also extracted basswood or white clover. E. R. PAHL & Co.,
Broadway and Detroit St., Milwaukee, Wis.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us. EVANS & TURNER, Columbus, Ohio.

WANTED.—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.
THE A. I. ROOT Co., Medina, Ohio.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A COLD MEDAL
at the World's Fair
St. Louis, 1904



**UP-TO-DATE,
STRONGEST,
COOLEST,
CLEANEST.**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool adding to its durability. It has no valves to get out of order or snout to clog with soot.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Platteville, Wis.

SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker." Grant Stanley, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

F. DANZENBAKER, MIAMI, FLORIDA

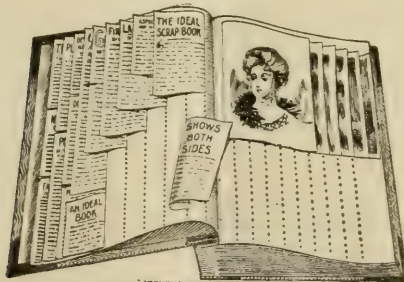
\$500.00 FOR SHORT STORIES

This is the sum a Chicago young woman received last month from various publishers. A few years ago she was a schoolteacher. She loved to write, and was determined to succeed. She went at it systematically as she would any other calling. **SHE LEARNED HOW TO WRITE AND SHE LEARNED THE MARKET.** Naturally she has succeeded.

If you have a taste for writing and want a good income, easily earned, we will tell you how to develop this taste so that it will bring the income. We offer you no theory—nothing but facts, and the most severe criticism and personal individual help on your own stories. Your critic recently received \$250 FOR ONE STORY. You can do as well. There is a big market—stories are in demand. We will prepare you to write the kind that publishers want. As we can take only a limited number of promising pupils, write at once, and **SEND ONE OF YOUR STORIES** if you wish, with stamps for its return. We will tell you what we think of it—and all about our plan. Address

PAGE - DAVIS SCHOOL
of Short-Story Writing

Dept. 383, 90 Wabash Ave., Chicago, Ill.



IDEAL SCRAP BOOK.

No smearing of Fingers with Paste or Mucilage.

Both sides of articles can be seen.

Room under clippings for memoranda. Loose Leaf.

Enormous capacity. Indexed. Simple. Convenient. Practical. Complete.

For sale by all up-to-date booksellers and stationers. Send for our catalog No. 8 of Scrap and Invoice Books, and other specialties.

IDEAL SPECIALTY COMPANY,

Manufacturers,

141 S. Clinton St.,
CHICAGO.

106 Fulton St.,
NEW YORK.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

E. R. ROOT
Editor

A. I. ROOT
Editor Home Departments

H. H. ROOT
Asst. Editor

DR. C. C. MILLER,
LOUIS H. SCHOLL,

J. A. GREEN,
G. M. DOOLITTLE,

PROF. A. J. COOK,
W. P. ROOT.

J. E. CRANE,

J. T. CALVERT, Business Manager

A. L. BOYDEN, Advertising Manager

Circulation 30,000. Reaches every State and 60 foreign countries.
Established in 1873. Sixty-four pages. Semi-monthly.
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

Terms---\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.

Postage is Prepaid by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS., 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 6/.*

Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publisher.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY.....STATE.....

DATE.....If you want Gleanings discontinued at expiration, check here ()

A Non-swarming Hive

has been talked about, pooh-poohed, and the idea abandoned, but Mr. L. A. Aspinwall, of Jackson, Mich., has had one in successful use for a dozen years or more, with perhaps 50 colonies, getting big crops of comb honey, yet having no swarms. There was one drawback that was hard to overcome, and that was the tendency of the bees to store pollen in the sections; but this has now been overcome in a manner most novel, and unexpected advantages gained thereby. This hive was men-

tioned editorially in GLEANINGS for Feb. 15th; but, if you wish to see some beautiful engravings of the hive, showing all of the details of construction, and read Mr. Aspinwall's description, together with his methods of management, send ten cents for the March Bee-keepers' Review, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, Flint, Mich.

HERE'S YOUR CHANCE

to win a prize by doing a little work in
obtaining subscriptions for Gleanings
in our Second Subscription Contest.

Last contest EVERY contestant that sent in more than ONE subscription obtained a prize. It will doubtless be so in this contest, so that besides the regular commission you will receive a prize that will more than pay any effort made.

Twenty-five Prizes!

(Variety of queen to be winner's selection)

First Prize \$10.00 queen
Second Prize 7.50 queen
Third Prize 5.00 queen

Fourth Prize 3.00 queen
Fifth Prize 2.00 queen
6th to 15th Prize One cloth-bound A B C
16th to 25th Prize One Junior Cornell smoker

Conditions!

FIRST.—That subscriptions to be entered in this contest are to be obtained as results of work between February 15 and July 1, 1906.

SECOND.—To be eligible to any one of the first fifteen prizes, contestant must have at least five yearly subscriptions, or their equivalents, to his credit.

THIRD.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

FOURTH.—That subscriptions can be sent in any time, but must be plainly marked "For Second Subscription Contest."

CUT HERE

Gleanings in Bee Culture

Subscription Contest Department.

Date

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Please send agents' terms and enter my name as contestant in Second Subscription Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions and agree to them.

Name

P. O.

I can use sample copies of Gleanings. State

CONTENTS OF THIS NUMBER.

MARKET QUOTATIONS	448	Early Spring Management.....	508
STRAY STRAWS	487	Honey-bees and Cucumbers.....	509
EDITORIAL	489	How to Produce More Honey.....	511
Mr. Alexander and Mrs. Holtermann III.....	489	Bees and Poultry Combined.....	513
Comparative Results in Wintering at Medina.....	489	HEADS OF GRAIN	514
Increasing the Honey-crop by Sowing Clovers.....	489	A Comb-honey Shipping-case without Glass.....	514
Dr. E. F. Phillips.....	490	Ventilation under Hives.....	516
Cost of Bee-keepers' Supplies.....	490	A California Extracting-house.....	516
BEE-KEEPING IN THE SOUTHWEST	493	Sweet-clover Seed; a Beeswax Relic.....	516
BEE-KEEPING AMONG THE ROCKIES	494	Bees Transferring Larvæ.....	517
CONVERSATIONS WITH DOOLITTLE	496	Can Colonies be Prepared for Early Honey-flow?.....	517
GLEANINGS FROM THE PACIFIC COAST	498	Shall We Spray While the Trees are in Bloom?.....	517
GENERAL CORRESPONDENCE	499	Weights of Sections Depend on Locality.....	518
Bee-keeping in Alabama.....	492	Vaseline to Prevent Propolis from Sticking.....	518
Spring Feeding.....	499	Wintering Baby Nuclei.....	518
To Start Anew, what Appliances would I Adopt?.....	500	Temperature of Bee-cells.....	518
Are Sections Detrimental to the Honey Market?.....	502	Wants Bees with Hot Stingers.....	518
Bees for the Honey-flow.....	503	Shipping Comb Honey by Express.....	519
Some Recent Statements Discussed.....	504	Beginner's Questions.....	519
Naming Bees.....	505	A YEAR'S WORK IN AN OUT-APIARY	520
Alexander's Cure for Black Brood a Success.....	507	NOTES OF TRAVEL	523
Alexander Method of Building Up Weak Colonies.....	507	OUR HOMES	525
		SPECIAL NOTICES	534

INDEX TO ADVERTISEMENTS.

Banking by Mail.		E. I. Pratt	543	Incubators.	
Savings Dep. Bank Co.	527	J. L. Strong	544	Standard.....	542
Bee Smokers.		A. W. Yates	545	Banta-Bender Mfg. Co.....	531
T. F. Bingham	538	B. C. Terry	544	Buckeye Incubator Co.....	531
F. Danzenbaker	479	George W. Barnes	543	Cycle Hatcher Co.....	531
Bee Supplies.		Rev. J. G. Baumgaertner	545	Chas. A. Cyphers.....	531
W. D. Soper	542	J. B. Case	542	Manson Campbell Co., Ltd.....	530
J. B. Mason	538	W. T. Crawford	545	Geo. H. Stahl	531
E. W. Alexander	539	F. J. Colahan	541	H. M. Sheer Co.	531
W. W. Cary & Son	539	J. W. Griffin	541	Machinery.	
D. Cooley	540	Chas. Koeppen	544	W. F. & J. Barnes Co.	527
J. H. M. Cook	542	J. J. Jepson	545	Electric Wheel Co.....	548
W. T. Falconer Mfg. Co., Back Cover		E. E. Lawrence	544	Lyons Engine Co.....	532
Geo. E. Hilton	538	W. H. Laws	544	Manson Campbell Co.....	531
M. H. Hunt & Son	484	Robert B. McCain	544	Medina Concrete Co.....	553
Kretschmer Mfg. Co.	538	Malan Brothers	543	F. E. Myers & Bros	529
Leahy Mfg. Co.	540	E. E. Mott	545	Miscellaneous.	
G. B. Lewis Co.	486	H. M. Parker, Jr.	545	E. A. House	542
Marshfield Mfg. Co.	538	A. E. Titoff	544	Suburban Life.....	485
Minnesota Bee Supply Co.	540	W. H. Rails	545	Alabama Times.....	542
Fred W. Muth Co.	478	J. R. Rambo	543	Best Gate Co.....	528
Walter S. Pouder	535	Roselawn Apiary	543	F. W. Bird & Son	529
The Root Co.	539	H. C. Simpson	541	Hardware Specialty Co.....	530
Page & Lyon	536	J. W. Taylor	541	Chas. H. Manley.....	548
A. H. Reeves	542	Henry Shaffer	545	Seaboard Air Line R. R.....	485
The Root Co., Syracuse, N. Y.	484	Victor-Knolle Apiary Co.	545	Home Correspondence School.....	527
The Root Co., St. Paul, Minn.	536	Daniel Wurth	545	Page-Davis	479
C. M. Scott & Co.	537	Mennie & Fenton	542	Publishers, Agricultural-paper.	
I. J. Stringham	539	H. G. Quirin	541	Farmer's Call	527
White Mfg. Co.	537	Bee-books.		Southern Fruit Grower	542
C. H. W. Weber	477	A. J. Cook	485	Publishers, Bee-journal	
A. G. Woodman Co.	537	Buggies.		W. T. Hutchinson	481
York Honey & Bee Supply Co.	537	Anderton Mfg. Co.	530	W. Z. Falconer Mfg. Co., Back Cover	
Bees and Queens.		Elkhart Carriage Co.	530	Geo. W. York & Co.	485
T. S. Hall	512	Ohio Carriage Mfg. Co.	529	A. I. Root Co.	481-482
G. Routzahn	545	Progressive Vehicle Mfg. Co.	530	Publishers, Poultry-paper.	
M. D. Whitcher	542	Union Buggy Co.	530	R. R. Fisher	548
S. Valentine	542	Comb Foundation.		Ohio Poultry Journal	548
Aliso Apiary	545	Dadant & Son	Back Cover	The Poultry Gazette	472
Anthony Biaggi	544	Gus Dittmer	536	Poultry Item	548
Bee & Honey Co.	540	Fences.		B. H. Greider	548
The Jennie Atchley Co.	545	Brown Fence & Wire Co.	529	Seeds and Trees.	
D. J. Blocher	545	Coiled Spring Fence Co.	529-531	Callander Cactus Co.	553
H. H. Jepson	542-545	Honey-buyers.		L. J. Farmer	533
Grant Anderson	545	See page	478	Hart Pioneer Nurseries	539
R. O. Cox	543	Household Specialties.		Jewel Nurseries	457
Doolittle & Clark	543	Best Light Co.	529	Louis Roesch	533
Henry Alley	541	Cleveland Desk Co.	527	L. H. Mahan	548
John M. Davis	541	Joseph Horne Co.	447	Schilder Bros.	548
J. W. K. Shaw & Co.	543	A. L. Rice	529	Wants and Exchanges.	
F. A. Lockhart & Co.	543	Stromberg-Carlson Tel. Mfg. Co.	529	See page	546

ADVERTISING TALKS

BY THE AD. MAN.

Have you noticed how our classified advertising columns are growing lately?

Here's a good way to make a start in the advertising field. The cost of inserting a small ad. in these columns, half a dozen times or more, is very small, and we know that many good sales have been made through ad's carried in this department.

Have you ever noticed this ad. in our "want" columns?

WANTED—Old books on bee culture, especially from foreign countries. Please state titles, authors, year of publication, edition, binding, condition, number of pages, and price wanted.

A. L. BOYDEN, Medina, Ohio.

Mr. Boyden has secured more than 250 old bee-books from all over the world, and through this small ad. alone.

People who have poultry or eggs for sale should be especially interested in the new "poultry offers" department.

THE JOSEPH HORNE CO., PITTSBURG, PA., have an ad. on page 527 of this issue. They make a very attractive watch offer.

We want to tell our readers something about the complete catalog which this company issues. We have just received a copy, and have been wonderfully surprised at the unlimited opportunity for shopping by mail which is offered. A copy of this new catalog should be in the home of every reader of GLEANINGS. The lady folks would be interested in the styles, dress goods, and household furnishings; the gentlemen, in the clothing, hardware, and almost innumerable other goods; and, in fact, there is something shown in this very complete book which would interest every member of the family. From our comparison of the prices quoted by this and other department stores, we find that the JOSEPH HORNE COMPANY maintains very reasonable prices. In fact, we are surprised at the low figure quoted on many articles. We are very glad indeed that it is possible for each one of our readers to secure this interesting book without charge, and surely you will not let this opportunity slip by.

If at any time you find that you are in need of a new catalog we shall be glad to hear from you. Perhaps you have never issued a price list or circular descriptive of your goods, and your business has now grown to such proportions that you feel the need of some descriptive literature. We have lately published several very satisfactory catalogs and booklets, and our clients have said some very complimentary things about our work. We are in position to help you, whether you simply want advice or whether you want a catalog complete from the writing of descriptions to the printing.

We would almost rather give our advice and suggestions free of charge than to see some of the inadequate and poorly prepared folders and catalogs which reach us from time to time. If you would like to have us criticise your literature, free of charge, send it in.

"Try an Anderton with your money in your pocket." This is the offer made by the Anderton Manufacturing Company, manufacturers of vehicles and harness, Cincinnati, Ohio, in their ad. on page 530 of this issue of GLEANINGS. We do not know of a fairer way of advertising for business. Surely a man would soon be able to tell, after he had looked over a carriage or a set of harness, whether or not it was worth buying; and this liberal offer, made by the Anderton Manufacturing Company, makes it possible to buy vehicles and harness at a very low cost, and the risk of getting an inferior production is entirely eliminated. If people were not always satisfied when they tried the Anderton it would be impossible to make this offer. But send for an Anderton catalog—a 110-page book which explains in detail the things which can not be mentioned here. It is a book worthy of the reference of vehicle or harness buyers. A copy may be secured free by mentioning GLEANINGS.

At any time we should be glad to have our advertisers or readers advise us of sales made through GLEANINGS ad's. Every once in a while we hear of some sale, some good big one, generally, which has been made through our columns, and we like to preserve this information. Just the other day a man wrote and said that he had purchased a disc harrow from a company which advertised in GLEANINGS earlier in the year. Another man reports that he purchased a complete greenhouse from Mr. Manley.

There seems to be plenty of evidence that our readers are alive, and on the lookout for all necessary articles. One never can tell whether a paper's readers would buy his goods or not until he makes a trial advertising campaign. Almost always the results are surprisingly profitable.

For the past nine or ten months, every issue of GLEANINGS has carried the advertisement of the Savings Deposit Bank of Medina, Ohio. This institution reports that many good accounts have been opened by our readers, and we are very glad to hear this. Giving advice where to place one's money is a rather hard thing to do; and, too, the man or woman who deposits her earnings or income in a savings bank must have implicit confidence in the character of the institution. During the several years which the Savings Deposit Bank has been in existence, no question of character, capital, or reliability has ever confronted them. The aim of the management has been to eliminate all risk, and to limit the deposits to the number which can safely and conveniently be taken care of. There are many points of advantage to depositors which are in favor of a small bank like this one.

First.—The bank is in the center of a farming community. The men who make up the bank are all careful honorable men who will have nothing whatsoever to do with speculation.

Second.—Being a small bank, the individual attention given to depositors is much greater than in a larger institution.

Lastly.—The rate of interest is as good as is given by any other savings bank in the country—4 per cent, compounded semiannually.

We do not hesitate to refer our readers to the Savings Deposit Bank of Medina as a safe place to deposit their savings. We have every reason in the world to believe that this bank offers as secure a place of deposit as the largest bank or trust company in the country.

The More You
Know About
Our Bee
Goods

The More You
Will Wonder
Why in the World
You Have Kept
Bees without Them.

A large stock of Bee-keepers' Supplies are in storage at Syracuse, N. Y., for prompt shipment.

The A. I. Root Co., Syracuse, N. Y.

HIVES - HIVES



Now is the time to place your order for the hives you will need this year. By getting them now you will save the discount, and can have them nailed and ready for your bees in the spring. . . . We should like to quote you prices in any quantity on the following:

The Root Chaff Hive
The best chaff hive made

The Danzenbaker Hive
The comb-honey hive

The Root Dovetailed Hive
Standard size and extra quality

~~~~~  
Send for Catalog

## M. H. HUNT & SON, BELL BRANCH, MICH.

We Sell Root's Goods in Michigan

# TRIAL TRIP OF 3 MONTHS FOR ONLY 20c.

Every reader of GLEANINGS should also have the Weekly American Bee Journal, the oldest bee-paper in America. Here is a list of the Contents of the First Number in April, 1906.

|                                                            |                                                                                    |                                                            |
|------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------|
| <b>Illustrations—</b>                                      | Feeding Back to Get Partly Filled Sections Completed at Close of Honey Season..... | Relation of Ripeness of Honey to Granulation.....          |
| An Armful of Bees.....                                     | Foul-brood Inspection.....                                                         | Streaky Granulation in Honey.....                          |
| Bee-Hive Struck by Lightning.....                          | Harvesting of Extracted Honey.....                                                 | <i>Dr. Miller's Question-Box—</i>                          |
| Frame Spacing Arrangement.....                             | Management of Out-Apiaries.....                                                    | An Injured Finger.....                                     |
| <b>Editorial Notes and Comments—</b>                       | Michigan State Convention.....                                                     | Buying Bees in the Spring.....                             |
| Honey Advertising and the National Association.....        | Performing Bee-Men at Fairs.....                                                   | Changing Queens.....                                       |
| How to Provide Water for Bees.....                         | Pollen in Sections.....                                                            | Equalizing Brood Among Colonies                            |
| Need of Water for Bees.....                                | Queen-Excluders.....                                                               | Extracted-Honey Retail Packages and for Storage.....       |
| <b>Miscellaneous News Items—</b>                           | Races of Bees.....                                                                 | Italianizing Black Bees.....                               |
| An Armful of Bees.....                                     | Size of Sections.....                                                              | Keeping Queens.....                                        |
| Bee-Hive Struck by Lightning.....                          | Uncapping-Machine.....                                                             | Making Sections at Home.....                               |
| National Convention.....                                   | Wisconsin State Convention.....                                                    | Mice as Honey-Eaters.....                                  |
| <b>Contributed Special Articles—</b>                       | <i>Southern Beedom—</i>                                                            | Miller Frame.....                                          |
| Baby Nuclei.....                                           | Attend Bee-Keepers' Conventions                                                    | Number of Comb-Honey Supers Per Colony.....                |
| Beeswax—Origin, Composition, Adulteration, Tests, etc..... | Invitation to the National.....                                                    | Old Combs for Beeswax.....                                 |
| Beginning Bee-Keeping—Good Advice.....                     | Nueces Valley Convention.....                                                      | Preventing Bees Hanging Out.....                           |
| Cleaning Oil-Cans.....                                     | <i>Our Sister Bee-Keepers—</i>                                                     | Pure-Blood Italians.....                                   |
| Dadant Methods of Honey-Production (8).....                | New England Sister Looks On.....                                                   | Rearing Queens.....                                        |
| Family Apidae.....                                         | Some Intemperate Bees.....                                                         | Ripening Basswood Honey.....                               |
| Feeding Bees.....                                          | Very Old (?) English Bees.....                                                     | Several Eggs in a Cell.....                                |
| Hive Colors, etc.....                                      | <i>Mr. Hasty's Afterthoughts—</i>                                                  | Shallow Hives.....                                         |
| Hives and Frame-Spacers.....                               | Bees Moving Eggs or Larvæ.....                                                     | Stretching Comb Foundation.....                            |
| Home-Made Hives.....                                       | Caucasian Bees.....                                                                | Uniting Weak Colonies.....                                 |
| Honey That Tickle Palates.....                             | Causes of Honey Flow and Suppression.....                                          | Ventilation Space Below Brood-Frames When Moving Bees..... |
| Plea for a Better General Education                        | Cutting Foundation.....                                                            | Wax-Worms and Combs.....                                   |
| Reading Bee-Literature.....                                | Dampening Sections.....                                                            | <b>Reports and Experiences—</b>                            |
| Shipping and Selling Section Honey                         | Growing a Quick Wind-Break.....                                                    | Bees Wintered Well So Far.....                             |
| <b>Convention Proceedings—</b>                             | Sulphur for Bee-Paralysis.....                                                     | Honey Scarce Last Season.....                              |
| A Non-Swarming Hive.....                                   | Two Queens in a Hive.....                                                          | Keeping Bees on Shares.....                                |
| Bee-Keeping—Ancient and Modern                             | <i>Canadian Beedom—</i>                                                            | Not Expecting a Great Crop.....                            |
| Dysentery Among Bees.....                                  | How to "Sample" a Town With Honey.....                                             | Season Earlier Than Usual.....                             |
| Economy in Bee-Keeping.....                                | Losing Its Honey Flavor.....                                                       | White Clover All Right.....                                |

**WE** will send the above number and 12 others (from April 1 to June 1) as a TRIAL TRIP to a new subscriber, for 20c; or a Fine Untested Italian Queen (in May or June) with the Bee Journal a year—both for \$1.50; or a copy of the new edition of Dr. Miller's cloth-bound 352-page book, "FORTY YEARS AMONG THE BEES," with the Bee Journal a year—both for \$1.80. Sample copy of the Bee Journal free. Address

**George W. York & Co., 334 Dearborn St., Chicago, Ill.**

## GOLDEN Opportunities!

**E**XIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

**J. W. WHITE**

Gen. Indus. Agt., Portsmouth, Va.

**Seaboard Air Line Railway**

**If You Want the Bee-book**

that "covers the whole apicultural field more completely than any other published," send \$1.20 to :: ::

**Prof. A. J. Cook, Claremont, Calif.**

— FOR HIS —

**"Bee-keepers' Guide"**

Liberal Discount to the Trade.



## Of Interest to Every Bee-keeper

Suburban Life for May.

The leading article in the May issue of Suburban Life is entitled

"POSSIBILITIES OF MODERN BEE-KEEPING,"

By W. Z. HUTCHINSON, and illustrated with photographs by the author. This article is alone worth the price of the magazine.

52 pages of live interesting country-life material, beautifully illustrated.

\$1.00 a year; 15c a copy. Subscription price soon to be advanced to \$1.50. Address

**SUBURBAN LIFE,**

16 State Street, BOSTON, MASS.



# "I Will Never Make any More Goods by Hand."

—So says one of our customers, states a Lewis agent to the G. B. Lewis Co., in a letter recently received and now on file at our Watertown Office.

## The Agent Writes as Follows:

*G. B. Lewis Co.:*—We note that the Lewis Goods this season are finer than ever. No. 2 sections are fine. Hives and all hive parts are without any knots. In fact, they are so nice that we are very much surprised, as we supposed that, as lumber gets scarcer and higher, necessarily poorer grades of lumber would have to be used. We are receiving many compliments on the goods we are shipping out. The largest producer in Michigan says, "They are the finest I have ever received." Another customer says, "Goods are so satisfactory that I want more." The purchaser of a \$165.00 order writes, "I will never make any more goods by hand; goods are fine." We wish to ask, did we get an extra good lot, and will they continue superb? Words can not express the satisfaction at seeing such stock.

Referring to the above, the G. B. Lewis Company wishes to state that the agent referred to did not get a shipment of goods from us which was picked out especially for him or any one else, but that he was shipped our regular line of goods taken from our regular enormous stock which we now have on hand, and which we are adding to every day, and which we shall continue to ship to each and every customer whoever he may be.

---

## G. B. Lewis Company

Manufacturer of Bee - keepers' Supplies  
Watertown, Wisconsin, U. S. A.

# GLEANINGS

## IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests  
Illustrated : Semi-monthly : One Dollar per Year  
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

APRIL 15, 1906.

No. 8



DECIDEDLY, S. E. Miller and Louis Scholl are right, p. 417. Let it be "water-clear" rather than "water-white."

THE PICTURES of Doolittle's hives, p. 443, let it leak out that he uses cleats instead of hand-holes. I wonder if a good many others are not quietly doing the same thing. [Yes, I think so.—ED.]

I CONGRATULATE YOU BUCKEYES on your foul-brood law—not entirely certain whether that one-cent tax is the right thing, but I should be glad to pay five cents on each colony to have a compulsory law in Illinois.

A FINE PICTURE, that of G. M. Doolittle on April 1 cover. That man Doolittle makes me lots of trouble. I am obliged to read every word he writes, for fear of missing some good thing I didn't know before; and when I write any thing wrong I am always afraid he'll catch me up on it.

J. A. PHILLIPS asks, "Will bees starve to death in early spring before there is a honey-flow, but plenty of pollen?" I think so, but I don't know, because I don't know whether bees ever gather pollen without any nectar at all. I do know that I have had bees starve in winter with plenty of pollen in good condition in the hive. [Same experience here.—ED.]

QUOTH YE EDITOR concerning foundation splints, page 412, "They are too large, and yet the diameter can not be reduced." Too

large for what or whom? Not for the bees, for they use every cell the same as if no splint were there. Not for me, for I can see no difference except a slightly elevated line, and that only by very close looking. Why are they too large for you? [I had the impression that, when I visited you, the bees did not build over these splints perfectly in all cases; but "you are the doctor," and ought to know, so I will not presume to contradict your statement.—ED.]

H. F. HILLEBRANT lives in a part of Kansas where much alfalfa seed is raised. He says in *American Bee Journal*:

On one farm where no bees were kept the yield of seed, in 1905, was two bushels to the acre. On another farm, on the same bottom, one mile from the first, where only three colonies of bees were kept, the yield of alfalfa seed was between four and five bushels to the acre. On still another farm, where about twenty colonies of bees are kept, the yield was between seven and eight bushels per acre; and two miles below, without bees, the yield again dropped to two bushels.

And yet there are alfalfa-men who want the bees condemned!

I ALWAYS THOUGHT that Allen Latham was a Yankee. That searching discussion, p. 430, sounds like the work of a German. You and he, Mr. Editor, are not as far apart as you might be. Your winter entrance is 60 per cent of his minimum. But there are some things to be said about winter entrances that neither of you have said yet. [Why didn't you tell us about those other things? Yes, Mr. Latham's article is full of the science that is backed by theory and practice; but I believe he goes to the other extreme in his plea for large entrances for winter.—ED.]

CONCRETE BUILDING-BLOCKS are advertised, page 448. Why not a special block for a hive-stand? [At the rate lumber is going up, I am not sure but it would be cheaper to get up a special block for a hive-stand. It would



last a life-time, and would not cost very much either; but on account of freight every bee-keeper would have to buy his blocks in his own vicinity, or, better still, make them himself. A cheap wooden mold could be made very easily. A sack or two of cement and a load or two of gravel and sand would furnish all the material for a good-sized apiary. Thanks for the suggestion, doctor. We will experiment.—ED.]

DAILY PAPERS announce that Shurtleff, speaker of the last Illinois legislature, has "seen the handwriting on the wall and climbed into the band-wagon." In other words, he has promised the anti-saloon forces that, if they will call off their opposition to him, he will give the local-option bill a far show in the next legislature—a thing he did not do last session. Things seem changing when a leader of the dominant party gets down on his marrow bones to the foes of the saloon. [We have been doing that thing in Ohio for the last three or four years; and the legislators have got so now they will promise almost any thing if we will only keep the "dogs" off.—ED.]

"DOOLITTLE recommends putting a wet rag over the entrance to shut bees in, page 412." Doolittle has enough other things to answer for, but I think that wet-rag business originated in this locality. But it isn't needed one year in five. [The use of the wet rag depends largely on the temperature of the atmosphere when the bees are carried out. If it is nearly down to the frost-line, no rag will be needed; but if some of the bees are flying outside while the remnant are being carried out, the rag will be a good thing. From some late experience I believe we will hereafter carry out our bees after dark. Even in cool weather, when the hive is bumped the bees are liable to fly out rather promiscuously; and such as fly out are quite liable to be lost.—ED.]

A FRENCHMAN, according to *Abeille Bourguignonne*, following Root's instruction, fed his bees in a very warm place (bei grosser Hitze) with feed which had an addition of five grams of vinegar per quart, to prevent candying. After two or three days the floor of the hive was covered with innumerable dead bees. [The item doubtless refers to a statement in our catalog. It is there recommended to mix syrup cold, 50 per cent of sugar and 50 per cent of water; but for late winter feeding it is advised to make the proportion  $\frac{1}{2}$  water and  $\frac{3}{4}$  sugar, and then add a pint of vinegar to every 100 lbs. of syrup. As a pint is a pound the world round, that makes approximately one per cent by weight to the whole mass of syrup. I can hardly think the bees died because of the vinegar; but perhaps it would be well to eliminate the vinegar from the catalog.—ED.]

TANGLED UP AGAIN, Mr. Editor, page 412. You say A. I. Root "was trying to make the bees fly inside of a greenhouse." Look again at the Straw and you will see I wasn't talking about a hothouse but a hotbed, and, of

course, the bees were flying outside. What I meant was the thing you mention, page 414, which you call "burying colonies in manure." Wasn't that practically the same thing you are trying now? I don't want to discourage your experimenting, but no little experience has taught me that the average queen reared here before the middle of May is worthless, although she may be nice-looking and seem to lay well for a time. I don't know why, but I know the fact. I suspect it's the outdoor weather, and I do not believe your heated hive will help that. [It is true that A. I. R. was trying to make bees fly inside of a greenhouse, and he also attempted to make them fly outdoors; but you still seem to miss the very point that I was making—not stimulating colonies but getting early queens, even if we had to sacrifice a colony in so doing. We are getting queens all right; but the cold March disposed of all of our drones. Next year we will try to make some arrangement to get early drones.—ED.]

TO MY REQUEST, p. 412, Mr. Editor, that you send me a queen likely to be better than my mongrel stock, you reply by advising me to get a queen from each of five different queen-breeders. Now, that's discouraging. I supposed you could send me a queen just as good as either of those five. The redeeming feature of encouragement is that you evidently think your pure Italians are no better than my mongrels. But what makes you wander off talking about \$200 and \$5.00 queens? Mine are only one-dollar queens. But I should be glad to give \$5.00 for a better honey-getter. [There you go again. But, seriously, I have been led to expect that you were getting big results from your mongrel queen. The buying of breeding queens to get an improved stock is somewhat a matter of chance. I might send you a \$5.00 queen, and such queen might fall far short of a queen of the same value in our own yard. We have had the case of a queen that performed splendidly, yet when sent to a customer would apparently be worth little or nothing. Sometimes the journey in the mails has a disastrous effect on a fine queen a year old or old enough to be tested out. Young queens just beginning to lay do not, as a rule, receive any injury in Uncle Sam's bags. My suggestion was for you to get five queens from as many different breeders so that we could reduce the element of chance. But, doctor, I would not guarantee at \$5.00 to give you a queen that would excel or even equal the breeder that you have been developing in your yard for several years. She might outstrip her in honey, but you yourself could not guarantee to me that a daughter of your breeder would come up to the performances of her mother, for five or even ten dollars. But out of the five \$5.00 queens from five different breeders, you stand a chance of getting one queen that would equal or excel your own breeding-stock. We could send five queens from here, but your chance would be better to get one from each of five breeders.—ED.]



NEARLY 1200 new names came in during the time from March 15 to April 13. Thanks.

THERE have been quite a number of bee conventions held of late, and we are very sorry that we have been unable to get in any mention of any of them for this issue.

MR. ALEXANDER AND MRS. HOLTERMANN SERIOUSLY ILL.

It is with much regret that we have to report that Mr. E. W. Alexander, of Delanson, N. Y., is seriously ill, and he will, therefore, not be able to attend to any of his correspondence. Letters concerning his methods may be sent here, and we will turn them over to Mr. Alexander when he recovers. Fortunately we have in hand enough of his articles to run for three months yet.

We are very sorry to report also that Mrs. R. F. Holtermann has just come from the operating-table, and the surgeons found her condition such that there is little or no hope for her recovery. She is a daughter of S. T. Pettit, of Ontario, one of the best-known bee-keepers in our ranks. Mr. Holtermann is unable to take care of his correspondence at present. Those in the United States who desire to get his hives or appliances may correspond directly with us.

#### THE COMPARATIVE RESULTS IN WINTERING INDOORS AND OUT AT MEDINA.

WE have just taken our 240 odd colonies out of our shop bee-cellar. Notwithstanding the temperature has been abnormally high by reason of the warm open winter outside, the indoor bees, strangely enough, fared much better than those outdoors; and, what is more, we put in the cellar only our very weakest and poorest colonies. Many of them were little more than two and three frame nuclei. The very best colonies were left outdoors in double-walled hives. Well, the showing is that these medium and weak colonies wintered indoors are actually in better condition than some of the outdoor-wintered colonies that were much stronger the preceding fall. Naturally enough, an open winter like this would show an advantage in favor of the outdoor bees, and this would have been the case this winter had it not been for the extremely cold March that came just at a time when bees were rearing brood and the clusters were well spread out. It appears that the shock of this cold spell put back these otherwise strong colonies that would have been stronger and better than those wintered indoors.

There were no winter losses in the cellar except some seven or eight of the very weakest and poorest that we had last fall. These would have pulled through had the cellar not been too warm much of the time.

#### INCREASING THE HONEY CROP BY SOWING ALSIKE, PEAVINE, AND RED CLOVER IN THE VICINITY OF THE YARD; DO IT NOW.

IN March 1st issue, page 288, Mr. Wm. McEvoy, of foul-brood fame, sent in a short item to the effect that the bee-keeper could increase his honey crop materially by sowing alsike himself and getting his neighbors to do likewise. Our Canadian friend does not write very often; but when he does, he generally gives us a big chunk of something good.

Since this statement appeared I made up my mind we would test this thing here at Medina a little more thoroughly than we had ever done before. Accordingly we have been supplying the farmers roundabout here with alsike, peavine, and red-clover seed free. We prefer, of course, alsike, as it is a far better honey-plant.

This morning I had a talk with a neighbor, Mr. Vernon Burt, on this very subject, and he then reminded me that he had for years been trying to educate the farmers in his vicinity as to the value of alsike and peavine clover; and that, while he formerly furnished the seed free of charge, he found it unnecessary to do so any more, as the farmers had learned the value of these two crops. As a natural consequence Mr. Burt has a large acreage of alsike, peavine, and red clover within easy range of his bees.

Our readers will remember Mr. Burt as being a bee-keeper who secures a crop of honey if any one in our vicinity does. He attributes a large part of his success to this artificial pasturage which is now getting to be a regular thing for his bees. He has for several years been able to keep as high as 200 colonies in one locality by reason of this extra bee-pasturage when most localities in our county will support only about 50 colonies; for be it remembered we have no fruit-bloom to speak of, and no fall flow. In fact, it is 25 years since I remember our bees getting very much honey from fall asters. As a natural consequence we have to bend every energy to get our colonies strong for clover and basswood.

As I have already pointed out, Mr. Burt has for years been going ahead of us by lengthening his honey-flows.

#### ALSIKE AND ITS ADAPTABILITY TO WET SOILS.

And this reminds me that alsike will grow in a good many places where other clovers would be killed out. It thrives on a wet soil, and, what is more, the heaving frosts do not destroy it as they do peavine clover with its long tap-roots, which are often snapped in two by the rising of the soil through the action of the frost.

What we are particularly anxious to get



hold of now is what the effect of 20 or 30 or even 50 acres of alsike would do within easy range of a bee-yard of, say, 100 to 150 colonies. Of course, I appreciate the fact that white clover and basswood yielding their quota would, to a certain extent, obscure the actual aggregate received from alsike; or, to put it another way, the alsike might do ever so well, and the white clover and basswood ever so poorly; and it would be difficult to determine the proportionate amount of honey yielded by any one of them, unless we watch *where* the bees work. If they did not visit the white clover during the season, and were busy at work during the heaviest flow on alsike, this would be a strong pointer in favor of this plant.

It is a good time now to get alsike and peavine clover sown in your localities; and it is my opinion that it will pay the bee-keepers well to furnish free seed within a mile and a half of their yards.

Remember, when you do this, alsike has a wonderful tenacity for the soil. If it is once grown it spreads rapidly over the farm and pasture lands. So far from being a noxious weed it adds materially to the value of the pasture, even if we throw the bees entirely out of consideration.

#### DR. E. F. PHILLIPS.

ON the front cover page of this issue we are glad to introduce Dr. E. F. Phillips, in charge of apiculture during the absence of Mr. Benton, in the Department of Agriculture, Washington.

Our first acquaintance with Dr. Phillips began when we received a letter from Prof. E. G. Conklin, of the University of Pennsylvania, asking if one of his students, Mr. E. F. Phillips, who had graduated from the University, and was then pursuing a post-graduate course, might come to Medina and pursue some of his studies already begun at the University along the line of parthenogenesis. He wished to know whether we would be willing to allow him the privileges of our bee-yards here where he could gather material, and do some work in the line of some original investigation. He stated that Mr. Phillips was a young man of more than ordinary ability; and recognizing the special facilities that we had at Medina, he would consider it a special favor if we would allow him to continue the line of his studies at our office. We immediately replied that we should be more than pleased to have him come, especially as we understood he would bring some of the apparatus from the college, and was prepared to make dissections of bees and queens. Accordingly, in June following, 1903, Mr. Phillips presented himself at our office. He was given a desk where he could do inside work, and was permitted to go anywhere he pleased, and gather any specimens which he desired for his special work.

He had not been long at our place before it was apparent he was not only a trained scientist, able to weigh evidence carefully

and impartially, but was in every sense of the word an agreeable gentleman. He went at his work in a manner that was characteristic of the man: and so far from being a hindrance he gave material assistance in the way of suggestions, both in practical work and in the line of scientific proof of certain disputed points.

He spent two different summers with us during which he gathered together an immense amount of valuable material, for he had dissected numerous queens, normal and drone layers, and went back to the University to carry on his studies further.

We heard nothing from him until we were advised by Mr. Benton that he had been appointed to assist in the Division of Apiculture at the Bureau of Entomology; that he would be in charge during his (Mr. Benton's) absence on an extended tour in quest of new races of bees.

During the time he has held the position he has been by no means idle. Necessarily he has had to take up work that Mr. Benton had already begun, and, besides this, has instituted new lines of work of his own. The volume of correspondence as the result, from bee-keepers and others, in regard to new races of bees, the distribution of honeyplant seed, besides a great string of questions, has been considerable. While Dr. Phillips is ably assisted, a great deal of the work devolves on him as expert in the Division.

He delivered a series of lectures at institutes throughout York State, last winter, and read a valuable paper regarding his work in the Division, at the Chicago convention of the National Bee-keepers' Association. He has lately taken up one department that I am sure will prove to be very helpful to bee-keepers; and that is, something relating to the brood diseases of bees.

The last thing that has appeared from Dr. Phillips is Bulletin 55 on the rearing of queen-bees, already mentioned in these columns.

Bee-keepers all over the country may sincerely congratulate themselves on having so competent and thoroughly trained a man in apicultural work at Washington. All those who heard Dr. Phillips at the various meetings at which he has read papers were impressed with his marked ability. It is to be hoped that his services will be retained, if for no other reasons than that scientific research on the general subject of bee-keeping may be advanced.

#### COST OF BEE-KEEPERS' SUPPLIES; HAS THE PRICE BEEN SHOVED UP TO AN UNREASONABLE OR EXORBITANT FIGURE?

ALMOST any thing that a manufacturer of bee-keepers' supplies might say might be construed as smacking of prejudice if nothing more. As the editor of this journal happens to be connected with the manufacture of bee-keepers' supplies (fortunately or otherwise) he does not propose to make a statement himself, but to present an array of facts and figures gathered by a dis-

interested reporter on the Cleveland Press, one of the great metropolitan dailies, showing the conditions as they actually exist in the city of Cleveland so far as the cost of construction is concerned, of which lumber and labor are the chief items. The headlines, together with the diagram below, were prepared by the Cleveland Press artist, and speak for themselves.

Commencing with the cost of labor the reader will note that the big man at the left is supposed to represent the relative cost of labor in 1906. The little man at the right shows the relative cost of the same class of labor during 1901. The variation in the height shows the actual advance in five years. This comparison is continued, showing the ratio of values of lumber in 1906 and 1901, and of paint, etc., during the same period. But the most striking comparison of all is the size of the house that could be built for \$3000 in 1901 and 1906.

Clevelanders who are building homes have discovered that prices of building materials and labor have gone skyrocketing. A conservative estimate is that it costs fully 35 per cent more to build a frame house this year than it would have cost five years ago, and about 20 per cent more than one year ago.

A house over one third larger could be built five years ago than now for the same. Contractors estimate that a house that cost \$3000 to build in 1901 would now cost at least \$4000, and some of them figure as high as \$4500. The same house would have cost \$3500 a year ago.

#### EVERYTHING HIGHER.

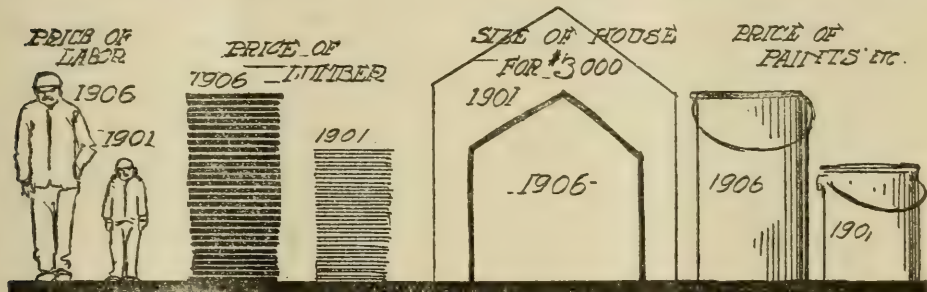
Big advances in the prices of labor, lumber, paints, and glass have been the principal factors in putting up the cost of building a house. Labor is the biggest item. Wages of the various building trades have advanced from 45 to 100 per cent since 1901. A conservative average is 60 per cent.

Lumber averages 23 per cent higher, although Norway pine and hemlock bill stuff has jumped fully 37 per cent. Finished lumber, shingles, etc., have not advanced as much.

Paints, oils, varnish, turpentine, shellac, etc., average 70 per cent higher than in 1901. Glass is 10 per cent higher than five years ago.

The advance in brick and stone has been small, but other building materials not mentioned above have advanced from 10 to 25 per cent.

# \$3000 HOUSE NOW COSTS ALMOST \$4500 TO BUILD



The statement accompanying the diagram from the Cleveland Press of April 11 are here given, and speak for themselves.

| LABOR.           |           |        |        |
|------------------|-----------|--------|--------|
|                  | 1906.     | 1905.  | 1901.  |
| Carpenters.....  | 42½-45 c. | 40 c.  | 27½ c. |
| Bricklayers..... | 50 -60 c. | 55 c.  | 40 c.  |
| Laborers.....    | 25 -30 c. | 20 c.  | 15 c.  |
| Painters.....    | 37½-40 c. | 37½ c. | 27½ c. |
| Plasterers.....  | 50 -55 c. | 50 c.  | 35 c.  |
| Lathers.....     | 45 -50 c. | 43½ c. | 30 c.  |
| Tinners.....     | 37½-40 c. | 32½ c. | 25 c.  |
| Roofers.....     | 47½-50 c. | 40 c.  | 30 c.  |
| Tilers.....      | 43½-50 c. | 40 c.  | 30 c.  |

| LUMBER.               |         |         |         |
|-----------------------|---------|---------|---------|
|                       | 1906.   | 1905.   | 1901.   |
| Bill stuff, 1000 ft., | \$26.00 | \$23.00 | \$19.00 |
| Yellow pine, inch.    | .45     | .35     | .35     |
| Shingles, per 1000,   | 3.75    | 3.75    | 3.50    |
| Flooring, 1000 feet,  | 30.00   | 27.00   | 25.00   |

| GLASS.             |       |       |       |
|--------------------|-------|-------|-------|
|                    | 1906. | 1905. | 1901. |
| Standard size..... | 35 c. | 35 c. | 32 c. |

| PAINTS, ETC.         |       |       |       |
|----------------------|-------|-------|-------|
|                      | 1906. | 1905. | 1901. |
| White lead, per lb., | 7¼ c. | 6¼ c. | 6¼ c. |
| Turpentine, gall.,   | 73 c. | 63 c. | 39 c. |

Shellac, 70 per cent higher than in 1901.  
Varnish, 25 per cent higher than in 1901.  
A house that cost \$3000 to build in 1901 costs \$4000 to \$4500 now. Other buildings have advanced in propor-

tion. Now, lest the reader may think that these statements are made to favor the house-builder, I would respectfully ask him to go to his nearest contractor, submit this comparison of the \$3000 house, and see whether or not it is correct. I did this very thing, and found that a friend of mine, who was about to build a house, submitted some plans to an architect early last year. The total cost then was \$1500. Imagine his consternation when the contractor told him that now he would have to charge him \$2500 for the same house. On another plan to the same party the price in 1904 was \$2200. and in 1906 the figures had increased to \$3500.

Lumber and labor are the two chief items that enter into the building of a hive as well as into a house. While we do not expect to advance our present prices, we assume that our readers are able to draw their own conclusions whether those prices are unreasonable in the light of the facts given above.



## BEE-KEEPING IN ALABAMA.

BY T. P. HALLOCK.

[This is the first of a series of articles which we hope to print from time to time on bee-keeping in different States in the Union. This article on Alabama is not as complete as we might have desired, owing to the difficulty we experienced in getting authentic information. However, we expect that succeeding articles will be of more interest and more complete. We hope to discuss bee-keeping in Pennsylvania in our next issue.—Ed.]

The State of Alabama is one of the best adapted for bee-keeping in the Union. The weather, natural growth of pollen-bearing plants, etc., all tend to make this an ideal bee country. The shipping facilities offered in most parts of the State are good, and northern shipments can be cheaply made by boat from the southern gulf ports.

Bee-keeping has been a neglected pursuit here. Where bees are kept quite extensively, the methods followed are, to say the least, out of date. Still a majority of the bee-keepers are anxious to learn the great possibilities this industry offers, and are introducing modern hives and modern appliances. One of the leading bee men writes us that in ten years Alabama will be one of the great centers of honey interests, and we really believe that he is right. The southern farmer of to-day realizes that he is getting but half of what he might from his land, and is studying the conditions which will increase his income. Bee-keeping, when investigated, will soon spring to prominence in this admirable location.

## LEADING HONEY-PRODUCERS.

Under this heading we give the names of the two leading bee-keepers in the South. Mr. J. M. Jenkins, Wetumpka, has often been heard of through these columns. He is engaged in the bee business, heart, soul, and mind. In addition to his apiary of several hundred colonies, he runs a large factory where bee-supplies are manufactured. He is, without doubt, the leading supply-dealer in the South. We expected to be able to show Mr. Jenkins' picture, but he is somewhat bashful about making a public appearance. We shall try to introduce him to you some other time.

Mr. W. N. Cannon, Greenville, Ala., has a very large apiary, keeping between 450 and 500 colonies. Mr. Cannon says that he is located in the best sweet-clover belt in the United States and that with proper attention he can easily produce 100 lbs. per colony per year.

## QUEEN-BREEDERS.

Mr. W. S. McKnight, Newtopia, is probably the leading queen-breeder in the State. We are unable to give his figures in regard to the extent to which he raises queens, but have no doubt that he raises more than one thousand queens yearly. His principal strains are golden Italian and Carniolans.

Mr. R. O. Cox, Greenwich, is another queen-breeder who is well known to our readers. Mr. Cox makes a specialty of red-clover Italian queens, and has the facilities in his apiary of over 100 colonies for the production of very fine queens of this strain.

Mr. W. J. Forehand, Ft. Deposit, is a queen-breeder who is well known to most of our readers. His specialty is Italians, and his apiary embodies excellent facilities for rearing good queens in large numbers.

Mr. E. A. Simmons, Greenville, raises a very fine strain of Italian and red-clover queens. His queens are considered among the best.

There are several other queen-breeders in the State who raise queens principally for use of nearby bee-keepers. A great many of these have not felt sufficiently experienced to offer their queens to bee-keepers throughout the world.

## EXTENT TO WHICH BEES ARE KEPT.

Relying upon the best information at our command, we would say that 300,000 colonies of bees is very close to the actual number kept in Alabama. This represents about  $1\frac{1}{2}$  colonies to each farm in the State. However, we believe that these 300,000 colonies are all kept on not more than 50,000 farms. Therefore the average number of colonies of bees kept by each bee-keeper is about 6. The average value of Alabama bees per colony, collectively, not by the single colony, is about \$1.50 each. Thus the amount of capital invested in bees in the State is about \$450,000.

## HONEY PRODUCTION.

We would estimate this at about 2,700,000 lbs. per year—an average of about 90 lbs. per colony. This is a very good average for a State where bee keeping is so prominent an industry.

## WAX PRODUCTION.

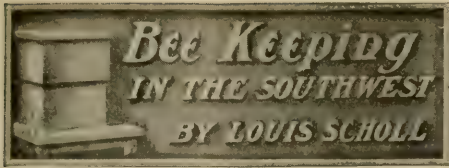
In the production of wax, Alabama is one of the foremost States. Several times statistics have shown her to lead in this product; but we believe that one or two other States, where more colonies of bees are kept, have not been properly accredited. The average production of wax per annum per colony is close to  $\frac{1}{2}$  lb. Thus the estimated production for the entire State is about 225,000 lbs. If we value this immense crop at the present market price of 30 cts. per lb. we find that the wax crop of Alabama is worth something over \$65,000 annually—quite a valuable crop to be produced by the bees alone.

## SOURCES OF HONEY.

In different parts of Alabama, as in other States, different pollen-bearing plants predominate in certain localities. The most general plants—those which are found to some extent in nearly every section—are alders, gallberry, clovers, melons, tulips, and innumerable other wild and cultivated plants which will invariably be found in a tropical clime. Some, however, state that sweet clover is the only one to be relied on in many parts.

## MARKETS.

No great amount of the honey crop of Alabama is marketed in the State, although a part of it is sent to Birmingham and some to Montgomery.



Breed your queens to suit your demand for honey-gatherers.

There are bee-keepers who keep bees, and then there are real bee-keepers.

Scrub bees, scrub bee-keeping, and scrub bee-keepers are usually found at the same place.

They say that bee-keepers should organize to protect themselves. Why must they always be on the defense?

Increased yields of the apiary must come through better management if the strain of bees is a good one; or if not, a good strain must be secured, and the yard graded up by using good breeding-queens of a known honey-gathering strain. Here is where improvement of stock comes in.

All that is needed by a good many people with the patent-medicine habit is to get out into the sunshine. The apiary would be the place for them. Surely nothing could bring relief better than the bright sunshine, the fresh air, the hum of the bees, and outdoor exercise. Besides, fresh air and sunshine are a very good sort of life insurance.

The best of every thing is absolutely independent of market conditions. The best creates its own price regardless of those who control ordinary market conditions. The writer has seen old dark honey offered at 25 cents a gallon and the seller hunting for buyers, and at the same time and place he saw extra fancy comb honey in sections selling at 25 cents a pound, and buyers hunting the seller.

#### TWO APICULTURAL BULLETINS.

A bulletin on "The Rearing of Queen-bees," by Dr. E. F. Phillips, Acting in Charge of Apiculture, Bureau of Entomology, Washington, D. C., came to my hands same time ago. It is just such a bulletin as I have wished for while at the Texas Experiment Station. Many questions were received in regard to the best methods of queen-rearing and other information on this subject. This bulletin could have been mailed to such inquirers. It contains in compact form the latest methods for rearing queens, and much other information that will aid in producing a better stock of bees.

Another bulletin hails from Cuba, Circu-

lar No. 29, Estacion Agronomica, on "Raising Bees Here in Cuba," by Ernest W. Halsted. It is in the Spanish language, of a practical nature in its contents, and largely illustrated with half-tone plates. Such a bulletin should do much good among the common class of bee-keepers in replacing the still much used "corchos" with our modern frame hives, and leading the Cubans to adopt the more modern methods and appliances.

#### A HANDFUL OF BEES IN THE FALL.

In Southwest Texas a mere handful of bees in the fall, given a prolific young laying queen, and placed on full combs of honey in a hive, will give wonderful results the following season. They will winter safely, as they go into winter quarters with a lot of young bees. The usual fall honey-flows are splendid to stimulate these little "babies," and by winter they are in a prosperous condition to come out next spring and breed up to strong colonies for the honey-flow. There is an abundance of nectar and pollen yielding flora throughout the early spring, beginning in January; and when the flow comes in April these handfuls have turned into rousing colonies to roll in the surplus.

Having a young queen, there is little swarming; and the less a colony is inclined to swarm, the more honey it is likely to gather. The rearing of drones is also reduced to a minimum—an important factor, also, as it is with old queens, an overproduction of drones means a lot of useless consumers and a drain upon the colony in that respect alone. Young queens will keep brood-rearing going until late in the season, putting the colonies in the best possible wintering condition. Late brood means a lot of young bees over winter to do their best in early spring when a strong force of such bees is worth as much as five times as many later in the season.

Old queens will cease laying at the cessation of the honey-flow. The colony winters with old bees which die off rapidly early next spring, and leave the colony weak at just the time when vigorous young bees are needed. In consequence of this fact, colonies with old queens drag behind all season, to be outstripped by the others. The bee-keeper can easily figure on which would yield the best results. In my experience, young vigorous queens of the previous season's rearing are what I want.

#### OUTDOOR FEEDING.

It becomes very necessary at times to feed bees, and there are many ways of doing this. My preference is to give combs of sealed honey either from strong colonies or from a stock of such combs stored away in the honey-house. Of these, one can not always be in possession, however, especially during or after a poor season. Extracted honey would be our next resource, if we have it, for I have always been much opposed to using any kind of honey from other sources except our own, *unless* we are absolutely certain that there is no danger of

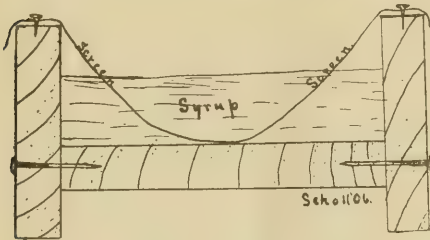


spreading diseases or foul brood. I would rather feed sugar syrup. It is safer, and cheaper and better in the long run. Besides feeding in the liquid form, cakes of sugar candy can be placed over the cluster. This is preferable for winter feeding. Cakes of solid granulated blocks of honey will answer for this purpose most admirably.

The syrups are fed in two ways—either in the hives, or outside, in long troughs. Here in the South, and for wholesale feeding especially, the latter is mostly practiced.

We have tried several ways of outdoor feeding, both in spring for stimulative purposes, and in fall and spring for stores when "the bees had run short." The most satisfactory way has been that of S. I. Gilbert, Jr., of Carrizo Springs. While I was at his apiary the bees were having a glorious time—a heavy honey-flow was on, yet the surrounding country was bare of any bloom.

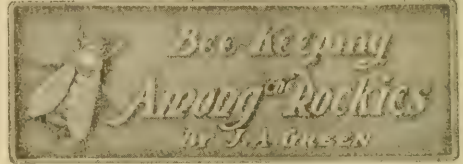
The source was soon located. The season was a poor one, and wholesale feeding had to be done, and outdoor feeding was the most practical, economical, and cheapest in this case. Extracted honey was fed several hundred yards from the apiary. There is one good point well worth remembering when feeding in this way. The distance the feed is placed from the apiary makes a difference. It should be far enough away to make the bees fly home more as though they came from the fields during a honey-flow. When the trough is too near or even in the apiary, as I have seen in several instances, there is greater danger of robbers molesting after the feeding is over. There seems to be little danger on this score when the feeding-trough is further away.



The trough used is very simple in construction, and easily made, hence I should prefer it. A long fence board or plank, 1×6 inches by about 16 feet long, can be found around almost any bee-keeper's or farmer's home. Also two others of about the same length, but only 4 inches wide. These are nailed on the sides of the six-inch plank to form a long narrow trough (see sketch of cross-section). Short end-pieces are nailed on each end, and the whole is covered with a narrow piece of common screen wire cloth in such a way that the cloth will sag down to the bottom of the trough in the center. The edges of the cloth are tacked all along to the upper edge of the sides of the trough. This screen prevents the drowning of the bees, and the syrup can be taken by them to the very lowest level.

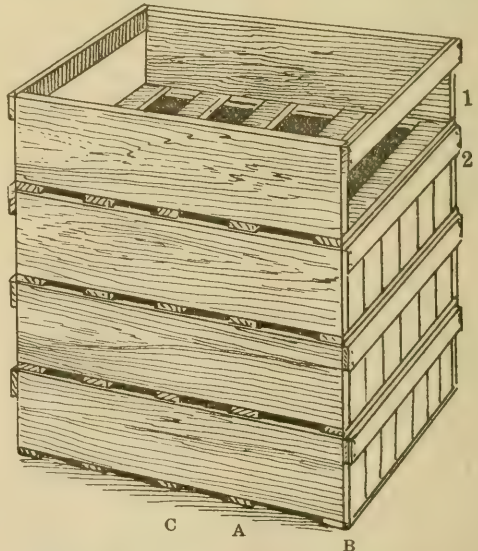
After all the syrup needed has been fed, water is added to the liquid, adding a little more at intervals until pure water remains in the trough. In this way the bees are weaned, and robbing prevented.

At the yard of 260 colonies (shown elsewhere), located on the banks of the Nueces River in West Texas, seven barrels of sugar were used in feeding for winter stores late in the fall, after a poor season. But such should be very seldom.



#### STORAGE-CRATES FOR COMB HONEY AND SECTIONS.

The engraving shows a pile of storage-crates filled with sections except the top one, which is empty, the better to show the construction. The engraving is a little faulty in that the tops of the sections in the fill-



Distance A to B should be less than C to A instead of greater.

ed crate nearest the top do not show as they should, through the open bottoms of the empty crate. To understand more fully the construction and uses of these crates I would refer the readers to page 75 of GLEANINGS for Jan. 15. These crates are made of any cheap lumber, the only point where a mistake is likely to be made being the making of them of unseasoned lumber, so that the side pieces, when they shrink, are less than the height of the section. I pile these crates up,

even when full of honey, as high as I can reach; and it is necessary that this weight should not come directly on the sections. In piling up sections that are to stay any length of time in the crates, always lay a piece of paper over each one, which makes it practically dust-proof, especially if the paper is long enough to extend down over the ends of the crates.

Pile your honey in a hot dry place. If there is any suspicion of coolness or dampness about it, do not put the honey near the floor or in a corner. Have it at least a foot from the floor, and where the air can circulate freely all around it.

#### LIGHT BROOD FOUNDATION.

Friend Scholl argues on page 208 for the use of the lighter grades of foundation. I had always myself believed in the use of light foundation. I made it myself, and never had any trouble with it on account of light weight. But two years ago I filled a number of frames with light brood foundation, well wired. When I came to use these frames, I found the foundation buckled and bulged so that I hardly got a perfect comb from the lot. Three reasons occur to me for this. One is that the frames were filled in cold weather. Some have claimed that such will always buckle.\* Another is that the frames had been stored in a rather warm place for a time previous to use—possibly too warm for the foundation to stand. The other is that it was the new Weed-process foundation. Some claim that this buckles worse than the old process. Which of these reasons is responsible, or whether the failure is to be laid to a combination of two or more, I do not know. I wish I did. Heavier foundation of the same make had worked all right the season before. In this case the use of light foundation was far from being a saving, if it was the weight that was responsible.

#### SIZE OF ENTRANCE FOR SPRING.

Better contract the entrances of the hives pretty closely until the weather gets warm and the colonies strong. This helps along brood-rearing by keeping the hive warm, and is a safeguard against robbing.

#### SIZE OF ENTRANCE FOR WINTER.

Last fall I objected to the advice to contract the entrance of the hive for winter. I am more than ever of the opinion that it is best to have a good-sized entrance until brood-rearing begins in the spring and the weather is reasonably warm and settled. Last fall I inspected an apiary which I found in unusually good condition for the season. All except some of the later swarms were strong in bees, and with an abundance of honey. Such colonies almost invariably winter well here. Yet this spring more than half of them were dead. They died with a hive full of bees and an abundance of honey. The combs were wet, and every thing looked as though the bees had smother-

ed. The owner had contracted the entrance to a space about  $\frac{1}{4} \times 1$ . I believe if he had left the entrance full width almost all that had honey enough would have lived. I think this mistake cost him forty or fifty good colonies of bees. An apiary of mine only a little over two miles away lost less than ten per cent, and another apiary only a mile away wintered as well.

#### STARTERS IN WIRED FRAMES.

The question is often asked whether frames can be successfully wired when only starters are used in the frames. If care is taken to have the hive level, the bees will build over the wire almost as well as if it were not there. I have had hundreds of such combs built, and I find just one objection to the plan; and that is, that it results in a greatly increased amount of drone comb being built. When the comb-builders in extending the comb downward reach the wire it seems to break up the regularity of their work a trifle—just enough so that, if the tendency to build drone comb is present, they seem to think it is a good place to make the change.

#### CORRUGATED PAPER IN SHIPPING-CASES.

On page 297 the editor appears to think that the weight of sections on a narrow strip of corrugated paper would crush or mash down the paper. Possibly the ordinary drip cleat, about  $\frac{3}{4}$  inch wide, would do this; but in my use of the paper some years ago I used a strip of the paper an inch wide, just as the no-drip cleats are used. The end tiers of sections were thus supported by  $1\frac{1}{2}$  inches, and the central tiers by only an inch of corrugated paper. Something over 200 cases were prepared in this way. Most of these were shipped to towns about 40 miles away. I went with it myself, delivered it to the grocers, and had a chance to inspect it all myself. These narrow strips of paper, while slightly flattened down, had not lost all their elasticity by any means, but would have been good for a much longer trip. [I never tried the corrugated paper one inch wide; but I did try the narrow drip cleats on the paper, and found that these narrow edges would break down the corrugations when the ordinary weight of sections was applied. This, of course, would destroy the cushion effect so necessary.—ED.]

#### CAUCASIAN BEES.

I deeply regret that the government has undertaken the distribution of these bees without further test of their suitability for the general purposes of bee-keeping, and I hope that no one will get any of them unless he is prepared to take the fullest precautions to prevent their mixing with other bees. So far there appears to be much stronger testimony against them than for them. In fact, about the only claim made for them seems to be the comparatively unimportant one of gentleness. It may appear at first sight that the proper way to test them is to distribute them and let the public decide as to their merits. But there is an important difference between bees and other things in this respect. If the Department of Agri-

\*This is true. The work should *always* be done in a warm room.—ED.



culture distributes a worthless variety of radish, for instance, no one is greatly harmed. No one is likely to plant them a second time or to raise seed from them, and the bad results of the experiment do not extend beyond the experimenter, and disappear entirely in one or two seasons. But the one who introduces a worthless variety of bees into a bee-keeping neighborhood may do his neighbors hundreds of dollars' worth of damage which they are powerless to prevent, and the bad effects of which they may not be able to get rid of for a number of years. The worst feature of the business is that those who are least capable of properly testing them and judging as to their merits are the very ones most likely to undertake it.

#### SUBSTITUTES FOR POLLEN.

Feeding some substitute for pollen will be very profitable unless your bees have access to early flowers. As such sources of early pollen are rather scarce in many parts of the irrigated West, it will pay you to look after this.

#### SOURCES OF EARLY POLLEN.

The earliest blossom on which I have found the bees working has been the elm, March 15, closely followed by the soft maple. Both of these trees, however, are very rare in this locality. The first source of any considerable amount of pollen is the Lombardy poplar, about a week later, followed in four or five days by the Carolina poplar. Both of these succeed well here as shade-trees, and the Carolina poplar in particular is being largely planted for that purpose. The native cottonwood, common almost everywhere, comes next, and in many localities it is the first source of any amount of pollen. Then come the various fruit-trees, so common here. With these comes a bountiful supply of honey, and brood-rearing is stimulated to the utmost. Nothing should be allowed to check it after this. If honey from cleome or other natural sources does not fill up the gap between fruit-blossoms and alfalfa it will pay you to feed.

#### CLIPPING QUEENS' WINGS.

Get the wings of your queens clipped before the colonies get too strong. I know that there are a few who do not believe in clipping the wings of their queens, and that there are a great many who, for various reasons, neglect it; but I do not know how any one keeping bees on a commercial scale can afford to try to get along with unclipped queens.

#### KEEP YOUR HIVES TIGHT ON TOP.

See that your hives are tight on top during the early breeding season. A little leak at the top of the hive will let a great deal of heat escape, and discourage brood-rearing greatly if the colony is at all weak at the start. As most of the covers supplied by the hive manufacturers will warp in a short time so as to leave cracks along the edges, a cloth of some kind is almost a necessity. Several old newspapers spread over this will help to make a tight and warm cover.



#### SWARMING WITH NO INCREASE.

"Good morning. This is Mr. Doolittle, the bee-man, is it not?"

"It is certainly Doolittle, and I keep a few bees."

"My name is Young; and I came up from Alabama to have a little talk with you on the swarming matter."

"Are you able to control swarming, Mr. Young?"

"No. If I had been, I should not come up to your cold climate to talk the matter over with you."

"But you know some claim that they can work so that they practically have non-swarming."

"Yes, I am aware of their claims; but after studying on and trying very many of these anti-swarming plans I find that they all fail sometimes, for it is natural for bees to swarm. So I have concluded to let 'em swarm."

"Yes, I see; and that is the way the most of us conclude, sooner or later."

"That is right; but I have as many colonies as I wish, and so do not desire any increase. I have a method by which I hope to have no increase, and yet allow of natural swarming."

"That so?"

"Yes, and my object in coming to see you was that we might talk it over together, to see whether you thought this method would work well."

"Very good. I am in a listening attitude."

"When a swarm issues, hive it in an empty super; and top of this put another super with sections filled with comb foundation. As soon as the bees get settled in these, take them and carry to their old stand; but instead of putting them on the old bottom-board, put them on top of the cover to the old hive from which they came, letting the hive-cover serve as the bottom-board for the new colony."

"Don't you have any frames or anything of the kind for comb-building in the empty super, under your super of sections?"

"No; for as soon as the swarm accepts their new surroundings and begins to draw out the foundation in the sections, and before the queen has a chance to lay any in these sections now being drawn, I expect to carry out my method by removing the hive-cover, which separates the two colonies. Then I will take out the empty super and let the super of sections, in which the bees are at work, right down on the old hive from

which they came. You understand what I have done so far, do you not?"

"Yes; go on."

"Now, does it not seem plausible that the bees would keep right on at work in the sections they have commenced in, and the queen go down into the hive from which she came, and, after destroying the queen-cells there, the colony be satisfied, and continue work right along in the sections without any further swarming?"

"There is a possibility that this method might work in Alabama, but it will not here in York State. If I were in your place I would try a few colonies that way, and that will tell you for certain as to its being applicable to your section of country."

"Why will it not work in your State?"

"Because the queen would not go down and destroy those queen-cells unless there should come a great dearth of honey just after the swarm issued—not but that she would go down; but the bees of the swarm, together with those which had and were emerging from the brood in the hive would bring back the swarming-fever again, and the next day or two they would swarm; and even should the queen destroy the cells, or cause the bees to do so, if the yield of honey was not so great that all colonies gave up all idea of swarming in their mad scramble for honey, the bees would start queen-cells again; and as soon as they were ready they would swarm a week or so later, coming out as a prime swarm, the same as they did at first. I have gone all over this ground, and much more like it or very similar to it, and have found that there is always danger from swarming by any plan that returns the old queen back to the brood again, together with the bees that went with her in the swarm. But whenever the queen is kept away from brood till all the brood is sealed over, or all the bees which went with the swarm are kept away from the old hive, and their queen returned, we can be quite positive that no more swarms will issue that season, unless the same is long drawn out by a moderate flow of nectar."

"Well, what shall I do?"

"I have overcome the difficulty you seem to be in by putting on the sections quite early, so as to retard swarming as much as possible; then when the time for swarming came, set the hive from its stand, and put an empty one in its place, having dummies in it to take the place of four of the frames, if the hive used is a ten-frame Langstroth, which is as small a hive as I should use if I were working on any of the plans which contemplated no increase in the apiary. Now set the super of sections from the old hive and look over the brood-combs, and all that you find that are not more than one-fourth full of brood, and all that do not have any brood in them, put in your new hive. In an ordinary season, and with the ordinary queen, you will find from two to four such combs; and these, together with the needed frames filled with worker foundation in wired frames, will make you six

combs now in the hive, which, with the dummies, fill the same. Over this hive put a queen-excluder, and top of the excluder set the super of sections. If the sections are of the open-top kind, put a sheet of enameled cloth over the whole top of the super, except a little place large enough to allow two or three bees to pass at a time, and this place should be in the center of the end over the entrance to the hive. Having things thus fixed, shake the larger part of the bees off the combs remaining in the old hive, making sure that the queen is in the lower hive, when the frames of brood are to be arranged in the old hive, next one side, a bee-space apart, and a dummy or division-board drawn up next to them, when this hive of six or seven combs of brood, with the few adhering bees, is to be set on top of the enameled cloth and left for ten days."

"Don't you look for queen-cells, and only make colonies in this way that have cells started?"

"No. I can make the change almost as soon as I can look for the cells, and it makes no difference with the plan whether queen-cells are started or not. This going over all colonies once every week looking for queen-cells, as many advise, is an endless job. When you and the bees are ready, you just go right on and do the work, and you will find that such as have queen-cells started will do no better than those which have not. By going right ahead when you and the bees and the harvest are all ready, you have your swarming all done up at once, and you are ready to go at other work. If, in shaking, you find any queen-cells with larvæ in them, or those which are sealed, you will want to tear them off, else they may hatch before your next manipulation, and bother you in your work."

"What is the next operation or manipulation?"

"Ten days after making the colonies swarm, you will look over these combs of brood in the upper hive, and take off all queen-cells that you find on them. Some of the colonies will build cells, and some will not; but it is best to be on the safe side, and look all over. It will not take long; and as the bees will be mostly below, all queen-cells will be easily seen."

"If I am right, that fixes the upper hive so the bees can not get any queen there, does it not?"

"Yes; and at this time you will want to see about the super room. If the sections are getting full, put another super on top of them, raising the sheet of enameled cloth to the top of the super last put on. In this way all the young bees which emerge from these upper combs of brood will be run below, thus helping in the sections, while enough will stay at all times to care for the brood properly."

"Then you keep all the bees together in this way the same as I would by my plan?"

"Yes."

"Well, what next?"

"Keep on putting supers between the



hives as needed till the end of 21 days from the time of making the swarms, when the dummies are to be taken from the lower hive, and that hive filled out with combs from the upper, when the bees are to be shaken from any remaining combs, and from the hive, and the same stored away for the next season's use, or the combs massed together on some hive worked for extracted honey, or for reserved combs of honey for feeding the next spring."

"Is that all there is of it?"

"Yes—all but one thing; and that is, if there is any drone brood in any of the combs which go above the queen-excluder, some means must be provided to get rid of them, otherwise they will clog the queen-excluder and die there. I generally do this by boring a half-inch hole at the bottom of the upper hive near the center. In this way the most of the drones and workers which may chance to go out at this hole will find their way in at the entrance below. By using this plan you need make no increase, and yet obtain good results in section honey."



#### ORDERS OF INSECTS—CONTINUED.

Except for the large robust robber-flies and the small bee-lice the *Diptera* are not practically important to the bee-keeper. The robber-flies are of two types—the long dark-gray (often almost black) ones, and the shorter yellow hairy flies. These latter are very much like the bumble-bees in form and color. In many States these flies capture and suck bloodless many bees, yet there are so many bees in the colony that they rarely do serious harm, while in destroying insect-pests they do us great good. As I have stated, the bee-louse seems not to gain any considerable foothold in America. There is also one group of true parasites among the *Diptera*—the *Trypeta*. These parasitic insects lay their eggs on or in other insects. When these eggs hatch, the larvæ commence to feed on their living host, and fairly dismember it. The *Tachina* flies lay their eggs on their victims, and often to a great number. When the maggots are full fed they come forth and assume the seed-like puparium stage. The mature insects, or tachina flies, look much like house flies. Some are quite small, others quite large. Thus with *Diptera* as with *Coleoptera*, or beetles, and bugs, some are injurious while others are useful. Many are also useful in destroying and removing corion and other forms of decaying organic

matter. Beetles also aid them in this good office. We can often collect fine beetles and flies in a dead carcass or in decaying fungi or vegetables.

We have noticed how almost every order of the insect world directly affects the bee-keeper, as some of the members essay to injure his pets of the hive. Among the nerve or lace wings—*Neuroptera*—the dragon-flies are ever alert to swoop down upon and devour the incoming worker with its load of precious nectar. The mantis, among the locust order—*Orthoptera*—is equally partial to a banquet of bees. The stinging-bug—*Phymata*, of the *Hemiptera*—lurks among the bloom of the goldenrod, waiting to seize and feast on some luckless bee that comes fearless for the nectar droplets. The thrips—*Thysanoptera*—harm the bee-keeper directly only in destroying the bloom; and the bird-lice—*Mallophaga*—in annoying the fowls, which often share his attentions with the bees. The beetles—*Coleoptera*—are the least harmful, as *Dermestes* and the meal-beetles work only on the dead bees and bread of old combs. Among the *Diptera* are found the savage robust robber-flies, which, doubtless, of all those mentioned above, are our most formidable foes.

#### EXACTITUDE.

Dr. Miller's observations tally with my own regarding the bee-space. While a scant  $\frac{3}{8}$  is often found between combs, it may be reduced even to a scant  $\frac{1}{8}$  or  $\frac{1}{4}$  inch. The old idea of unvarying cells in the comb, and exactitude in spacing, must be given up. Mr. Cowan, in his excellent book, gives a fine description, with illustrations, of these varying cells. He shows what we may all observe by careful inspection that cells vary, not only in size but also greatly in form. In some cases even four-sided or nearly square cells are discovered. In regard to the bee-space I also found that the narrow or smaller one gave the best results. While exactitude is not a characteristic of the bees, it is a necessity with the Heddon hive. This fact, with the difficulty of getting hives just precisely right, led me to return to the Langstroth hive after using the Heddon for a time. I am interested in learning that Mr. Hutchinson is also now of like mind. I hardly think Mr. Taylor will ever change.

Berlin, Prussia.

#### SHIPPING BEES FROM THE SOUTH.

I want to say for the benefit of all who ship bees from the South, don't do it. I shipped two cars, 600 colonies, and they nearly all died that winter. They were nearly all Italians. They filled their brood-nest so full they all froze, and they dwindled badly. W. L. COGGSHALL.

Groton, N. Y., Jan. 27.

[This little item, though short, may be worth many times the value of ten years' subscription to all the bee journals. Yet some say they can't afford even one paper. —ED.]

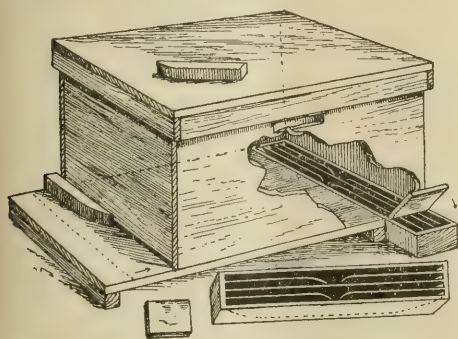


### SPRING FEEDING.

**How Stimulative Feeding Helps to Give a Good Working Force of Bees in Time for the Honey Harvest; How it Pays in Dollars and Cents.**

BY E. W. ALEXANDER.

In order to acquire the best results from our bees it is quite necessary to do all we can to build them up into good strong colonies early in the season, especially where our main harvest is from clover. We all know from sad experience what the result will be if it takes three or four weeks of the best of the summer to rear a working force to gather the little that is left when the harvest is nearly over. So let us see what can be done in order to have a good working force in every hive at the commencement of our first harvest of surplus. I know of only one way to accomplish this, and that is by stimulative feeding from the time they commence to gather pollen until their hives are crowded with bees and brood. This can be acquired within 35 days from the time they first gather pollen, and costs only about 40 cents' worth of honey or sugar per colony, and a little time to build them up into strong full colonies ready for any harvest that may come, and is much better than to let those precious days go by and see your bees dwindle away to a mere nucleus.



THE ALEXANDER FEEDER AND HOW APPLIED.

With the feeder that is here shown which I will describe, it requires only one hour or less to feed 200 colonies; and in doing so you need not kill one bee nor waste a drop of syrup nor lose any heat from the colony you are feeding.

First, you see the feeder alone by the side of the hive; then you see it in position under

the back of the hive ready to fill, and a 4×4 block at the end of the hive to cover the end of the feeder when it is filled and in use. We feed the thin syrup quite warm; and the heat and odor as they rise up to the cluster, even though the cluster may be only a mere handful of bees, will start them at once for the feed, and in a short time the syrup will all be taken out of the feeder and put into a nice circle around the brood. There is not any other one thing connected with bee-keeping that I have tested more thoroughly in all its different phases than I have spring feeding; and if any other man had invented this feeder and the way of using it I should not hesitate one minute in saying that it was the most practical feeder that had ever been devised, for it is as convenient to use in the fall to feed winter stores as it is in the spring to stimulate early breeding; only in the fall put two or three under your hive at a time, and feed thicker syrup, all they may require, at once or twice. They are not in the way if left under the hive all summer; and if we have a cold wet spell in mid-summer, as we sometimes do, causing many colonies to destroy large quantities of their brood, all you have to do is to pour in a little syrup once a day while the bad weather lasts, and you will save their brood, and prevent them from becoming discouraged. And, oh how they will work when the flowers again commence to secrete nectar! I can truthfully say that, with us, spring feeding has been the means of our securing fully twice the amount of surplus honey from nearly every colony that we ever fed in this way, over what we could secure when the bees were left unfed, and they had to use three or four weeks of the clover harvest to rear brood and bees to gather the little they could find after the harvest was practically over.

The cut does not show the under cover of our hives. This has a  $\frac{1}{2}$ -inch bee-space on each side, and it is very handy to cover over the top of the hive when extracting. It forms two dead-air spaces between the outside cover and the top of the combs, which is valuable both in extremely hot or cold weather. You will also see in the cut the entrance to our hive, and the blocks we use to close the same when we wish in cool weather, so only one or two bees can pass at a time. I wish I could impress the importance of this one thing, spring feeding, on the minds of bee-keepers in its true light; for I am sure that, if we give our bees the proper care in this respect, they will repay it in a bountiful harvest at the close of the season.

I am receiving letters frequently from parties wanting some of these feeders for spring use; but as we have nothing connected with bee-keeping for sale except extracted honey in the fall, I must refer you to The A. I. Root Co., which, I think, will supply you with all you may want, at a moderate cost.

I am well aware that I am again in the minority on this important part of spring management; and I assure you it is not



pleasant to stem the tide so often; but I find I either have to do it or keep still. I have only to recall the result of some feeding we did two years ago to show you why I am so much interested in spring feeding. We fed one half our apiary (250 colonies) about 40 cents' worth of syrup apiece, shortly after taking them from the cellar, and, although these were the lightest and weakest colonies we had, we extracted during our clover harvest over seven tons of nice clover honey from the 250 colonies fed, and only about four tons from the 250 colonies not fed. But during the basswood and buckwheat flow there was no difference in the amount of surplus these two lots of bees gathered. That three tons of additional honey that the bees that were fed gathered, brought us  $6\frac{1}{2}$  cents per lb., or \$390, for about \$100 expense in feeding, and I might cite other cases of the same kind. And then last season, in order to test this subject still further, we did not feed an ounce to any colony in the apiary, and our whole surplus was but little more than half what it was the year before.

You can make the syrup very thin after they get used to it, especially for Italian bees, as they will take it if it is but little sweeter than good maple sap. They require considerable water in the spring, and I think it is much better to give it to them in this way, for it saves many from being lost in search of it outside during those cool changeable days of early spring.

My friends, in the above I have tried to show you as best I could how you can feed your bees in early spring easily, and at but small expense, so you will be able to secure not only a much larger surplus, but also a much surer one than you otherwise would; and when this is accomplished it goes a long way in placing our business on a more solid and reliable foundation than it has ever been before.

Delanson, N. Y., Feb. 24.

#### IF I WERE TO START ANEW, WHAT STYLE OF FRAMES, SUPERS, AND APPLIANCES WOULD I ADOPT?

Argument in Favor of Wide Openings to Sections.

BY R. C. AIKIN.

Mr. Editor, I am going to answer this question straight, and without the bias "that I would use standard goods because they are standard." I have convictions that are not and have not for some time been bound by things standard. If you do not believe it, read this. My sections, fence separators, supers, hive-bodies, inner covers, outer covers, frames, and honey-boards are made to order. Even my shipping-case is too. Do you suppose I would be to all this trouble if there were not a faith behind it all?

I am adopting, have been for several years, supplies different from all others. May be crankiness in me causes it; but I have always

been possessed with a spirit of investigation and a burning desire to be original, and not simply follow the crowd without a reason for so doing. I will tell you some of the details of what I have *practically* adopted.

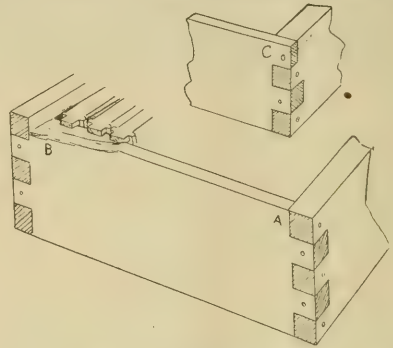


FIG. 1.—RIGHT AND WRONG WAY TO MAKE HIVE RABBETS.

However, before describing my pet hive I will briefly tell of my ideas about some of the more standard goods as I have them made.

First, the dovetailing on hive-body ends used to be as at A in Fig. 1; and, when nailed, the best we could do, there stood up that thin  $\frac{3}{8}$  flange from the frame-rest rabbet, supported simply by its own strength. The top edge of both ends and sides tends to warp outward. Then, too, those thin edges would split off, exposing the frame ends as at B. I protested, but to no effect until I took Mr. Lewis, of the G. B. Lewis Company, and *showed* him how. He went home and changed his machinery, and they are now made as at C; thus that thin upright is nailed into the full heavy thickness of the body side. This is a decided improvement. The idea was original with me, and I directed Mr. Lewis' personal attention to it in the State House at Denver. I believe others, too, had mentioned the idea, but I made it stick.\*

When getting Hoffman frames I have them special too. Yes, I use lots of them—almost *have* to when other people do, and I can't throw away all standard hives—too expensive. I have these frames made "full length" top-bars and said bars a plump half-inch thick only; and instead of the groove and wedge for foundation, the under side is simply a *plain surface*. The "full length" is to keep them from standing on the bottom if a hive-end warps out a little. It takes just a *little* warp to let the short frames drop, and to be able to use them in *all makes* of Langstroth hives.

Now about that groove and wedge. It is an out-and-out nuisance. Pound the wedges in—yes, take a follower-stick and drive them till they almost burst the bar; and if they stand in the dry awhile before using you will find the wedge and starter both lying on the

\* The A. I. Root Co. has also been making the hive rabbet as shown at C for months.—Ed.

bottom. I am compelled either to nail them in or fasten with melted wax. These plain

[If the grooves are made considerably deeper than the width of the wedge there should be no trouble. The wedge should be driven *below* the surface of the wood.—ED.]

top-bars are both better and cheaper than the regular. I drop the frame over a board, the top-bar resting on two stops so the foundation is centered, the bottom-bar on only *one* stop at its middle. (A three-legged stool stands firm on any surface. Four legs must have every thing even.) Cull wax is put in a tin cup or old can, and set in a wire frame over a common small lamp. The liq-

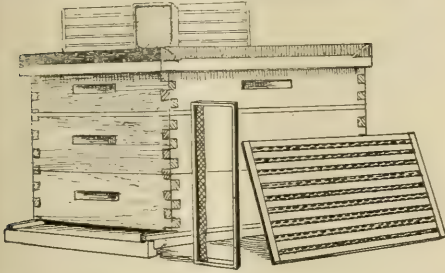


FIG. 2.—AIKIN'S SECTIONAL-BROOD-CHAMBER HIVE.

uid wax is poured from a common teaspoon, and forms a line of wax down one side of the starter. Take this frame off and put another on, and continue till you have stacked up quite a bunch; then lay down the board and pick up the frames one by one, pouring more wax on the *other* side of the starter just as you did the first side and it is done. It is *fully* as quick and easy as the groove-and-wedge plan, does not take any more wax, and *stays* put. The plain bar is cheaper, and can be scraped smooth and re-started nicely. Let all factory people adopt the plain bar and this method of fastening starters. Now for *my* pet hive.

It is the sectional or divisible-brood-chamber style. The bottom-board is very similar to the common dovetailed-hive bottoms; a cleat is on the upper side, just like all common bottoms in use. The *body* parts may be either dovetailed or halved at the corners, and there is not another mark, rabbet, or cut on them save hand-holds—just the plainest simple box without top or bottom. It is  $5\frac{1}{2}$  deep, 12 wide, and  $16\frac{1}{8}$  long inside. A metal strip is used across each end for supports, just as in the common dovetailed supers, to support section-holders.

The frames are the standing style (see Fig. 2), just as plain as can be—end-bars  $\frac{3}{8} \times 1\frac{3}{8} \times 5$ ; top and bottom bars scant  $\frac{3}{8} \times 1 \times 16$ . When nailed it is  $1\frac{3}{8} \times 5 \times 16$ . Each body takes eight frames with a follower board, and springs to take up slack. The follower is very simple too, and the springs the same as commonly used in supers. An inner cover of  $\frac{3}{8}$  lumber, cleated on the upper side and flat on the under side, and as wide and long as the body, covers all.

But the outer cover—well, Mr. Root, *my*

outer covers are cheaper and better than your regular ones of either Excelsior or Colorado pattern. It is just a plain rim about two to three inches deep, and large enough to telescope the hive-bodies easily, about  $\frac{3}{4}$ -inch play on one side and end when the other side and end are shoved up snug to the body. On this rim is nailed cheap lumber, and over this any water-proof that suits the fancy of the user. I have some of cloth and paint, some of Neponset paper, some tin—don't know yet which covering is best. I do know such a cover is simple, cheap, and good—used not to keep bees in or out, but is merely the sun and rain protection over all.

#### THE SUPER.

At present I am using a T-tin support. It is just a brood-body with T tins added. I make saw-cuts, and nail the T in. The separators used are fence style but special. They are 5 inches deep, just the depth of the sections. In other respects they are a regular fence for T supers; and that the reader may understand why the fence is full depth—that is, 5 inches—I must describe

#### MY SECTION.

It is unique—none like it that I know of,  $4 \times 5$ , and made to order. It is  $1\frac{1}{2}$  wide; the scallop is  $\frac{3}{8}$  deep instead of  $\frac{1}{4}$ , and it runs *clear out to the V groove*. It is 5 inches deep, so is the fence. The  $\frac{3}{8}$  scallop, or beeway, in the section and the  $\frac{3}{8}$  post strip on the fence make a  $\frac{1}{4}$  beeway when the two are put together; and this beeway runs *clear out to the side of the section*. Do you ask why?

In the old four-piece nailed sections we used to saw out of common pine lumber, the top and bottom bars were the *same width*, their *entire* length plump to the side-bar. They were better finished to said tops and bottoms, and fewer holes at the corners than can be had with the common scalloped section of to-day. One of the reasons your plain sections are better finished is you have gotten back to the old idea, which was almost a necessity in the four-piece section. In the common section, when the bees reach the end of the scallop where it *rounds out* they *round in* the comb, leaving a hole in the corner. Do you see? I told you this more than once before, but you did not heed. Yes, *my* section is a  $4 \times 5$ , scalloped  $\frac{3}{8}$  full length of both top and bottom. "It's a dandy too."

In filling a super, first put in a fence. This gives the "Pettit idea" of allowing bees to pass up freely at the sides, etc. Then it is a row of sections and a fence, and so on till full, with a fence next the last side, and two springs put in to take up slack. One-eighth-inch cleats are on the inside of both super and brood-body, opposite frame ends. This makes a bee-space outside that first fence to start with.

#### THE HONEY-BOARD.

This, too, must be made to order. Look at that picture. See that a zinc strip is next each side-bar—not only this, but the



slats between zincs are only about  $\frac{3}{4}$  inch wide. I want the honey-board so the bees can pass right up the hive side with the least possible obstruction, and I want the whole honey-board with just as much zinc in it as it can have and yet be rigid. The slats I use simply and solely to prevent sagging. No further description of this is necessary.

The foregoing, together with the illustrations, I believe makes clear the hive I am adopting—have adopted, except the fence-separator part. The one I am using is not my ideal. I have invented both a separator and a machine for their manufacture, but have not yet gotten them into use. My separator will support the sections, yet sections and separator will touch only at section corners except at the separator ends next super end walls. There will be free passage of the bees in every direction through the super.

My reasons why are only partly given in the foregoing, and this article is already long. Very few people have succeeded with such a hive, and the reason is they do not know how. Such a hive brings in principles not much used and not understood; but when I have told *how*, I think most readers will see much of advantage in the hive and its system of management. My next will tell of what can be accomplished, and why.

#### ARE SECTIONS DETRIMENTAL TO THE HONEY MARKET?

Selling by the Piece and by Weight.  
Concluded.

BY G. C. GREINER.

[As the reference to page 1119 refers to GLEANINGS for Nov. 1, 1905, it may be well to make a little explanation for a better understanding on the part of those who may not have this particular issue of GLEANINGS at hand. In that number I stated that, in order to make selling by the piece at all practicable, the honey should be graded so that all the sections in one case would be practically of the same weight. This would make it necessary to have perhaps three different grades in weight. The light ones could be put in one case; the medium in another, and the "fancy" in still another. With this explanation the reader will be able to understand more intelligently what follows.—Ed.]

In speaking of grading honey, page 1119, the editor hits my case exactly. I have on my bench three sections which I have set aside as grading samples while I was sorting and preparing my crop for market. The first is, with the exception of a loop-hole at each corner, all built out, is solidly hitched to the wood, and every cell is capped. It is about the heaviest I could find, and might be called an ideal fancy section. The second has here and there a few loop-holes, about all bordering cells are open, and some empty, and it would probably pass as a No. 1 section. The third is nearly all capped, and well braced to the wood; it has quite large openings on the outside, and belongs to the class of light-weight sections. This latter is the limit in regard to weight, which I sell at full price. The three weigh, as nearly as common scales would indicate, 17 $\frac{1}{2}$ , 16, and 14 $\frac{1}{2}$  ounces respectively.

I try to sort my crop according to these three samples, not by actual weighing, but by the eye, with the assistance of my hand as scales. The object of making these three grades is not to sell at different prices, but to serve my customers alike as much as possible, and thus overcome in a great measure the unpleasant feature of selling by the piece.

Whenever I am on the road selling or delivering honey I always carry only one grade at a time. Whether I sell to the retailer by the crate or to the consumer by single sections, all get the same grade of honey. After one kind is closed out I take the next grade in the same way, so that the chance of selling different weights at the same time and in the same place is greatly reduced.

To gratify our conscience the question might be asked, "Why not sell these different weights at correspondingly different prices?" Well, this is the point where the shoe pinches, and where the impracticability of selling by weight comes in. If we had three fixed types, like our samples, to deal with it could be easily done, although approximately only; but we must bear in mind that our samples are the extremes, supposed to be the only ones of that weight among the whole crop. Any crop of section honey from the lightest to the heaviest flake, could be arranged in such a gradual progression that the difference between any two neighbors could not be detected by common scales. Where, then, should we draw the dividing line and jump from one price to the other? No matter where we break off, we should be compelled to charge different prices for practically the same weight of section, and that would never do if we expect to keep on the right side of our customers.

Any consumer will notice at once a difference in price, little as it may be, but not one out of fifty could see a difference between sections which we were selling at different prices unless they happened to be from the extreme ends of the line. Even the honey-producing expert is many times at a loss to know which grade certain sections belong to. So, on account of the slight and almost endless variation of the weights, the selling by weight would prove an extremely complicated affair, the difference being, in most cases, so little that neither the dealer nor the consumer would care to indulge in a pastime of this kind.

While taking this side of the argument in connection with the retail trade I am well aware of the fact that selling by the pound in larger quantities is not only quite feasible, but may give general satisfaction to both parties. Crates of 24 sections, sorted as above mentioned, will weigh, to express it in even numbers, 22, 24, and 26 lbs., according to grade—a difference sufficient in amount to pay for figuring up. However, to the producer it would be the same as selling by the piece. What he loses on one lot he gains on the other, and *vice versa*, unless he has one grade greatly in excess of the other.

But this is not the end. After this same

honey has been sold a few times by weight, and has reached the hands of the retailer, it assumes the nature of a ready-weighed package, and is sold by the piece to the satisfaction of all concerned. A great deal more could be said on this subject, but I will add only one more thought.

The neat and attractive appearance of our sections is held responsible for spreading the "Wiley lie," and, consequently, for the depression of the comb-honey market. Possibly there may be some truth in this assertion. What actual share of this crime our little sections are guilty of, I can not say. I have no facts to prove any thing positively; but whatever it may be, it scores one in their favor so far as I am concerned individually. The Wiley pleasantry does not hurt my trade in the least; on the contrary, whenever I am confronted with that artificial-comb-honey trash I am almost always sure of making sales. It is the best introduction I can wish for. It opens the way for a bee-talk; and whenever I can get people interested enough to draw them into a conversation on bees and honey I have generally secured permanent customers. I may not always succeed in convincing them that comb honey can not be manufactured, but it does not take me a great while to prove to their satisfaction that my honey is the real bee-product.

La Salle, N. Y.

#### BEES FOR THE HONEY-FLOW.

How to Have Strong Colonies when They are Needed.

BY R. F. HOLTERMANN.

The ranchman in the far West sometimes experiences a winter of such a nature that much of his stock dies, and spring and summer come with large areas of abundant pasture but little or no stock to gather in the grass, assimilate, and turn into beef. Not only is the pasture needed, but the stock. So it is with the bee-keeper. Bad wintering and unfavorable conditions for building up the hive are powerful factors in reducing the honey crop and therefore increasing the cost of producing that crop. When I was a boy on the farm in the backwoods of Renfrew County, Ontario, I remember the early settlers, when short of hay or straw, used to feed the cattle brush—"browse" them. Toward spring, perhaps some died; others could not get on their feet, and had to be helped up; and while there was not much beef on them, lots of material for broth appeared to be in plain sight. This was 35 years ago. Times have changed in dairying and stock-raising since then. A farmer carrying on his business in that way could not survive long. Bee-keeping is still conducted on this principle by many. Stocks perish, or are so weak in the spring they take all the best part of the summer to build up, through improper conditions of hive or surroundings, that they give no return for a very

small percentage of what they ought to give, and the bee-keeper does not get the profit he should. In this article the object is to take up

#### SPRING MANAGEMENT.

As I see it, large hives and the prevention of swarming give us more uniform colonies to go into winter quarters, and should give us more uniform colonies to come out. Then plenty of stores should be provided the autumn before. No matter what our opinion may be about spring stimulative feeding, we are, upon reflection, agreed, however little we may carry it out, that bees should be provided, not only with plenty of stores for winter or the season of non-production, but to give bees unstinted stores for brood-rearing during the spring, and to tide over the time when brood is reared but insufficient stores gathered. A good stock of bees, of *proper variety* and plenty of stores in a sheltered place, can do wonders in the way of increasing, even if left alone at this season. In fact, any one not skillful had better leave them alone. They may easily do more harm than good.

By "proper variety of bees" I mean a variety of bees that will rear brood in the spring, and carry the rearing of brood through gaps when there is nothing to stimulate them; more than that, bees that will feed the larvæ properly at such times. In this respect there is an immense difference in bees. In my estimation, laying aside the Cyprian and Holy Land bees, which have too many other objectionable features, Carniolan bees have a grand propensity in this direction, and for several years I have found bees 25 per cent Carniolan, and the rest Italian blood, very satisfactory. Careful observation with many stocks and varieties of bees show us an immense difference in the way bees treat brood. In times of activity some queens will deposit eggs, and the bees feed the larvæ; adverse circumstances step in, such as cold, non-pollen and non-nectar gathering, extracting the loose honey in the supers after a flow, and the bees destroy the eggs and young brood. Others feed the larvæ in a very indifferent way, and no doubt bees thus fed, like any other stock indifferently nourished, will not do as good work, will resist less cold winds, may carry a smaller load, live a shorter time, and be inferior all through. Bees of the above kind, occasionally stimulative fed, with cold weather between, may and are likely to be worse off than if not fed at all. The vitality of the old bees is exhausted more rapidly than if left alone; and in extremely unfavorable weather, which, of course, rarely occurs, the bees lose or partially lose much immature brood and eggs.

There may be strains of Italian bees which can be made to do this equal to Carniolans. I do not know. Seeing the value of keeping fixed types in breeding I should like to keep varieties in their purity; but my ground is much like Dr. Miller's. If we can not get this in one variety, then mix.

Stimulative feeding is practiced much in



Germany and other European countries. It may be prejudice (I think not) because I was born in Germany; but in such a matter I value German opinion. They are a people who have distinguished themselves in research work in almost every line of agriculture. In apiarian discoveries they stand pre-eminent. They have discovered principles which have been developed and improved on this continent. They get down to close observation and investigation, spending, if need be, a lifetime upon the solution of a question, for which we have not the patience, and we think we have not the time, but which is, nevertheless, essential in the work of *investigation*, be that work carried on in Germany, England, Washington, Ottawa, or Guelph.

With a proper hive properly protected, plenty of stores, and the right kind of bees, I have found stimulative feeding a good thing when the bees, owing to the season, are not naturally stimulated. Open-air feeding is good with proper weather (mild) between natural flows. Bees must not get enough to store surplus. They must clean the feed up before the cool of the day. It must be sufficiently distributed, and accessible so they will not fight for it. It should be half water, half syrup, for they want diluted feed at that time, and it should never be honey or partly honey. Bruising honey on the hive-combs every few days is an excellent way to stimulate; but one trouble is that it can not be done when most needed. This is also true of outdoor feeding. When cold weather follows warm, and when the bees have eggs and young larvæ, is when I want to feed.

In connection with my queen-cell detector I have a small feeder to slip in the place of the detector. The feeder is filled through the end opening of the hive, and can be filled in the coldest weather. It brings food directly into the cluster of bees. The originality of this device will readily be seen when I say a patent on this was granted to me in the United States and in Canada in connection with my hive. This feeding must not be done when bees are almost flying. In cold weather it will not drive the bees out looking for more. Ordinarily the best time to feed is at the close of day. Let us remember that bees, during the broken weather, rarely if ever store much surplus; and if they do, it is only strong colonies that can ripen and protect it. Very weak colonies I would not feed to stimulate—only fair to strong, and in proportion to their strength. What is the difference next day between a colony which has, owing to a fine day, gathered naturally, and one which is fed toward evening of the same day? I can see none and find none. One is no more likely to leave the hive and hunt for honey than the other.

#### FEED THE HIVES YOUNG BEES.

Weak stocks I was determined to save. I would contract, spread the combs a little so more bees could cluster between the combs and keep themselves and brood warm,

and then give them, from strong colonies, young hatching bees. See the queen is not on the comb; shake the comb moderately so as to dislodge the old bees; put a smooth board in front of the weak stock, and shake the remaining young bees a foot or more in front, seeing that they walk into the hive for which they were intended.

Many a weak and dwindling stock carefully nursed by the bee-keeper is, however, not worth "house room;" is often robbed out, and leads to others being robbed, and would better be destroyed, the increase being better secured by the nucleus system and a laying queen later. When the brood-chamber, twelve combs, is full of brood, honey, and bees, then from these I take combs of hatching bees and give it to the next fullest colonies, *retaining the bees in the ranks of surplus honey-gatherers*. If I gave them to the weakest colonies the brood might be chilled, and their stocks might not be ready for the first surplus, and the bees be largely lost to me. So I go on getting a larger number of full colonies rapidly. In these strong colonies the empty combs are at once filled with brood, and more field-bees secured for any flow five weeks or more hence, or hive bees three or more weeks hence. The weakest colonies are occasionally reinforced by young bees from strong stocks, as heretofore described. In this way stocks are greatly equalized, and yet the bees are almost altogether kept in the working ranks.

It must be seen that the bees, in seasons favorable for honey-gathering, are not allowed to clog the brood-chamber with honey. If this is allowed, the strongest colonies may, for lack of brood-chamber room, actually fall behind stocks which, to begin with, were second class. Any stock which has eight frames of brood or more has a division-board put in it, and is supered when the flow begins, and the brood-chamber is enlarged only as they show symptoms of preparing to swarm, or other stocks do so, and it is necessary to take brood from these latter. By this system I get the fewest blank hives for the honey-flow, and have the best crop.

Brantford, Canada.

---

#### SOME RECENT STATEMENTS DISCUSSED.

The Importance of Shutting off the Light from Bees that are being Hauled.

BY A. E. WHITE.

In GLEANINGS for Sept. 1, 1905, is an article by W. L. Porter on moving bees without closing the entrance. He says, after loading cover them with canvas. For many years I have covered my load of bees while moving. My wagon-box is tight, and has high sides, holding two tiers, of twelve each, of single hives. I cover them with blankets so as to exclude the light. In this way they will go safe with less ventilation, and they will also stand more than when not covered. If they find an outlet they will quietly cluster on the outside of the hive.

This is a safe way to move bees, and no doubt Mr. Porter has moved without closing the entrance; yet I shall always close the hive when I move bees.

In regard to moving bees, if they are in the dark they are more quiet. It is the light that keeps them excited. One year I lost several swarms by covering the top of the hive with screen wire, and leaving them open to the light while moving. They clung to the wire, and buzzed themselves to death.

#### STARTERS VS. FULL SHEETS OF FOUNDATION.

I have seen it stated in bee-papers that starters are better to use in some cases than full sheets of foundation in the brood-nest. I have not seen any reason given, yet I have read the statement many times. Now, will you or some one who thinks he knows tell *why* starters are better than full sheets at any time or in any kind of frame? Full sheets are surely much better for us here, and I prefer them to combs unless the combs are new.

#### FOUL BROOD—CAN BEES REMOVE THE INFECTION FROM COMBS CONTAINING DISEASED MATTER?

I was much surprised on reading the article on foul brood by Samuel Simmins, of England, in GLEANINGS for January 1. He surely can not expect any one who has had experience with foul brood to credit his concluding statement. Many years ago I lost 100 colonies from foul brood. I went all through and cut out every bit of diseased brood, buried it, and when the disease appeared again I cut again, but could not get rid of the disease. It appeared to be cured at times; but after a time it appeared once more. I lost the whole lot, and I am satisfied that only by giving new foundation, and getting rid of the old honey can the disease be cured. Mr. Gibson's article, which follows that of Mr. S., is not quite so radical. Did Mr. Gibson's bees clean out that rotten stringy mass? did they carry it out of the hives in their honey-sacs or in their pollen-baskets, or did they eat it up? Now, Mr. Editor, you say in a footnote to Mr. Gibson's article, if all such combs be removed, extracted, and the honey boiled, then you can see how, if the combs be given back, the bees would clean them up and remove the infection. Now, please tell us *how* the bees would remove the infection. We are liable to get foul brood here, and wish to learn all we can, if we can cure foul brood by simply extracting the honey. But do you think you could extract the foul brood? or do you think the bees would carry the diseased matter out of the hive? I suppose it is understood that bees will not uncap sealed brood.

I would dig a deep hole and bury the frames, honey, and brood. Last fall a man near Fallbrook, having his whole apiary affected with foul brood, sulphured his bees, then extracted the combs and set them out for his neighbors' bees to clean up. The bee-men in his neighborhood were much excited over the matter; and yet if there was

any truth in the articles mentioned he was doing no harm whatever. No one here can see why he thought it necessary to kill all his bees.

I have received great benefit from the A B C and GLEANINGS, yet I fear the articles written by Messrs. Simmins and Gibson may do harm, and your footnote makes the danger greater.

Lilac, Cal.

[I believe your argument in favor of a screen to shut off light from the bees while being moved or hauled is excellent; for I have always noticed that bees will cluster where the light is most intense, especially when confined.

The main argument in favor of starters in place of full sheets is that of economy. Incidentally it has been urged that the effect of starters is to force the bees sooner up into the sections where there are full sheets of foundation, and where, also, there are bait-combs. With a good flow of honey a full sheet in the brood-nest may be drawn out in 24 hours. If the queen does not immediately occupy it with eggs, the bees are liable to put honey in it, while if only starters were given the work of comb-building below would be slower, and the work in the sections correspondingly accelerated. Understand that I am not stating this as *my* own argument, but an argument that has been presented in favor of starters.

In your comment on the articles by Samuel Simmins and Mr. Gibson you possibly overlooked the fact that it was urged that the colonies be made queenless for some 21 days. Bees, they claim, will clean house, cleaning their combs perfectly clean, possibly removing germs also if they have time enough. I am not a sponsor for the treatment recommended by Mr. Simmins; in fact, I do not subscribe to all the statements made by Mr. Simmins or Mr. Gibson, as shown by my footnote at the time.—ED.]

#### NAMING BEES.

#### The Difficulty of Telling the Difference between Blacks and Caucasians.

[Some weeks ago we received three cages of bees from Mr. J. M. Davis, of Spring Hill, Tenn., accompanied by a letter asking that, for the purpose of experiment, we give the names of the bees as well as we could by looking them over in the cages. We were then to send them to some other queen-breeder, with a like request. After this brief explanation the reader will be able to understand the letters that follow.—ED.]

Mr. J. M. Davis:—I am in receipt of your letter, with samples of bees. I suspect that one lot is Carniolan, another common blacks, and another Caucasian; but which are which is a little difficult to determine, as they are so nearly alike; but in my judgment they are as follows:

No. 1, blacks; No. 2, Carniolans; No. 3, Caucasians.

The difference between blacks and Caucasians is so slight from specimens that I have seen that it would be very difficult to deter-



mine which is which, and it will always be so unless our Caucasians are different from the average. I am mailing these cages of bees on to F. A. Lockhart, Lake George, N. Y., as he is the only breeder in the United States that has made a specialty of rearing Carniolans. We have no black bees in this vicinity, and have not seen them for years. I think he could come nearer determining, perhaps, which are Carniolans and which are the others than any one else.

Medina, O., Nov. 8.

E. R. ROOT.

*Mr. Root:*—Your letter and the three cages of bees you received from J. M. Davis and forwarded to me are here. My decision is as follows:

No. 1, Caucasians, but not pure stock. I may be mistaken, as they look quite like our common brown bees with a dash of Italian blood. They are a trifle larger than the pure Caucasians. I could not judge their temper in a cage.

No. 2 was received in poor condition, the bees being all dead, and therefore black and shiny. I should say, however, that they might be pure black or German bees.

No. 3, I should say, contained Caucasian bees, and about as pure as the average Caucasians used in this country from imported stock.

F. A. LOCKHART.

Lake George, N. Y., Nov. 14, 1905.

*Mr. Root:*—Yours of Nov. 25 was received while I was in the West; and since my return I have been so busy I could not answer it. Cage No. 1 contained pure Tennessee brown bees, secured away back where there are no Italians, and are about as pure stock of this race as can be found. They have always had an occasional bee with a narrow orange band next to the thorax. This is usually quite dark orange. I have noticed this all my life. I am now 58. This band, as a rule, does not extend around the abdomen, but shows a splotch on both sides, rather high up.

No. 2 contained imported Caucasian workers taken from a cage sent me by Professor Frank Benton, secured twelve versts (about eight miles) inland from Gagry, which is on the coast of the Black Sea, Russia. They are of the Abkhaaz variety, and, Prof. Benton writes, are of the gentlest of this remarkably gentle race of bees. I received another queen from him, mailed two days later from Tiflis, Russia, which he wrote was of the gray type. I have workers from both these importations, in alcohol.

No. 3 were workers from a Caucasian queen reared by Dr. Phillips at the government apiaries at Arlington. This queen was received last summer, and, at the time, I supposed was an imported queen, as Prof. Benton was to send me one as soon as some queens were received that they had failed to get last fall.

As soon as I saw her progeny I knew that they would be a dangerous bee to scatter indiscriminately through the country, owing to their remarkable resemblance to our native bees. If expert queen-breeders can not

distinguish them, how on earth can we expect the uninitiated to know when they have pure stock?

One trouble will be that inexperienced men who think nothing of injuring their neighbors may buy them in order to have a bee that they have no reason to fear, and rear them near breeders of pure Italian stock, greatly damaging the Italian race after the bee-keepers of America have spent thousands of dollars importing and building up this valuable race of bees. I am decidedly in favor of the government keeping Prof. Benton in the East, looking up new races of bees; but let us be careful how we scatter them broadcast over the country, to the annoyance and detriment of men who have spent much money and valuable time in introducing and improving the bees we now have that we know to be a superior race.

There are many points that could be brought out along this line, that we as breeders should bear in mind. If I know that a breeder of Italian bees is near a would-be purchaser of Caucasians, and that said purchaser is inexperienced, I will decline his orders, as I know this would be to the detriment of the party who had already spent his money and time in establishing a valuable race of bees.

I bought the first Langstroth hive and the first Italian queen sent to this county; and during the 34 years since then our bees have been greatly improved for many miles away. Now, suppose some fellow who cares but little for his neighbors should place only one colony of these gentle bees near by me, just to get a paltry bucket of honey. Why, a wave of black blood would start out across the country, and there is no telling the damage it would do, and that with a race of bees that we have no positive proof yet is at all suitable to our country.

By all means let us strive for the very best; but be careful how we distribute these new races until we know that we have a better one than the Italian, which, in my opinion, will be hard to find. I should like to have these new races tested by experts, if possible, before being sent out broadcast. This was my intention in offering them last summer. I will put a word of caution in my 1906 circular, and I believe we should all do so. The dark leather Italians sent out by the Department are a very valuable bee, and will be the bee for the honey producer.

I hope Prof. Benton will succeed in getting *Apis dorsata*, but I doubt their standing our climate.

J. M. DAVIS.

Spring Hill, Tenn., Dec. 6, 1905.

[We are quite in sympathy with the statement made by Mr. Davis, that these queens should not be sent out indiscriminately until we know something more of their qualities aside from the gentleness of their stock. All the bees we have of this race are on an island in Florida, in charge of A. I. Root, where we are testing them. We do not expect to sell queens of this race until we can test them on the island.]

Some have questioned whether or not the Department at Washington was going to do damage by sending out queens of this blood. I do not think we need to apprehend any trouble from that point; for Dr. Phillips plainly stated that these queens will be sent only to responsible breeders who will agree to conform to certain conditions. There will be no excuse for such a breeder "tainting" or "contaminating" his locality if he keeps his Caucasian queens clipped, and perforated metal over the entrances of all Caucasian colonies.

But you ask, "How about the queen-breeder's customers?, some of them, perhaps, careless?" There is danger here. How this can be overcome I do not know; but we must remember that no disaster followed the introduction of the Eastern races of bees, and yet some of them are very undesirable.

But it is significant that the Caucasians look so much like the black bees that even breeders are confused. Yet this is not at all strange; for when Cyprians were first introduced, there were many who could not distinguish them from light colored Italians. It is well known, however, that any one who is reasonably familiar with the two races has no trouble in drawing the distinction.—ED.]

#### ALEXANDER'S CURE FOR BLACK BROOD A SUCCESS.

BY PERCY ORTON.

You are not mistaken as to the value of Mr. Alexander's method of curing black brood, as I have used practically the same method for the past two years, as I will now describe.

In 1904 I had five colonies that were badly affected with black brood. These combs were given to them in 1903, and were full sheets and wired. I disliked very much to melt them up, as they were such perfect ones; so I thought I would shake No. 1 on to full sheets of foundation, place an excluder of zinc on top of No. 1, and tier up the 50 affected combs on top of hive No. 1 and let the brood hatch out; after, to fumigate the combs and give back to colonies and see if I could save them. I left them on top of hive No. 1 for a month (from pure slackness). When, one day, I looked the combs over they were all cleaned out and the brood-cells shone like a bottle. I decided to give them back to colonies, and not fumigate. I did so, and as healthy brood hatched from those combs that were affected as you ever saw. I was afraid to mention this to any one, as I expected to be hooted at, at that time, so I got two other colonies that had black brood the past summer. I went through the same operation, and the brood that was hatched in the affected combs after treatment was as healthy as was the first.

I think Mr. Alexander's method the best, as you secure all the unhatched brood and a young queen in the same hive.

I send you also a photo of ten queen-cells that were raised between brood-combs that, two years ago, were affected so badly with



black brood that I could not get one queen-cell to hatch. This proves that the combs are free from the disease at present.

Northampton, N. Y.

[This is the first testimonial proving the efficacy of the Alexander treatment for the cure of black brood. The whole secret of it seems to rest in giving the bees sufficient time to cleanse and polish thoroughly those cells ready for the queen to lay in.—ED.]

#### THE ALEXANDER METHOD OF BUILDING UP WEAK COLONIES.

Will there be a Loss of Returning Bees when the Upper Hive is Put Back? What Becomes of the Drones?

*Mr. Root:*—I am greatly interested in Mr. Alexander's article on strengthening weak colonies by placing them on the top of strong ones. I wish, however, that he would incorporate answers to two questions in his next or a subsequent article.

First, in the event of the upper colony rearing drones, as it certainly will do if growing strong by the treatment, what will happen to these drones and to the colony which rears them? All openings are to be closed so that the only way of exit for the bees of the upper colony is through the queen-excluder and down through the lower hive-body. In brief, this means that the drones above the excluder will never get out. They will die in the upper hive. Will not harmful results follow from that?

Second, when the upper colony is strong enough to take care of itself, and is set back on its old stand or upon another stand, will not its loss of bees, occasioned by the field-workers returning to the double-hive location, weaken it down to about the same condition it was in at the start?

I hope Mr. Alexander's plan solves this troublesome problem, and I wait with interest to read his further elucidation of it.

Altoona, Pa., March 26.

H. H. S.

[Knowing that many would appreciate an answer from Mr. Alexander on this point we sent this question to him direct, and he replied as follows.—ED.]

In reply to H. H. S. and many others regarding our method of caring for weak col-



onies shortly after taking them from their winter quarters, I can only repeat what I have already written upon this subject; that is, after they have a little uncapped brood set them on top of a strong colony with a queen-excluding honey-board between, and close all entrances except what they have through the excluder. This we do about five days after they are taken from the cellar, and they seem to locate again so but few if any are lost. The very few old bees that may be lost by this method are merely nothing compared with the gain in bees after both queens have been laying three weeks or more. This is, without any exception, the best and most practical way of caring for those little weak colonies in early spring that has ever been made public.

Another question that many are asking is, "What becomes of the drones that are shut up in the old hive when increase is made?" As I recommended in one of my former articles, first, we have but very few drones in our apiary. I never thought they added much to the surplus honey of a colony, and have often wondered why some beekeepers rear millions of them in the place of workers; and for that reason it doesn't hurt our feelings if we can trap them in an upper hive until they are dead. The bees usually pull them to pieces and drag the most of them down through the excluder. The man who now allows his bees to rear thousands of useless drones is but one very short step in advance of the man who keeps his bees in box hives. I am sure we secure at least three tons of honey a year more than we should if we allowed our bees to rear drones as some do. In the first place, it requires far more food than it does to rear workers; and then when you consider the advantage of having nearly all the bees in a hive producers instead of one fourth or more only consumers, it counts much in securing surplus. So far as we can prevent we allow only one or two colonies to rear a few, which I think is all that is necessary for any apiary.

E. W. ALEXANDER.

Delanson, N. Y.

[I wish to indorse as strongly as possible what Mr. Alexander says on the subject of rearing useless drones. I would add further, don't let your bees have drone comb in the first place unless you wish to rear drones for breeding purposes. In this connection, see the last paragraph of "Conversations with Doolittle," on another page.—Ed.]

### EARLY SPRING MANAGEMENT.

Timely Advice on what Preparations to Make.

BY W. R. GILBERT.

The few short hours of warm weather we have in early spring induces bees to leave their hives for a good cleansing flight, and much they make of the opportunity. The myriads of bees issuing from some of the

hives shows that inside they have not been inactive, though unable to fly abroad; but when the early flowers are in full bloom, then the bees become really busy and collect what nectar and pollen such limited breadths of bloom permit.

If bees, which at that time are badly supplied with food, are to depend upon outside sources till the extensive tracts of flowers bloom late in the season, they will indeed do badly throughout the season. About the time we are speaking of is the time for helping bees with candy or syrup. The former takes more time for preparation, but it has this advantage—it provides the bees with food that can be taken only slowly, and can not, therefore, be stored in the combs to such an extent as is often done when they are liberally fed with syrup.

This is the time, too, in which to move bees to fresh sites that are some distance from the present apiary. Breeding has then commenced; and should the weather be mild the bees get just that disturbance in the act of removal that stimulates them in the work they are now performing inside the hive.

All that need be done now to keep the bees secure inside is to nail a piece of finely perforated zinc over the entrance, and drive two or three nails through the plinths at the side into the floor-boards; and to save them from a lot of bumping, place them upon a good layer of straw.

Let them have a day to settle down, and get a little accustomed to their new surroundings, and then change them into a fresh hive, giving them clean quilts, and plenty of them, and a feeder if required.

While moving the frames from one hive to the other, destroy the cappings of the cells containing honey around the brood in the middle frames. Others may be similarly treated after a few days.

While breeding is progressing, warmth is necessary; therefore see that the tops of the frames are well covered, and that only a small entrance is allowed.

If the supply of pollen is found to be short, give some pea flour in an old skep or box, upon some small shavings. A little honey will attract the bees; and while they require this substitute for natural pollen they will fetch it.

Orders for bee-appliances, foundation, frames, and sections in particular, had better be placed at once to prevent loss of valuable time, when they are really wanted for use in the hives.

If excluder zinc is used between the brood-chamber and supers, the frame in the upper apartment may be filled with drone comb, or, rather, drone-sized foundation, from which the bees will build comb of drone-cells.

Obtain a supply, too, of wide metal ends, unless strips of wood are nailed on the ends of the frames to provide the distances; but whatever distance is allowed, let it be more than that between the brood-combs, or uncapping for extracting will be slow and unsatisfactory work.

Medicine Hat, Manitoba.

### HONEY-BEES AND CUCUMBERS.

**How a Shrewd Old German Places Bee-hives in his Cucumber-Hothouses, and, by Making Bees Fertilize the Cucumber-blossoms, give him a Big Crop at a Time when Otherwise they could Not be Had.**

BY D. EVERETT LYON, PH.D.

"The one great mission of the honey-bee is fructification: the honey she may store is to interest us in her propagation."

Up-to date horticulturists have known for years that the presence of bees among the blossoms means an increase in quantity and quality of fruit.

In some sections there has been objection raised to bees by fruit-growers who declared that they were stinging the fruit.

Those who have made a study of bees know full well that the bee has no implement with which to open a sound specimen of fruit. The hornet and wasp, both of which have sharp jaws with which to tear old bark from trees and kindred substances with which they build their nests, will frequently bite a grape, a pear, or a peach; and because a honey-bee is seen sipping the juice that runs, some fruit-growers have declared them enemies when the reverse is the case.

One has but to watch the busy fellows as

they work from blossom to blossom, to see that, in pollenizing fruit, they are the greatest of benefactors. Take, for instance, an apple-blossom. We find in it the stamens with their corresponding anthers. While it is true that the winds will, in a measure, carry the pollen from the anthers to the stamens, yet at best it is imperfectly done.

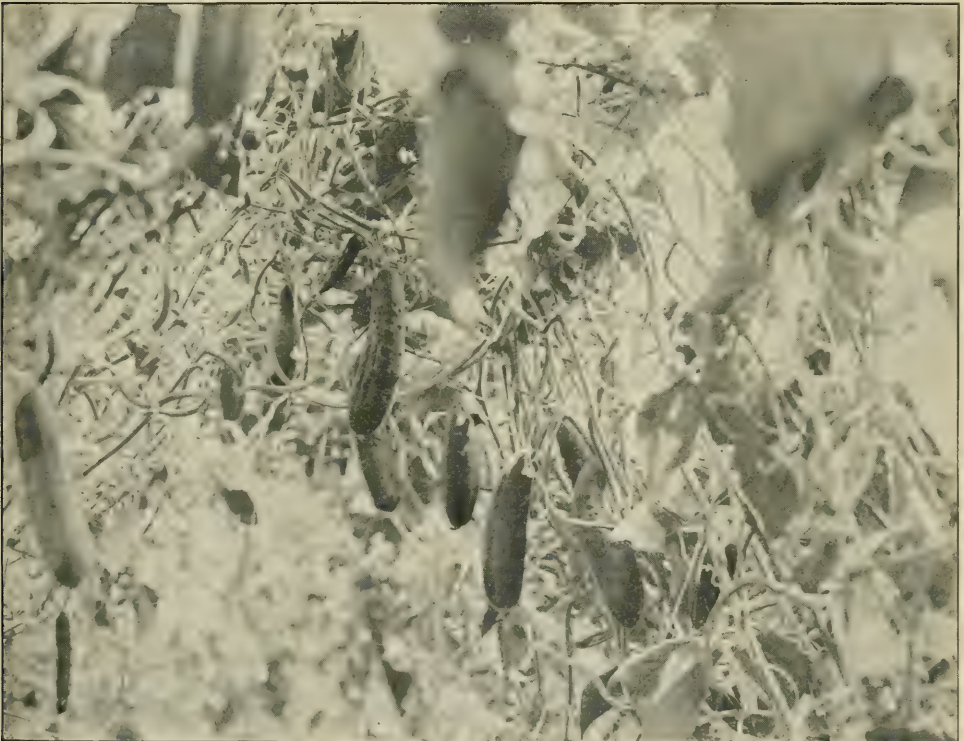
The body of a honey-bee is covered with a heavy down that plays a very important part in this respect. Of course, the bee unconsciously does its work of fertilizing blossoms, its prime object being to secure the nectar secreted in the corolla; but as it buries itself deep in the blossom it carries on its downy body the fertilizing pollen, which is transmitted to the stamens.

Jean Ingelow noted the little fellows coated with pollen, and wrote:

O velvet bee! you're a dusty fellow;  
You've powdered your legs with gold.

No State, perhaps, produces more apples and grapes than does New York, and perhaps in no other State is bee-keeping carried on so extensively. The connection between the two, therefore, is manifest.

I remember reading of a section of California where cherries were produced in enormous quantities, and incidentally bees were kept by some who were not engaged in the production of fruit. For some reason a quarrel arose between the bee-keepers and the cherry-growers, who claimed the bees



EARLY CUCUMBERS GROWING IN A GREENHOUSE BECAUSE OF THE AGENCY OF BEES.



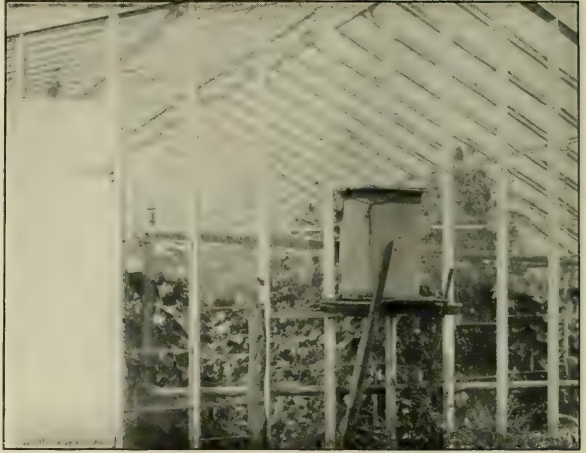
were stinging the fruit, with the result that the bees were shipped away. In a few months the cherry crop began to dwindle, and almost fail; and when the growers met together to consider the cause it was found that, with the sending away of the bees, the crop had begun to fail.

There happened to be one or two wise heads in the convention, who surmised the cause; and as an experiment the bees were brought back, with the result that the crop went back to its former proportions, thus showing the close relation between bees and fruit.

What is true of fruit-blossoms is also true of many others, chief of which is the cucumber. There are two distinct kinds of blossoms upon a cucumber-vine — the male and female; and in order to get fruit the pollen must be carried from the male to the female.

During the summer, when cucumbers are grown out of doors, bees in the vicinity kept in hives, or living wild in old trees, will fully accomplish the purpose. When it comes, however, to raising early cucumbers in a hothouse, when the vines will be blossoming before the bees are aflight, one is confronted by a serious proposition.

Mr. J. F. Becker, of Morganville, N. J., found that, if he could get a crop of cucumbers grown in hothouses so as to get them to market before those grown out in the



INTERIOR OF CUCUMBER-GREENHOUSE; HIVE WITH ENTRANCE INSIDE.

field should arrive, he would be able to command a splendid price for them. After careful thought he determined to try the experiment of placing a hive of bees in each hothouse to see if they would pollinize the vines. Hives with strong colonies were bought, and placed in each end of each house so that the bees could fly out into the house from one hive-entrance or out of doors as they preferred. The writer visited the hothouse during April, when the blossoms covered the vines, and the noise of the bees could be distinctly heard as they went from

flower to flower. So thoroughly did the little bees do the work required, that, with few exceptions, healthy cucumbers formed at each female blossom.

The crop that followed was enormous both as to size and quantity, some specimens being a foot long, and as much as three inches in diameter. Not only were the cucumbers fine in appearance, but especially luscious were they for eating. So thoroughly did



CUCUMBER-BLOSSOM WITH A BEE ON IT, CAUGHT IN THE ACT.

Mr. Becker succeed that he determined to go in on a larger scale, until now he has eight hothouses about 300 feet long by 50 feet deep, all steam-heated, with a force of about fifteen men to manage them, all growing cucumbers.

Lettuce is raised in the houses from October to March, the cucumber-vines not being set out until about the middle of March. The vines are started in hotbeds in the houses; and when set out in the houses they are in most cases two to three feet in length, with buds just starting.

Heavy steel wire is stretched on poles, and forms a support for the growing vines that fairly fill the house, as, year after year, they produce several hundred barrels of cucumbers, and that at a time when the prices they command are big.

Thus year after year this shrewd old German makes the bees help him produce early cucumbers which, without their help, would be impossible. It is, therefore, very evident that all who grow fruits and certain vegetables should be sure that there are bees enough in the neighborhood to insure the proper fertilization of the blossoms.

### HOW TO PRODUCE MORE HONEY.

#### A Plan for Materially Increasing the Crop.

BY A. K. FERRIS.

This subject is so broad, and so many details enter into it, that I will give in this article only a few hints as to how we may in-



ONE OF J. F. BECKER'S GREENHOUSES WHERE THE BEES FERTILIZE CUCUMBER-BLOSSOMS.

There is, however, a pathetic side to the case; and that is, the loss of the bees. After the little fellows fly about the house from blossom to blossom they fail in most cases to find their hives, and hundreds of them can be seen bobbing against the glass roof of the house, trying to get outside.

It doesn't take much of this to put them out of business, and so we find hundreds of dead bees on the floor which could not get to their homes. This being the case, Mr. Becker is compelled to buy new hives each year for his houses; but as this is merely a matter of a few dollars' output for a return of many hundreds of dollars, the item is looked upon as one of necessary expense.

crease the yield from our present number of colonies.

In localities where the flow is from buckwheat, goldenrod, and other medium and late flowering plants, the keeping of more colonies run on the "let-alone" method will, no doubt, be the very best way to secure a larger yield; but in the North, where the flow is early, the more intensive methods are better, as I have proved, for colonies so operated have given a yield from two to nine times as much as those run on the "let-alone method."

To secure more honey from a given number of colonies I prepare a double hive by placing a  $\frac{3}{8}$ -inch division in the center of a ten-



frame hive, thus dividing it into two five-frame divisions. To the top of this division I tack a quilt that it may be thrown back from either side so as to leave either set of frames easy of operation. If the hive-body has a tight bottom on it I place a four inch

making two five-frame colonies in one hive-body, each having a queen with only a  $\frac{3}{8}$ -in. partition between them. Feed this prepared double colony all the sugar syrup or good honey it will take, and winter in a cellar or special repository. Here is where

No. 2 is better; for when the bottom is removed there is still the wire screen, which keeps the bees from going from one side to the other, and excludes mice and rats, still giving perfect ventilation from the bottom.

About the first of March here at Madison I bring out these colonies and place them on their summer stands. The first nice warm day I look them over to see that each has a queen, uniting all that are queenless. If any are reduced in bees enough I remove a comb or two of honey and slip in a regular division-board follower, as bees will not cluster on the outside of a board as they will on a comb. In this respect a division-board is better than a comb for weak ones.

When the *strongest* of these five-frame divisions have some brood in all five of their combs I go through the whole yard again,

block the thickness of the entrance in the middle of the long entrance, making two entrances so that each five-frame division has an entrance of its own. As this four-inch block is shoved into the division-board it stops all passage of bees from one side to the other. See hive No. 1 in illustration.

Another form which I like better is to take a full-depth extracting-super, putting a  $\frac{3}{8}$ -inch division in the center and tacking a wire screen, of small enough mesh to exclude bees, on the bottom. Bore two one-inch auger-holes in one end for entrances, with a button one inch in thickness over each, that they may be closed as much as desired. It also gives a one-inch alighting-board for the bees. See hive No. 2 in illustration. Tack the quilt on the same as for above. Now we are ready to transfer the bees into either of these hives we have prepared.

In September, if the honey-flow has ceased, I take a good strong ten-frame colony and transfer it into this prepared hive, giving it another queen, thus

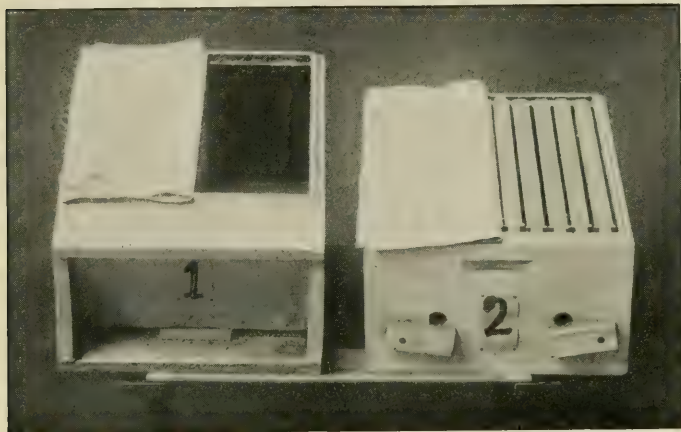


FIG. 1.—A TEN-FRAME HIVE ARRANGED ON THE FERRIS SYSTEM.



FIG. 2.—A CLOSE VIEW OF COLONIES MANAGED ACCORDING TO THE FERRIS PLAN.

changing ends with a comb of brood in each so as to secure brood the full length of the frames. From the strongest I take out a comb of brood (I prefer hatching), and give it to the weakest ones, in this way equalizing all.

At this time I take out the division-boards given the previous visit, returning either empty combs or combs of honey as their needs demand.

When a majority have some brood in all five combs I take two hives and set them in place of each double colony with their entrances corresponding as nearly as possible to the double colony. Transfer each queen and the frames into the new hive, and give five more frames of either honey or comb as their needs demand. These may be given all at once, or a frame or two at a time, just as long as they receive room and food enough so that brood-rearing will go on at a rapid rate. Whenever these colonies need more room, give it until the flow is expected in a day or two.

At this point, if I wish no increase I destroy both queens in these two colonies, and in one or two days unite them, stacking one story above another, giving either a ripe queen-cell or young laying queen previously reared from my best stock, and confine her by a queen-excluder to the lower story, which I have arranged with five frames of brood — mostly the young larvæ — and five sheets of foundation or empty comb, alternating them. This is as I arrange them when run for extracted honey. If I wish increase I take one good frame of hatching brood and adhering bees with their queen, placing them in another hive, giving at first a partly filled comb of honey and another empty comb with a division-board follower, contracting the entrance to a one-bee space. These nuclei will build up to good strong colonies for wintering, if room is given as needed. In this way you get two nuclei, each having a laying queen and eighteen or more frames of brood and bees at the right time to secure a surplus from clover or basswood.

By giving a ripe queen-cell or young laying queen to the large queenless colony I have never had one swarm. However, I would remove all other cells at the time of giving a queen or cell. This method, slightly modified, could be adopted for comb honey, though I have always considered it more profitable to produce extracted.

Figures 2 and 3 show colonies the 17th of June, 1905, that yielded from one hundred to two hundred pounds per colony this poor season, when the average in the vicinity did not exceed thirty pounds; and nine colonies, the nearest to me, run on the ordinary method, did not yield as much surplus as my poorest one run on the above method.

The secret of producing more honey lies in being able to produce more bees at the *right* time and of the right kind rather than the keeping of more colonies run on the "let-alone" method, as some have advocated.

The foregoing is the method as adapted to the ten-frame hive of standard style. In another article we will describe a hive better adapted to this two-queen system.

Madison, Wis.



FIG. 3.—PART OF THE APIARY OF A. K. FERRIS.

#### BEEES AND POULTRY COMBINED.

The Success of Each Depends Upon the Care Given.

BY A. A. ZIEMER.

As I am deeply interested in bees as well as fancy poultry, and kept both with great success for years, I must say that the article by Frank McGlade has held my attention more than any other in that number. The pictures were studied closely, which, as he says, were not overdrawn — probably not; and if they were not, it surely does not look as if there were the right man behind to give the birds their care. The way they are tearing around him it looks as if they were kept on a fast for a week or two.

Now, I don't quite agree with Mr. McGlade the way he runs down the busy old hen that keeps laying right along in all parts of



the world if she is cared for; so I can not let this pass by without replying to same, as I am keeping both bees and poultry, and always like to boost both and run down neither. I have kept bees for the last ten years, and could not be without them any more, as they have proven most profitable to me. I will not go into details and give any book accounts, but I can say that my bees have averaged \$10 per hive profit, and I can give Mr. McGlade credit for boosting the bees. They surely deserve it; but I can not say that the work is play compared to chicken-raising—nothing of the kind. I am sure there is enough of it in both lines, if they are cared for the way they should be, for everybody knows neither bees nor chickens will thrive well for a song. I will admit that there is enough work in the chicken business to keep one hustling all the time. In the winter we haven't so much work with bees as chickens. Chickens have to be cared for more in winter in order to get the best results in winter eggs; also fitting some of the birds for the show-room, as everybody knows that blue-ribbon winners hardly ever grow around the woods; so there is always something to look after, especially in yards where there are more than one variety kept.

I am a crank on buffs. I tried nearly every thing that wears buff feathers, and each variety. The Rocks, Wyandottes, Leghorns, and Orpingtons, are proving a very successful bird to me, laying their store of eggs all the year round, never stopping for the coldest day, as the mercury often falls to 20 below zero in this part of the country. Of course, these hens are cared for, and no one should expect the busy old hen to lay unless she is cared for.

I am sure I could not say a word against the busy hen, for she deserves the same praise as the busy bee, and I think that every poultry-keeper agrees with me here. If not, why don't they all do as Mr. McGlade did—load them up and haul them to Columbus, which, I am sure, they would, and I myself wouldn't hold on to them very long if they turned out the way Mr. McGlade is speaking about. But almost every poultry-keeper knows that there is the almighty dollar back of the busy hen each year; yes, and just a little more, sometimes, in some of these fine specimens of thoroughbred pullets and cockerels. No, I think when it comes to giving advice on either bees or poultry as to which is the more profitable, I say both, every time, and think every bee or poultry keeper finds, if they have care and right management, in both lines, each will give its share of profits; at least I have found them a winning pair, neither interfering with the other.

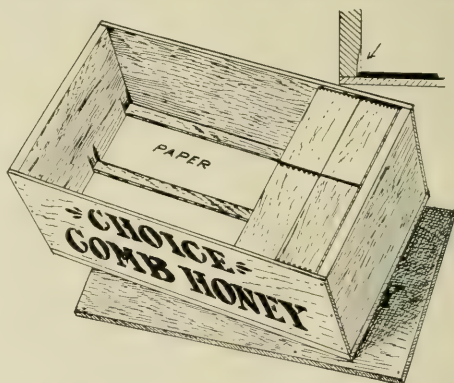
Waltham, Minn.

[Our readers may be interested to know that I am just starting in the poultry business in a small way, with the view of testing some of the ideas advanced by some of our bee-keeping poultry-men. Going to make a mixed bee and poultry journal? Oh, no! GLEANINGS will always be a bee paper. —ED.]



#### A COMB-HONEY SHIPPING-CASE WITHOUT GLASS.

I am sending a shipping-case which Mr. L. A. Aspinwall, of Jackson, gave me. The two things different are, of course, the no-glass feature and the manner of putting the no-drip sticks in. While in Jackson, Mr. Aspinwall had me talk with a number of his grocers, and, almost to a man, they said they would just as soon have the cases without the glass, and some of them now prefer them without the glass. The reason they offered was that their attention was called by the stencil-marking on the front, and that they were much more apt to ask to see



it, and thus give the grocer the opportunity to talk with the customer, where, if it was in plain sight, the prospective customer would look at it and pass on. They also mentioned that, so much of their trade was by phone, it little mattered. The difference in price would also be a considerable item. Mr. Aspinwall also suggested, that a case after that pattern, only a one-row ten-section case, would be a fine family size, especially for the man who sells ten sections for a dollar.

E. M. HUNT.

Bell Branch, Mich.

[The shipping-case here shown was exhibited at the Michigan State Bee-keepers' Association convention at Jackson, and was quite favorably commented on by the members present. The freight classification puts honey "in glass" as first class, and that "in wood" as second class. When this tariff was first printed, some of the roads were inclined to consider that all comb honey in shipping-cases with glass front was in glass, and, consequently, the freight rate was pushed up one notch; but after considerable explanation we showed that, evidently, such

classification referred to honey in *bottles*; that comb honey in a shipping-case with glass fronts ought to go as second class because the percentage of glass was very small to the amount of wood. All the railroads, I think, now accept shipping-cases

would not be just as good. If the freight-handler can not read, he ought to be bounced from the pay-roll. Shipping-cases with glass fronts have been broken into, and the fine cakes of honey despoiled by some big fingers, time and again. The Aspinwall



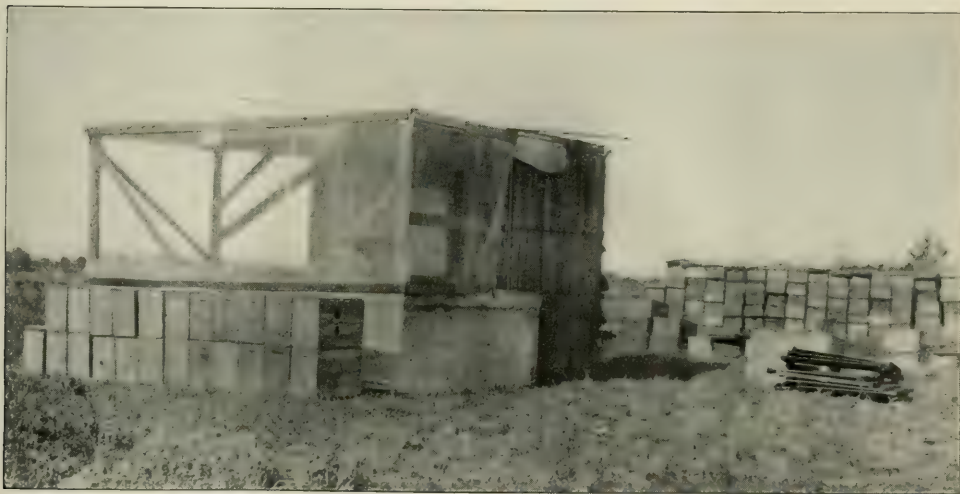
A HIVE-STAND TO GIVE FOOT ROOM; SEE NEXT PAGE.

with glass fronts as second class. But the bee-keeper must not make the mistake of having such honey *billed* "in glass" or else it will go at first-class rates.

The Aspinwall case is a very unique one; and if the discrimination against glass fronts

case would prevent any thing of this kind.

The arrangement of the no-drip cleats in mortises or slots in the ends of the case is very unique. It could not, however, be very well applied to a glass-front case showing



A CHEAP AND SERVICEABLE EXTRACTING-HOUSE.

had continued the all-wood case with the lettering would have been the solution.

The all-wood case can be made considerably cheaper, and I do not know why it

four sections six deep. But where the cases are two-row, like the sample here shown, there will be no trouble about mortising for the cleats.—ED.]



VENTILATION UNDER HIVES; DIFFERENCE IN LOCATIONS; SEE PRECEDING PAGE.

I am mailing you a photo of one of my apiaries. The hives are mostly eight and ten frame Dovetailed; also regular and some modified Langstroths. The hives in the single rows back of those in pairs are the old stocks, the swarms having been set on the old stands. The stands themselves consist of almost any thing that comes to hand in an outyard; but I very much prefer those made of 2×4 studding standing edgewise at front and back, and held together by two four-inch boards nailed on top. This raises the hives to facilitate proper ventilation, and allows the feet of the operator to extend under the hives when lifting heavy supers—an advantage by no means insignificant.

The stones seen lying upon the hives might be dispensed with in a home yard, but are necessary when the bee-keeper visits the yards only occasionally. They insure against wind and sun and the rubbing of stock.

The past season the apiary shown yielded a full crop, while in the other two yards less than half a crop was secured. So much for location a few miles apart in the same season.

L. M. GULDEN.

Osakis, Minn.

A CALIFORNIA EXTRACTING-HOUSE; SEE CUT ON PRECEDING PAGE.

I am sending you a picture of my extracting-house. As you will see, the lower part of the wall is made of canvas 3 ft. wide, while the rest is of mosquito-netting 5 feet wide. The darker place is where the extracting is done. The roof is constructed of sheeting.

A. J. HESSE.

Merced, Cal.

SWEET-CLOVER SEED; A BEESWAX RELIC.

*Mr. Root:*—Since the sweet-clover article appeared on page 1193, Nov. 15, 1905, I have received inquiries for seed. Some I answered by mail, but think this a better way, as there may be others who would be benefited. I sowed and gave away all the seed that I saved this year, but it can be bought of almost any large seed company, such as James Vick's, Rochester, N. Y.; John A. Selzer, Lacrosse, Wis., or Portland Seed Co., Portland, Oregon. In case one can not procure seed of the seed companies I shall be pleased to furnish small quantities by mail next year, free of charge, to bee-keepers only, if they will pay for the mailing.

Sweet clover is not a weed, but, on the other hand, is a forage-plant, and will not become troublesome in cultivated land. It thrives best on waste land, in fence-corners, along ditches and stony land. Too much can not be said in its favor as a honey-plant.

Some 15 years ago I saw an article in GLEANINGS about the beeswax ship found near Nehalem, Oregon. A few days ago I was in the city museum, Portland, Oregon, and while there I saw a part of the ship—about 75 or 80 pounds of the wax, also some

of the candles, one of which still shows the wick, which is charred at the end. The large pieces of wax have Latin characters in-



OUTDOOR FEEDING; SEE ARTICLE BY LOUIS SCHOLL, ON ANOTHER PAGE.

scribed on them. There is considerable data or history in the museum concerning the ship and the wax.

JOS. EGGE.

Willamette, Oregon.

[We should be glad to have you secure, at our expense, a good photo of the beeswax curio you describe. Be sure to take in the lettering. This must be a very interesting specimen; and any further information that you can add to what you have already written will be appreciated. May we not have the pleasure of hearing from you further with a good photo? Employ a good artist, and we will pay any reasonable expense connected with it.—ED.]



360 COLONIES IN ONE YARD; SEE ARTICLE BY LOUIS SCHOLL.

# BEES TRANSFERRING LARVÆ; WEAK COLONIES.

I gave a queenless colony a comb containing young larvæ. Next week I found that bees had built two cells in the next comb. My partner says he did not change nor move the combs. Do bees transfer larvæ?

While my colonies are all right, there are four which are always weak, though I help them with brood-combs. There is no foul brood nor worms, but neither activity nor honey. What can I do to get ahead with such colonies? A. B.

Manzanillo, Cuba.

[I can not recall just now whether we have had any reports showing that bees have actually moved larvæ from a worker into a queen cell; but I know that we have evidence showing conclusively that the bees do move eggs in this way; and I do not know any reason why a young larva could not be moved as well as an egg.]

In the case of the four weak colonies, if they continued to be weak year after year I would pinch the heads of the queens and introduce better stock. If the queens are surely all right, reduce the four down to two, or even one by uniting if that be necessary to give them the proper strength. A colony, to do much in honey, must be fairly boiling over with bees.—ED.]

# HOW CAN COLONIES BE PREPARED FOR A VERY EARLY HONEY-FLOW?

On page 1237, 1905, Mr. Alexander tells how to get the bees ready for a honey-flow that comes after July 4. Will he or some other man of experience tell us how to get the bees in the best condition to gather the honey from a flow that begins June 1 and ends about July 15, little or no honey after that date? and how to get queen-cells the first part of May; whether to make increase before, during, or after the flow, to get the most honey, and leave the bees in the best condition when the honey-flow stops? That is what Orange Co., N. Y., calls for.

Would the 60-lb. can (hanging feeder) you described last fall be good to use in spring as a stimulative feeder? Mr. Alexander puts weak colonies on top of strong ones to build them up in spring. How does he separate them to equalize the bees and prevent loss of uncapped brood? Last summer I tried his way of making increase. I like it the best of any plan I have tried. How do the large producers of extracted honey get the honey out of the cappings in good condition to sell? Melting the caps with the honey in them, with a solar wax-extractor or fire heat, darkens the honey and injures the flavor, and is of no benefit to the wax.

New Hampton, N. Y. E. D. HOWELL.

[In a series of articles given by Mr. Doolittle he will cover the very point concerning which you inquire, probably in the April 15th issue, and I would, therefore, refer you to that method.]

The outdoor feeder, or the hanging-square-can principle, could be used provided the weather were warm enough. In early spring there will be a good many cool days, and a good deal of the time the atmosphere would be too chilly for the bees to do much in gathering syrup from a feeder outdoors. Better feed in the hives that need it.

Mr. Alexander has already described, or will soon describe, his method of dividing those doubled-up colonies.

The best way to get honey out of cappings is to let them stand for several days until they can drain dry. You can hasten the process somewhat by putting them into a German wax-press and squeezing them cold; but in so doing you will be liable to find honey in cavities formed by the cappings being pressed tightly together.—ED.]

# SHALL WE SPRAY WHILE THE TREES ARE IN BLOOM?

The above heading is a very important subject, and especially so to the bee-keepers in some localities where spraying is practiced at that time. Bee-keepers should look this matter up now before the time comes for spraying, and try in some way to prevent it instead of telling the editors about their bees being poisoned by spraying. I sent for some catalogs of sprayers and spraying. One came from the William Stahl Co., Quincy, Ill. They advised spraying while trees are in full bloom. GLEANINGS tells me to protest against such things, so I wrote to them in the following language:

Dear Sirs:—I had intended getting me a sprayer this spring, as I have quite a lot of fruit-trees; but as you advise spraying while in full bloom, and as I receive quite a little income from my bees, I will abandon the sprayer this spring, as I don't think Paris green would be good for them.

I now quote from Mr. Stahl's catalog, p. 8:

The second application should be made (and which I consider the most necessary), when the trees are in full bloom, using for this application 'he Bordeaux mixture, and adding thereto Paris green in the proportion of one pound to 160 gallons of Bordeaux mixture. This application should not be delayed several days; and it is well to commence as soon as blossoms begin to fall.

The above is word for word Mr. Stahl's instructions. I do not desire to injure any one's business, but why can't Mr. Stahl put it in his catalog as he did to me in his answer to my inquiry about it? The following is from Mr. Stahl's own pen:

Mr. B. A. Ammons:—We have yours of the 9th; and that you may have no misunderstanding with reference to the bloom-spraying, we beg to advise that bloom-spraying is done just as the bloom is dropping, when there is not the least danger to your bees. Of course, with those who have no bees it is just a little better to spray when the trees are in full bloom. Possibly just as good results can be obtained with this spraying done a little later. You need have no fear along this line, as thousands of fruit-growers have followed the above with the very best results, and with no danger to bees or to stock in orchard.

If you are interested in growing fruit you can not afford to pass spraying this season, as by this means only will you succeed in raising good fruit.

If the above was not worded by Mr. Stahl it was by his manager. He seems to think if I have no bees it would be better while in



bloom. If it would be better, would that be right to my fellow-man?

Mannington, W. Va. B. A. AMMONS.

[We are glad to get a statement from the Stahl concern to the effect that they do not advocate spraying except when the petals of the blossoms are falling. While the letter is not all that could be desired, it is very much better than the statement in the catalog. We are a little surprised that a progressive firm should continue, as it has been doing, to keep such advice in their circular matter, when some of the leading experiment stations, if not all of them, have condemned the practice of spraying while the trees are in bloom, finding that nothing was gained, but often much lost, on account of the injury to the delicate flower-parts from the poisonous mixtures. It is well known that there are severe losses in bees where trees are sprayed while in bloom. Mr. Ammons is not the only one who has refused to buy spraying outfits from this concern because of the advice given in their catalog. We hope the company will see that it is not only to the advantage of the bee-keeper and fruit-grower but also to its interests to withdraw such advice from the next edition of its catalog.—ED.]

#### WEIGHTS OF SECTIONS DEPEND ON LOCALITY; THE 4×5×1½ AVERAGE A FULL POUND.

I notice on page 1072, 1905, your article in regard to light-weight sections, claiming the 4×5 sections do not weigh a pound, but which I have found to the contrary. I use nearly all 4×5 sections; and as I had noticed the fault found by some bee-keepers I made a test of it. I took off a super of 32 sections and weighed them. Here are the results: 26 weighed 16½ oz.; 3, 16 oz.; 3, 15½ oz. each. I believe it is more in the location. Here in the North the 4½×4½ section will weigh 16 to 17½ oz.; but for my use I prefer the 4×5, as I get a neater and nicer-finished section of honey. I use the Danzenbaker hive with an outer wall and chaff, and am watching results. They have proven to be very satisfactory up to date.

E. J. McLAUGHLIN.

Timberland, Wis., Dec. 4, 1905.

[You are quite right, that locality has much to do with the weight of sections. Management, as well as the particular strain of bees themselves, also has a bearing on the matter.—ED.]

#### VASELINE TO PREVENT PROPOLIS FROM STICKING TO THE HANDS.

Tell Dr. Miller to use petrolatum or vaseline, which are one and the same thing, instead of butter, for anointing the fingers for handling brood-frames, etc. There is no rancidity about petrolatum (petrolatum jelly), and it is much cheaper and nicer than butter. It effectually prevents the hands from being all smeared up with propolis.

STEPHEN DAVENPORT.

Indian Fields, N. Y.

#### WINTERING BABY NUCLEI.

On page 1235 of last year you state that wintering baby nuclei in a cellar at Medina was not a success, because of the small size of the clusters. On Nov. 1, 1905, I made up and placed in the cellar, the temperature of which was 40 to 45, a nucleus of about 300 to 350 bees and a queen, on two 4½×4½ sections. They were set out for a number of flights during November, December, and early January. But on January 21, with a temperature of 75, they had one flight too many. When I came home from church, Italian bees (those of the nucleus were brown) held possession of the box, and the browns with their queen were missing. I think they might have wintered had they not been robbed out, as scarcely a bee had died up to that time.

WM. C. HUNT.

Clarkson, N. Y., Feb. 19.

[There is a great difference in bees. One cluster in a baby-nucleus hive will apparently get along very comfortably, while another will succumb very shortly. The trouble with wintering with baby nuclei in the center is that the clusters are so very small they seem to get discouraged, then demoralized, breaking up the cluster, and finally dying. Mr. Allen Latham, one of our correspondents, reports good success, however, in wintering quite a number of baby nuclei. His report will appear later.—ED.]

#### TEMPERATURE OF BEE-CELLAR.

Would a cellar standing at 38 to 40 degrees all winter be a safe place for bees? This is the condition of my cellar.

Roodhouse, Ill., Feb. 3. W. H. PRIEST.

[A temperature of 38 degrees is a little too low to get good results for indoor wintering. When it gets as low as 38 I would carry in two or three square cans of hot water taken off the stove. By "square cans" I mean the ordinary honey-cans holding 60 lbs. Three of these placed in the cellar would increase the temperature materially. But a far better way would be to put in enough more bees to bring up the temperature of the cellar. If, for example, the normal temperature was 38 or 40 with 15 or 20 colonies, put in twice or three times the number until the bodily heat of the bees will raise the temperature to 42 or 43.—ED.]

#### WANTS BEES WITH HOT STINGERS.

I for one am like Dr. Miller. I would not have or keep bees if they could not sting. Last August some thieves tried to rob an out yard of mine. They carried off two full supers of honey about fifty yards; then the supers got so hot they set them down. They finally got a piece of fence wire, fifty or more feet long, and tried to drag them off. The frames all dropped out; and when they got to the brush they had only the supers. It was so dark and hot around there that they got only four out of sixteen full frames. They were so mad they stole sixty chickens

for the lady there. I heard all about the trip some time after. One of the thieves said it was the hottest place around there they were ever in. There was a dearth of honey then, and the bees were cross hybrids. Marceline, Mo., Dec. 18. IRVING LONG.

[In most States there is a very heavy penalty against stealing honey from a hive. Apparently you know who the parties were. In the interest of law and order you should place the matter before the authorities. Such petty thievery, if not checked at the very start, will keep going on.—ED.]

#### SHIPPING COMB HONEY BY EXPRESS.

I have been puzzled and astonished because of the damaged condition of comb honey that came from New York by express. The honey runs out in all directions from the case, making trouble without end. It looks as though the case had been set on a hot stove. It has happened many times. Should not the express company know how to take care of comb honey?

RUDOLPH LICHTUER.

Milltown, N. J., Nov. 27.

[We do not recommend sending small shipments of honey by express, although we do make such shipments. The hurry of unloading from an express car often results in breaking down the combs. Better send a dozen or more cases by freight, and crate them so there will be handles at both ends. In the bottom of the crate put a loose layer of straw to cushion the load. A crate of cases weighing 100 or 200 lbs. or so will be handled more carefully than a single case that weighs only 25 lbs. Send your own man and team or go with the drayman yourself to insure careful handling of the honey when it arrives at the freight office.—ED.]

#### BEGINNER'S QUESTIONS.

As I am just starting in bee-keeping I should be much pleased with answers to the following questions:

1. Will an Alley queen and drone trap confine or cage a virgin queen as well as a laying queen? I have one hive of bees that I want to let swarm twice naturally, and I was wondering if, after the second swarm, I could put such a trap on the hive and prevent the queen leaving with a third swarm.

2. Do bees get any honey from wild cherry or chestnut blossoms?

3. When wintering bees out on the summer stands should I leave the hive up from the ground with no protection on the bottom so the wind can sweep right through under the hive, or should I have my winter case or windbreak come to the ground on all except the front side?

4. Will you tell me something just as good as wheat chaff to make cushions of to cover the frames in winter?

5. Is it a good plan to slant a wide board up in front of the hives in winter to prevent the wind from blowing directly in the

front of the hive, or is it more essential to have the sun on the front and entrance of hive than it is to keep the wind out?

Girard, Pa.

NORTON C. MILLER.

[1. Yes.

2. Yes, some seasons and in some localities.

3. Put the hive on a hive-stand, then put the winter-case over the hive-stand so that it comes down no lower than will just clear the entrance in front.

4. Almost any loose dry material is as good as wheat chaff. Planer shavings, dry forest leaves, and excelsior answer as excellent substitutes.

5. The plan of putting a board over the entrance to shut off the direct rays of the sun on cool days and blast of wind is excellent. When the weather is too cool for the bees to fly, it is not desirable to have the sunlight strike the entrance.—ED.]

#### WHAT CAN BE EXPECTED FROM THE BEES?

I am a novice in bee-keeping, and desire to ask a question. What is considered a fair or average income from an apiary of a hundred colonies if fairly well managed, and in, say, a good field, practically wild flowers, a range of low valley, and medium upland? How many colonies can one man attend?

J. C. BRETSFORD.

Berwyn, Md., Nov. 15, 1905.

[This is a large question. It would be almost impossible to give a satisfactory answer in a brief footnote, and I would, therefore, refer you to the general subject of Profits in Bees, as given in our A B C of Bee Culture. I may say in a general way, however, that a fair average per colony is about 35 lbs. of comb honey and 50 of extracted. On this basis an apiary of 100 colonies would give a gross income of from \$300 to \$400. From this amount, of course, would have to be subtracted time spent on the bees, and cost of any supplies in the way of sections and shipping-cases, or other honey-packages to put the product on the market. To that cost should be added the 10-per-cent on the total value of the bees, hives and all.

An expert bee-keeper with 100 hives, if engaged in some other occupation, might, nights and mornings, so manage the bees that the labor item could be cut out of the calculation—especially so if the work of the bees were a recreation. In that case the net income would be materially larger.—ED.]

#### WHO PAYS FOR THE WINTER SUPPLY OF SUGAR SYRUP?

If I took some bees to work on halves, I to get half of increase, honey, etc., for one year, and as there was no increase, no honey, nothing, and they have got to be fed or there will be no bees at the end of the year, who should buy the sugar for them if I keep them another season? or, in either case, if I do or don't?

A SUBSCRIBER.

Brighton, Col.



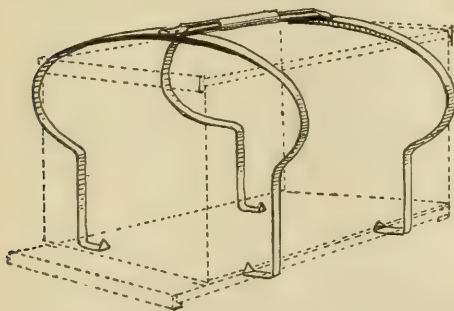
[You have given us a hard question to answer. The owner of the bees has expended no labor, and up to the time the bees have to be fed he is not out of pocket anything. On the other hand, *you* have spent your capital (labor) all for nothing. The owner put in his capital (bees and appliances) and he still has that capital. *Your* capital is gone. I should say, then, that the owner should pay for all the syrup, or his capital will be gone likewise.]

In every contract involving the keeping of bees on shares there should be a provision covering a contingency of this kind. In our model contract, under the head of "Bees on Shares," in our A B C of Bee Culture, it is provided that, where no honey is secured, or an amount not to exceed 10 lbs. per colony, the owner shall pay the operator a certain amount per day to cover loss of time, but the amount is not specified. If a man is worth \$2.00 a day at the bee-yards and he conscientiously and intelligently fulfills his part of the contract, he ought not to receive less than \$1.00 a day. The owner could well afford to pay that amount, as the bees, by reason of the manipulation, have probably been enhanced in value; and for this increased value the owner should be willing to pay a reasonable sum.

If it could be shown, on the other hand, that the operator, while *claiming* to know all about bees, really knew nothing about them, and that he was negligent, then such operator should get nothing for his work—particularly so if other bee-keepers in the vicinity secured a fair crop of honey. When any one engages to keep bees on shares he ought to be able to show good references from bee-keepers with whom he has worked before.—ED.]

#### AN IRON HIVE-CARRIER.

I saw in GLEANINGS a picture of your pole hive-carrier. I will show you how to make one with which you can carry them up and down stairs just as well as you can a satchel. The illustration shows the idea. I use

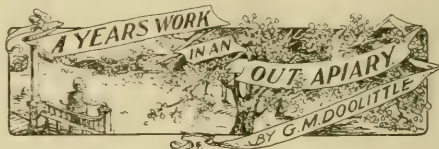


a piece of  $\frac{3}{8} \times \frac{1}{2}$  steel tire for the backbone, as I call it, and a leaf of a buggy-spring for the front part. The spring has to be drawn out thin except about a foot in the center where the backbone is welded on. You can carry a hive in both hands if it is not too

heavy. To put it on a hive you take hold of the front part, spread it open, and slip it forward until the back end hooks on; then the more you lift, the more it holds on. It wants to be made so that it touches the out-sides and end about three inches. Make one and try it; and if you like it, let other bee-keepers see how much easier it is to use this than it is to carry them in the arms.

Spencerport, N. Y.

R. G. CAREY.



### CHAPTER III.

#### BLOOM TIME.

As I looked out over the valley, and to the hills beyond, on the morning of May 20, 1905, a beautiful sight met my gaze. The dew-covered grass, in many fields, was glistening in the morning sunshine, while the plum and cherry trees, with their white flowers, in the orchards, nestled down among the more showy apple, whose pinkish-white bloom so laden the air with fragrance that, from sight and smell, one could hardly think but that he was in the sinless "Eden land" when the "stars sang for joy" on creation's early morn. But a neighing from the barn calls out "horse to be fed," and the "rounds of another day" are begun. After breakfast the horse was hitched up, as the roads to the out-apiary are too muddy, from the rain of the afternoon before, for comfort with the auto.

Arriving, I find the bees starting out in good earnest for the apple-trees, which is just what I want, as they will now be out of the way when I am hunting for the queens, for to-day's work is to consist in part in finding and clipping the wings of all unclipped queens. This clipping part would be wholly unnecessary with the plan to be given were it not that, owing to certain peculiar seasons, the bees in a few colonies will take it "into their heads" to swarm a few days before I am ready to do the "swarming," and in such cases as these, where all queens have their wings clipped, these colonies are held together until the time has fully arrived for making swarms. As such peculiar seasons do not come oftener than about one year in four, I have sometimes thought I would give up the clipping; but so far I have adhered to it, very much as a man will stick to the insuring of his buildings when there has not been a "fire" in his school district for forty years.

On opening the hives I find the honey quite largely turned into bees and brood, as only the two outside combs have much in them—six to eight combs in each hive being

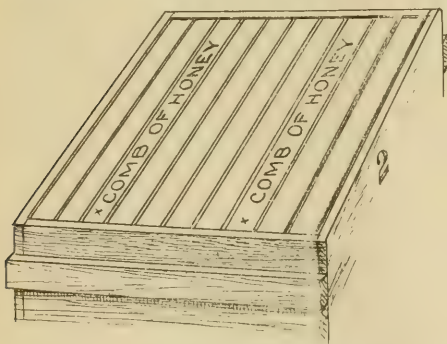




with the least possible labor. But, to return:

Having decided that 13 colonies are now ready for "treatment" I go to No. 1 and take out the two outside frames, containing mostly honey and pollen, putting two empty combs from the reserve pile in their place. I now put on a queen-excluder, and on top of this I set another ten-frame hive, having eight combs in it, the same being more or less filled with honey, just in accord with the way these reserve combs come off the colonies the fall previous. Perhaps I'd best tell right here how I get these reserve or extra combs. Wired frames were filled with foundation and given to colonies to draw out into combs, till I had an extra set of ten combs, or twenty nice worker combs for each colony I expected to work at the out-apiary for section honey, each year. To return again.

Having the hive with eight combs in it, set over colony No. 1, prepared as given, I take the two combs of honey taken out, and shake the bees from them so as to be sure the queen is not gotten above, when two of the eight combs in the upper hive are placed a bee-space apart, toward one side of the hive, when one of the combs of honey is put in. Four more of the eight combs are now drawn toward the frame of honey just put in, properly spacing them, when the other comb of honey is put in, the other two combs spaced, and the hive closed. The diagram show the arrangement.



I now fix the other twelve colonies in the same way, when all are ready to do the best work possible in every way till white clover blooms. Taking the years as they average, and fixing each upper hive with an average of the reserve combs, as to honey for each colony, each will have from 15 to 30 pounds, and this amount together with the way their "riches" are fixed, and the bees straightening things up to their liking, gives a zest to brood-rearing which soon very nearly or completely fills the ten combs below, and that in time to give the maximum amount of bees in the clover and basswood flow. If the bees do not secure honey to any amount from the fruit-bloom, mustard, or locust, on account of bad weather, as is often the case in this locality, they go right on with their

brood just the same, as the amount of honey they have demands no retrenching.

#### THE IMPORTANCE OF GETTING THE COLONIES IN THE SPRING IN THE BEST POSSIBLE CONDITION FOR THE HARVEST.

Again, I wish to quote from W. Z. Hutchinon: "Can you bring your bees through the spring and have them in the best possible condition for the harvest when it comes? Are you sure there is nothing you can do in this period to increase your crop? I came across a bee-keeper a short time ago who secured a crop far in advance of his neighbors; and the only difference in his management, so far as I could discover, was that he fed his bees between fruit-bloom and clover; and when the latter came the combs were full of brood and food, and the surplus went into the supers *at once*; besides, there were more bees to gather it." This is just what this plan, as here given, accomplishes. The bees are abundantly fed, so there is no slack in brood-rearing; the combs in the lower hive (ten in number) are full of brood. There are nearly double the bees to gather honey when the harvest comes that there are when working by the old plans; and about the honey going into the supers *at once*—I will let the worked-out plan tell you further on.

If a good yield happens to be obtained from fruit-bloom, wild mustard, and black locust, the brood-nest or lower hive is not crowded with honey, as would have been the case had not this upper hive of combs been given, for the combs of honey raised from below and put above tell the bees from the start, "This is our storehouse," and there is room enough in it to hold from 60 to 75 pounds of surplus, above what was in the hive when I closed it. With a good flow from fruit-bloom or any other source, just at this time, together with the honey that we had allowed them at our former visit, had they been kept in the lower hive, with no sections put on, would come a material lessening of our prospect of a surplus from clover and basswood, either from forcing them to swarm prematurely or the crowding of the queen, by filling the cells with honey, which should be occupied with brood. Elisha Gallup was right when he told us, years ago, that such would be the case where a large surplus was obtained early in the season, from robbing or any other source, which filled the combs with honey before they were fully occupied with brood.

As now fixed, brood-rearing goes on "swimmingly," with no desire for swarming, and this is just what is desirable at any out-apiary (or home yard also) worked for comb honey. The entrances to all hives but the weaker ones are "thrown wide open," while these are given as large an entrance as the stronger ones had at the last visit before this. The "dooryard" boards are fixed so that the grass will not "swamp" the hives or hinder the bees' flight before my next visit, and I am off for home. The work part, as given here, is what I did at the third visit.



#### NAVIGATING THE WATER ON SARASOTA BAY, ETC.

I strongly suspect some of you would rather I should write about "navigating the air;" but I am not quite ready for that just now; but it will come very soon, Providence permitting.

There seem to be four ways of propelling boats here on this bay; and, by the way, perhaps I should explain that all traffic of any account in this region is by water. There isn't a horse on this whole island (ten miles long), and there are very few on the main land—that is, unless you get back in the country away from the shore. Well, in regard to the four ways of "getting along." There are row-boats, sail-boats, and gasoline-launches. That is three; and when the wind slacks up, sail-boats (and sometimes launches) are propelled by what is called "poling." This is possible, because the water all over this bay is rarely over six feet deep, and usually only about three or four. The "poling-oar," always carried in every sail-boat, is from fifteen to eighteen feet long, and the expert sailor will put one end on the sandy bottom, then run back along the side of his boat the full length of that long pole, while he makes the boat just "scud" ahead. One day, soon after we reached here, I was standing on the shore, overcoat on, and fur cap pulled down over my ears, shivering in the terrific cold wind, when I saw a young man poling a boat, pretty well loaded down, up toward where we stood. He was barefooted and bareheaded, and had his sleeves rolled up and shirt-collar turned down, besides; but he was a splendid picture of athletic strength and manhood. As he skillfully shot his boat up to the dock, and then stood right in the wind covered with perspiration I suggested, as I took his hand, that he would surely take cold. He laughingly replied, "No danger at all, Mr. Root; I am perfectly used to it." He is the son of a well-to-do farmer, and had been to Sarasota (sixteen miles from his home) with produce, and was bringing back supplies. The wind was so heavy against him he had taken down his sails, and was "poling home" rather than sit down and loaf until the wind went down.

I want to digress a little right here. Dr. Miller's good wife might like to know why I don't take off my overcoat and "fur cap," go barefoot, get soaked with salt water (and perspiration), and then stand in the cold wind with impunity, etc. Well, I would give every thing in the world (except Mrs. Root), and start life over again, in exchange

for such vitality and strength of constitution as belong to my good friend and neighbor, Walter Blackman. After the doctors told me, a dozen years ago, that I would never again be a well man I have been fighting off "my funeral." You remember that, for years, I ran away from it with my bicycle, and, later, with the automobile. Sometimes I think I have got out of sight of my malarial chills; but back they come again; and I have learned by bitter experience that, when they come, I *must* keep up the temperature in some way. If exercise is out of the question, then I must be "bundled up." I am sure I am not alone in this. I have seen elderly people go down to their graves just because of going out or getting caught in the weather not properly protected. The modern way of barbering men folks, together with a style of hat that doesn't protect the bald heads, and *can not* come down over the ears at all, is, I am sure, a reason for the terrible amount of grip, catarrh, etc. Had Ernest worn a fur cap, as advised by *his father*, and put on a warm overcoat when outdoors, he *might* have been spared the ten-day grip mentioned on p. 345.

Now about the fur cap when bees were at work. I didn't need it then; but when I left home for a twelve-mile boat-ride *before day-light* it was very much needed; as a consequence, my other cap was at home "on its peg." Dear Mrs. Miller, don't you think I have, through God's providence, during the past twelve years or more, been a pretty "lively corpse," after all?

This poling-oar is made of the very strongest and lightest wood, and has a thin oar-like blade at its lower end. This is to save friction in drawing it through the water. Mr. Shumard says he would rather pole a boat than to run it any other way, while his two boys are both experts in the use of sails.

Gasoline as a motive power has the advantage of the others, because it is independent of the wind; but it is more expensive, and there is more or less uncertainty connected with so much complication. Before there was a windmill-factory anywhere in the United States, I made a windmill for my mother that pumped water and churned the butter; of course, the first real heavy blow we had wrecked it. I was so young then I think I cried about it; but as I wiped my eyes I told mother, and some of the older children who laughed at my tears, "Well, you just see if the time doesn't come when windmills will be all over the country, doing all kinds of work, and they will be made so they won't blow down *too*. Since then I have always liked *God's wind*, "that works for nothing and boards itself." It almost always blows down here, which is lucky for the boats but bad for the bees. Our sail-boats, three of them, are for fishing, and are pretty large for me to handle; but as I had a great longing to try my hand at it, Mr. S. and his son-in-law told me one rather quiet day to go ahead. As they were at work in a field some distance from the house,



they said Florence would show me how, and get me started. Now, as Florence is nearly eighteen I am a little shy of her, and naturally she would be a little shy of climbing around with me on a boat; but my two good friends, Clara and Flossy, were on hand, and they said they could tell me "all about it." It took us all three to set up the mast and spread the sheet to the wind; and just as I was about to "launch out" I asked Flossy (eleven years old) if *she* couldn't go along. Clara ran to get permission, while I inquired if Flossy had ever run a sail-boat. She said she had, while one of her brothers was along, but never all alone; but she felt sure she knew all about it.

"All right!" sang out Clara, and we were off. I held the ropes attached to the rudder; and when I found it was just as easy to guide as driving a gentle horse, I said, "Why, Flossy, one could almost read a newspaper while running a sail boat. It's just the easiest and nicest thing in the world."

If I remember, Flossy didn't exactly agree to this, especially as we were nearly across the bay, and approaching the dock near the store. I suggested that we come up to the dock with the wind behind us; but Flossy said not so—that we must swing around so as to run up *against* the wind; and she managed so well I actually said, "Hello! we are going to make an 'eggshell' landing, I verily believe;" but when the boat got up so I might have reached the timbers of the pier, if I had been on the alert, the boat struck a plank under water and veered off. We swung round and tried to run up again; but the boat got contrary, and, like an old horse that found children had got hold of the lines, wouldn't go anywhere. The wind was blowing us further and further from the dock in spite of us; and as Flossy was "captain" I supposed she had some plan in mind, and, wanting directions so I could fall in with her plan, I said:

"Well, Flossy, what are you going to do?"

"Why, Mr. Root, I don't know what I *can* do."

"Well, see here. We are going right toward the postoffice dock; let's go down and get off there."

"All right, we *can* do that, can't we? We'll have to walk back to the store to do our trading, but that won't matter much." We had both just begun to feel happy again when we got too near the shore, and were aground. I said:

"Never mind, Flossy, I can fix that;" and I took the poling-oar and pushed off with such zeal that I swung the boat clear round, and the contrary thing started briskly for the store-dock, right where we had been trying to go and couldn't. Then we both laughed, and I told her our boat was like the dog. His master opened the door and ordered him to go out; but instead of obeying he ran under the bed.

"All right," said the man, "go under the bed then. Any way so you *mind* what you are told."

By this time we were up at the store-dock, and the storekeeper said:

"What are you two trying to do?"

I replied, "We were just trying to *stop* somewhere, but our boat got contrary."

After we got our purchases aboard, with some anxiety and trepidation we hoisted sail and started for home. Said I: "Flossy, can't we get home without tacking?"

"I don't exactly know," she said slowly; "but I am going to try hard."

It seems odd to those unacquainted with sail-boats that the same wind that sends the boat flying eastward will also send it westward; and, more strange still, that a wind right *across* the path of the boat will send it with still greater speed than if the wind is exactly *behind* the boat. In our case the wind was a little west of south, and we tried so hard to run straight to our dock that the sails often flapped in the wind, and we didn't get ahead at all. Flossy finally declared, when about half way across the bay, we would *have* to tack, and we undertook to do it, just as we had seen the boys do; but the boat got fidgetty and contrary, just as it had before; and after trying several times, and finding the boat "*just wouldn't*" turn round, we gave it up.\* The wind also began to get more lively; and when it looked as if we two might (in spite of all we could do) go off as Columbus did across the great ocean, Flossy announced we would have to run in below our dock and "pole up." I was going to do the poling, but she said I would never get anywhere without practice; that if I could get the sails down and tied up she would get us up to the dock O. K.

"Oh, yes! I can take down the sails, *sure*; what is to hinder?"

By this time we were so near the shore Flossy shouted, "Pull up the center-board!" As I had just commenced on the sails, this "sort o' rattled" me; but I got it up, then I grabbed for the sails; but they flopped in the salt water, then rapped me across the face, and acted like all possessed. The boat tipped about so I lost my footing, and didn't know but I should go overboard, while the eleven-year-old child puffed and blowed with the exercise of handling that great long heavy poling-oar.

The first thing in getting down the sail is to loosen the "sprit" (pronounced "*spreet*") the diagonal stick that keeps the sail spread out; and as this is almost as long and heavy as the poling-oar, when there is much wind it is quite a job. When it is out, the sail manifests a *wonderful* unwillingness to be tied up to the mast. We both drew a long breath of relief when we got our boat tied, and found the folks on shore, who had been watching and laughing at our maneuvers. And I, too, laughed until I almost cried when she said, "I don't know whatever I *shall*

\*The boys explained the reason why we failed to swing round was because we were running so close to the wind we had very little speed and not enough momentum to the boat. Had we turned the boat so as to *speed* before tacking we should have done better.

do." I spoke of making an "eggshell" landing. An expert boatman is expected to run up to the dock so quietly that his boat would not break the shell of an egg as it struck. Bumping injures the dock and injures the boat. A nice boat should never "bump" anything. When the wind rises, our boys untie their boats and anchor them so far away from the dock the wind can not possibly pound them against it. Besides this, about once in 90 days a boat should be turned over on dry ground, dried out, calked, and then painted.

I have mentioned that the three girls go a mile and a half to school in a little row-boat. A few days ago their fifteen-year-old cousin, Ernest Shumard (by the way, he was named after Ernest Root about fifteen years ago), told his mother he was not well enough to go to school, and got permission to stay at home. While at home, however, he rigged up a little mast for this row-boat, got his mother to help make a sail, and the girls come home without touching an oar. Of course, they can not tack very well without a center-board; but much of the time their little sail saves them a deal of hard work.

#### SAILING ON DRY LAND.

A few days ago our mail-boat left a pretty heavy box of oranges, lemons, and grape fruit at our landing, sent by our neighbor Drumright. I knew I should have quite a task wheeling them almost a mile along the beach, because the sand in some places is rather soft. This is what I did after I had considered that a hard wind was blowing our way. I fastened a four-foot-stick on the back board of a wheelbarrow just over the wheel. Then I drove two stakes into the staples that hold the side-boards. These stakes reached about as high as my head, and across and top of them I fastened a rather four-foot stick. A piece of burlap or bagging about four feet square made the sail. One edge was tacked to each four-foot stick, and a stout cord ran from the top end of the handles of the barrow to the ends of the stick near my head. I loaded on my oranges, let the wind fill my sail, and it was easy work carrying the load. When a big gust of wind came I had to run to keep up. Another thing, my sail was disposed so it was something like a kite; and while it pulled, it also lifted up on the load so much that in soft sand, when there was a good puff of wind, the wheel sank in the sand very little. When a horse pulls a vehicle through the mud he lifts up on it as well as pulls it ahead. The power applied to an automobile does not *pull up* at all, and this is why it takes a four or five horse-power engine to propel a load that two horses would *pull* easily. My device pulls like the horse, or better still. We need no guiding mechanism with a wheelbarrow, for it is guided already. Whenever heavy loads are to be moved with a wheelbarrow any distance of any account the wind can easily be made to help. When going the other way your sticks and cloth tied up take but little room, and their weight is trifling.

Just a word more about sail-boats. With a fair wind your boat handles better and *sails faster* with a good load than when empty. In fact, the boys carry all the time on their fishing-boats a bag of sand for ballast, weighing over 100 lbs. When the wind blows across the path of the boat so as to tip it over badly this sand-bag is placed clear upon or across the gunwale, so as to straighten the boat up, as it were. Larger boats carry tons of scrap iron as ballast. Sometimes heavy freight can be transported at a very low rate by letting it take the place of ballast.



No good thing will he withhold from them that walk uprightly.—PSALM 84: 11.

#### GOD'S GIFTS; THE WATER WE DRINK.

I believe the general decision is that, as a rule, pure soft water is safest to drink, and distilled water is probably the purest water that we can readily procure. Rain water taken right as it falls from the clouds (God's precious gift) is, however, so nearly identical with distilled water that wherever rainfalls are frequent it is, perhaps, the water for the average individual. T. B. Terry secures his drinking-water from a slate roof after there has been sufficient rain to wash the dust, smoke, etc., from the slates; and, if I am correct, he preserves it in covered stoneware jars. Perhaps there is no better way than this; but I have been using an automatic device we like very much for accomplishing nearly the same result. I have told you of our painted wooden eave-trough. Well, before I got around to making a wooden conductor to bring the water straight down at the end of the spouting into the rain-barrel, I noticed that, during a hard rain, the water would spout away beyond the barrel, and that it was only when a great quantity of water was coming down that the stream shot over the rain-barrel. A pail was placed beyond the barrel, and, as I expected, the water in this pail was of the very best. This is an important matter here, as our shingles are cedar; and unless it is raining very hard these shingles give us a little more cedar flavor than is desired. Well, when it first begins to rain, the water for a time drops straight down from the end of the trough. We set a big pail or tub for this strong dusty water, and use it for washing the hands. The large barrel gets the main part of the water from the shower; but the pail or tub that catches all that shoots over the barrel is always the best for drinking.

An ideal way would be to have a box or trough divided into three compartments; and if you wish to avoid "cultivating" mosquitoes, have a hinged cover over all, to be



opened only when it rains or when you wish to dip out water. If you need to save every bit of the rain water, you will find a good deal will be lost that falls between the tub and barrel. To prevent this, nail two shingles together V shape. Invert your V, and hang it over the edge of the barrel so all the water goes either into one or the other receptacle. In this region, as well as around New Orleans, cisterns are made of wood, as a rule, and placed on top of the ground. Kerosene-barrels are much used; and to get rid of the oil, rosin, etc., that would make the water taste, you make a big fire in the empty barrel, with shavings or something that will make it "hot." Use enough fuel to *char* thoroughly the whole interior. To get rid of all rosin, glue, etc., you must have it blazing so hard that the flames can be smothered only by turning the open end down on the ground when charred sufficiently. A "charcoal-lined" barrel is about as good a receptacle as you can well get for your rain water. Of course, all I have mentioned can be applied as well to cisterns made of cement, in the ground; but I have found very little cistern water in quality equal to that from a "charcoal-lined" barrel. If rain water is too warm and insipid, use ice. I don't care for the ice, but I do care a great deal for a little lemon juice squeezed into the water I drink; and after a *continued* use of it I still think it one of God's medicines. Don't put any sugar in it—at least not for regular daily use. Lemons grow almost of themselves in warm climates, and it impresses me that they are one of God's precious gifts.

Some may think what I have mentioned is a deal of "fuss" about so simple a matter as a drink of water; but, my friend, any thing that lessens the need of calling a doctor is far from being a simple matter. If you have a good spring or well, and the water agrees with you, I do not know that I would take the trouble to drink soft water; but physicians tell us a good many stubborn diseases are often helped by a change of drinking-water. I have sometimes thought the water from our spring in Michigan was better for my digestion than good rain water; but it may be only a notion. I feel quite sure, however, the mineral spring water of Agua Caliente, Arizona, commenced *at once* to have a very beneficial effect on my disordered digestion consequent on traveling. I think we may thank God for these special springs with their "healing waters," in about the same way we thank him for the lemons.

#### A. I. ROOT'S BATH-ROOM.

During the past winter I have had an experience that prompts me to add something to what I have written in regard to the beneficial effects of a shower bath. It came about in this way. You remember what I said in December about the "donax" shellfish. Well, we have been having them once or twice a week all winter, and we have never tired of them the least bit. When the waves were high it was something of a

task to gather them; and again and again I would go home soaked with salt water clear above my knees. At first I explained to "Sue" I was so busy getting the donax I forgot about the big wave, but added, "I've had experience now, and I won't get caught that way again." Well, it was only the old story over again until, in desperation, I sent to Montgomery Ward & Co. for a 60-cent bathing-suit by mail, and then I didn't need to mind the spray. In fact, I rather enjoyed it. When I finished my fishing I was ready for a real play in the salt water. Yes, a shower bath is a luxury; but, my friend, a shower bath in the old ocean with the salty spray about your ears and eyes is certainly one of God's most precious gifts.

A word more about the donax. When they are plentiful we get enough for several days in just a few minutes. I think I should enjoy a teacupful of donax soup at every meal; and with a few crackers or some dry bread it is the easiest dish in the world to prepare.

Mrs. Root had been scolding me one day (before I got my "suit") because I could not remember to get out of the way of the waves. As she wanted some donax for supper she came down to help. Oh, no! *she* wouldn't get caught; but when she got "busy" a big surf came up like a thief in the night; and it wasn't only her *slippers* that were drenched with salt water either.

#### THE SEA-BREEZE AND LONG DEEP INHALATIONS.

I have talked about water to drink and water for a shower bath, and now I have something to add about good air to breathe. For about two months we got our mail from the office with a boat; but it was often inconvenient to get it daily. The mail comes from Sarasota in a gasoline-launch, and the channel brings it close to our island, about a mile distant from our home. The carrier said if I would put up a box he would give us "R. F. D." Now, it has not been really necessary for me to walk this mile and back every day; but I soon began to enjoy my 9-o'clock morning walk so much I have hardly made a miss in two months. My path is along the Gulf—at least that is the easiest path, and the wet sand is usually so hard it scarcely leaves a footprint. There is almost always a strong sea-breeze to be faced, going or coming; and on these trips when facing the wind I have pulled in deeper drafts of air than I ever did in climbing the Michigan hills\*. I am sure I am an inch or two larger around my lungs than I ever have been before; and while I drink in these delicious "pulls" of the cooling breeze from across the great waters I thank God again and again for this gift and the privilege of enjoying it in my old age. *Surely* no good thing will he withhold from them that walk uprightly.

\*I want to say to my good friends in Dr. Miller's home (and others) that my fur cap is dispensed with during these walks. I usually go in my shirtsleeves, and sometimes bareheaded a great part of the way. I also leave my fur cap on the shore when swimming in the turf.

# Joseph Horne Co.

Pittsburgh, Penn.

**A Remarkable Watch Offer.  
A \$12.00 Watch for \$8.65.**

That's what we say and what we mean—a \$12.00 watch for \$8.65.

We can give it to you in two sizes, known to jewelers as 12 and 16 size, the former being the fashionable size to-day for men, the latter the large watch which more conservative men like best.

You can choose either an Elgin or Waltham movement, stem wind and stem set.

The case is open face, gold filled, warranted for twenty years.

If a plain face is preferred you can have it, or you can have an engraved case.

Our general line includes:

Watches for men from \$5.00 up to \$275.00.

Watches for women from \$5.00 to \$40.00.

Watches for boys and girls, \$1.00 to \$10.00.

Jewelry is only one of our lines—we are a store of seventy-five departments—if you would form a good idea of our scope, send for our Spring Catalog, now ready.

It costs nothing.

## BANKING BY MAIL

**4 Per Cent INTEREST**  
**Compounded Twice a Year!**

Assets of over one-half million and the management of prudent men of solid financial standing give this bank every element of safety.

Send to-day for particulars, explaining how you can open an account safely and conveniently by mail.

Under ordinary circumstances all or any part of your deposit may be withdrawn at will.

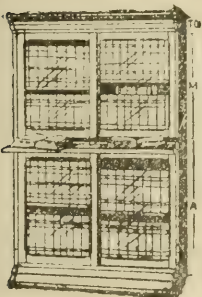
## SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres.

A. I. ROOT, Vice-pres

E. B. SPITZER, Cashier

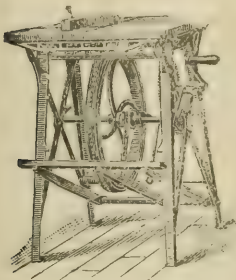


## SECTIONAL BOOKCASES

Sliding doors, adjustable shelves, in Quartered Oak and Mahogany. Send for illustrated free catalog.

**The Cleveland Desk Co.,**  
CLEVELAND, O.

Office and Library Furniture.



## BARNES' HAND and FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

**MACHINES ON TRIAL**

Send for illustrated catalog and prices. Address

**W. F. & JNO. BARNES CO.**  
545 Ruby Street,  
ROCKFORD, ILLINOIS.

**65c for 25 NAMES**—For names and P.O. of 25 farmers and 15c (stamps taken) we will send for 2 years the Farmer's Call—regular subscription price, 40c a year. F. C. is a weekly, 25 years old; 1300 pages a year; sample free. Farmer's Call, Quincy, Ill.



## THERE'S MONEY IN FARMING

If you understand modern methods and farm INTELLIGENTLY.

Every reader of GLEANINGS who is interested in farming or gardening, in the growing of fruit or of flowers, is invited to send for a free copy of our 80-page catalog and full information in regard to the Home Study Courses in Agriculture, Horticulture, Landscape Gardening, and Floriculture, which we offer under Prof. Brooks, of the Massachusetts Agricultural College, and Prof. Craig, of Cornell University. Home Correspondence School, Dept. 12, Springfield, Mass.



# 85 BEST Farm Gates SOLD to ONE MAN

Shelbyville, Ind., March 3, '06.  
Best Gate Co., 67-69 E. Jackson St.

Shelbyville, Indiana.  
Dear Sirs:—Please deliver to bearer, Albert Luther, six 12 ft. **BEST Gates** for Fairland farm. This will make **eighty-five BEST gates** bought of you for our farms in this county, many of which have been in use several years. They are **light, durable**, and do not sag or warp, and **have not cost one cent for repairs**. In view of these facts, I will continue to buy **BEST Gates**, and no doubt will have **one hundred or more in use** before fall. Very truly yours,  
J. B. HAMILTON.

and are now in actual everyday use on his farm. This certainly is pretty strong evidence of the superiority of the **BEST GATE**. A good gate is necessary to complete the fences on a well kept farm. It will more than pay for its first cost in one season in the time and labor it saves the farmer in passing through it, or in driving from one field into another.

## The BEST Gate

is certainly just what its name implies—it is the **BEST** for any purpose. It is light, strong and convenient to handle. The frame is made of select hard pine and strongly braced. There are **TEN STRANDS OF HIGH CARBON COILED SPRING STEEL WIRE** on this gate which are attached to the frame work with a **PATENT RACHET** so as to allow for tightening when needed. You cannot reproduce this gate for less than **50 PER CENT MORE THAN WE ASK**. We sell the **BEST GATE**

### Direct from Factory to User

and **PREPAY THE FREIGHT** as far as 300 miles from Shelbyville. **PRICE \$5 and upward** according to the size of gate. The illustration below shows the strength of **THE BEST GATE**. It is not an exaggeration for this gate will hold a weight of more than 700

lbs. without buckling or sagging. Write for our booklet, it describes **The Best Gate** more thoroughly than we can in this advertisement.



**THE BEST GATE CO.**  
**Dept. L**      **Shelbyville, Indiana.**



# \$50 if It Suits Nothing if it Doesn't



Great  
1906  
Split  
Hickory  
Special

That's how we sell our **Split Hickory Special Top Buggy**. Though it's the Buggy known for merit in every section of the country, and you know what you buy, still you can have one to use for 30 days before you decide. We make good, first-class Top Buggies \$35.00 up to our famous \$50.00 Split Hickory Special. And all other kinds of vehicles, and harness too. It takes 180 big pages to show all these in our new 1906 catalogue. We tell you this book will save you money and we want to

## SEND YOU ONE FREE

But we must have your name and address,—where we can reach you—let us know today. This is headquarters. We make vehicles and harness and ship direct to you to try. You can't get a more liberal proposition and you save middlemen's profit of a third to half by dealing with headquarters. Our guarantee is a legally binding one between you and us. You know the years of experience and long successful business behind it. Now we want to send you that catalogue so you can pick out what you want to try—then it's up to the goods. Your address, please, at once.

**THE OHIO CARRIAGE MFG. CO.,**  
H. O. PHELPS, Pres.  
Station 293 Cincinnati, O.

# PAROID

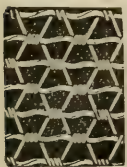
Before you buy roofing for any building, from a small poultry house to the largest mill or factory, it will pay you to get samples and complete proofs of quality from the oldest makers of ready roofing in America. (We originated the roll of roofing ready to lay with fixtures packed in the center.) Our concern was

## Founded in 1817

We can show you why "Paroid" is the best of them all—lasts longer and saves most in repairs. Drop us a postal to-day.

**F. W. BIRD & SON,**  
East Walpole, Mass.  
New York, Washington, Chicago,  
Hamilton, Ont.

# ROOFING



## FENCE Strongest Made

Made of **High Carbon** coiled wire. We have no agents. Sell direct to user at **factory prices on 30 days free trial**. We pay all freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today

**COILED SPRING FENCE CO.**  
Box 101 WINCHESTER, INDIANA.

## BROWN PAYS THE FREIGHT

### HEAVIEST FENCE MADE

All No. 9 Steel Wire. Well Galvanized. Weighs  $\frac{1}{2}$  more than most fences. 16 to 85¢ per rod delivered. We sell all kinds of fence wire at wholesale prices. Write for fence book showing 110 styles. The Brown Fence and Wire Co., Cleveland, Ohio.

## THE "BEST" LIGHT



Produces a safe, white, powerful light, brighter than acetylene or electricity. 100-candle power at a cost of 2¢ per week.

Made in over 100 different styles—every one warranted. Agents wanted. No dirt, smoke, or odor. Everywhere.

**THE BEST LIGHT COMPANY,**  
806 E. 5th St., Canton, Ohio

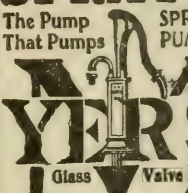
## TELEPHONE FACTS

We publish a finely illustrated book that is full of telephone facts. It tells all about telephones for farms, the kind to use, how to organize a farm telephone company, how to build the lines and where to buy the best telephones. Free if you ask for Book 36-F.

**Stromberg-Carlson Tel. Mfg. Co., Chicago, Rochester, N.Y.**

## SPRAY PUMPS

The Pump That Pumps



**MYERS**

Glass Valve

**SPRAY PUMPS**

Double-acting, Lift, Tank and Spray

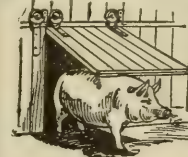
**PUMPS**

Store Ladders, Etc.

**HAY TOOLS**

of all kinds. Write for Circulars and Prices.

**Myers Stayon Flexible Door Hangers**



with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

**F. E. MYERS & BRO.**  
Ashland, Ohio.

## Paint Without Oil

Remarkable Discovery that Cuts Down the Cost of Paint Seventy-Five Per Cent.

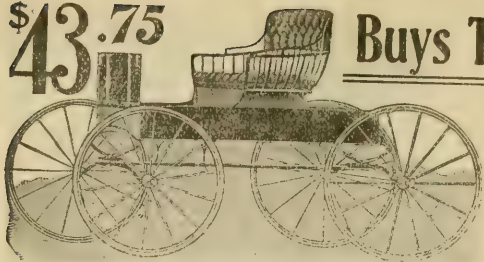
**A Free Trial Package and a Big Book Telling All About Paints and Paint-Making are Mailed Free to Everybody Who Writes.**

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it **Powderpaint**. It comes to you a dry powder and all that is required is cold water to make a paint weatherproof, fireproof and as durable as oil paint. It adheres to any surface, wood, stone or brick, it spreads and looks like oil paint and yet only costs one-fourth as much. For many purposes it is much better than oil paint and is indispensable to every property owner.

Write to Mr. A. L. Rice, 553 North St., Adams, N. Y., and he will send you a free trial of his new discovery, together with color cards and his valuable book on Painting, all free. This book lets you into all the secrets of paint-making, exposes fake paints, tells you what kind of paint to use for different purposes and shows you how you can save and make a good many dollars. Write today and the book and free trial of Paint will be sent you by return mail.



**\$43.75**



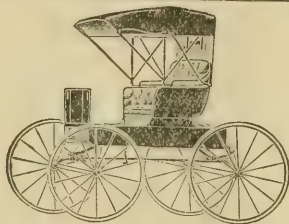
## Buys This Rubber-Tire Wagon

**Union Quality. Fully Guaranteed.** Best hickory wheels;  $\frac{3}{4}$ -in. Rubber Tire; long-distance, dust-proof, high-arched axles; oil-tempered springs. First-quality material and finish. Worth nearly double our **Factory Price**. We ship for your examination, without a cent in advance, if desired, and allow

**30 DAYS FREE TRIAL**

Money refunded on all purchases not satisfactory. You save dealers' profits. We build 150 styles of Vehicles, from \$26.50 to \$150. 50 styles Harness, \$5 to \$60. Write to-day for our 200-page Illustrated Style Book. Free for asking.

**Union Buggy Co., 45 Saginaw St., Pontiac, Mich.**

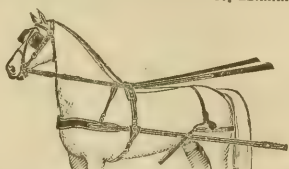


No. 628 $\frac{3}{4}$ . Top Buggy with Large Phaeton Seat and  $1\frac{1}{2}$  inch cushion tires. Price complete, \$71.00. As good as sells for \$30. more.

### 33 Years Selling Direct

Our vehicles and harness have been sold direct from our factory to user for a third of a century. We ship for examination and approval and guarantee safe delivery. You are out nothing if not satisfied as to style, quality and price. We are the largest manufacturers in the world selling to the consumer exclusively. We make 200 styles of Vehicles, 65 styles of Harness. Send for large free catalog.

**ELKHART CARRIAGE & HARNESS MFG. CO., ELKHART, IND.**



No. 4 $\frac{1}{2}$ . Single Curved Breast Collar Harness. Price complete, \$10.75. As good as sells for \$5.00 more.

**\$35.50**  
**30 Day**  
**Test.**



**No**  
**Money**  
**in**  
**Advance**

"Anderton" Vehicles and Harness direct from factory at lowest factory prices.

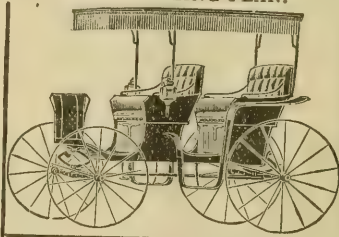
### A REAL FREE TRIAL

with no deposit, no fuss of any kind. A two years approval test, with a \$25,000 bank deposit to insure your getting your money back, if not satisfied. You can try an "Anderton" with your money in your pocket. Write for free 110-page illustrated catalog No. 21. It fully explains our offer.

**The Anderton Mfg. Co., 41 Third St., Cincinnati, O.**

## Factory Prices

ON THIS VEHICLE ON A SATISFACTORY SELLING PLAN.



The first selling step is to send it to you on 30 days free trial. If it stands the racket for 30 days and appears to be right, you pay us its price, but we are not released. We give you a personal guarantee, good for three years. Personal, mind you; straight from the factory to you, the user.

We are not mail order dealers, but manufacturers. We make every vehicle we sell, and sell every one we make direct to the users.

Well, this three-year guarantee: You are free to act on it any time. If any defect appears, if it is not all it should be, or all we represent it to be, or you are not satisfied with your purchase, you can have your money back for the asking.

You see we give you every advantage; lowest factory price, buy with your eyes open, seeing and trying, and give you opportunity to protect yourself against latent defects three full years. We sell all styles of vehicles this way—all direct, and all on same terms and guarantee. Just now we are offering two special bargains. Our catalogue explains them all. Write us for it.

**The Progressive Vehicle Mfg. Co.,**  
Dept. O - Ft. Wayne, Indiana.

### Let Me Tell You The Special Price

On this Genuine 1906

Chatham Incubator.

If you say so we send it to you at our expense to try 84 days. You see it—you see it work. If not entirely satisfied, return it at our expense. We return your money and ask no questions. Anyway send for free catalogue. Find out about it, then try it. Write today

**The Manson Campbell Co. Ltd. 216 Wesson Ave. Detroit, Mich.**



**84 Days**  
**Free Trial**



**EXTENSION NUTS**

AXLE

CURE

WABBLERS.

Make old buggies run like new. Quick sellers. Very profitable for agents. Exclusive Territory. Hardware Specialty Co., Box 535, Pontiac, Mich.

## INVESTIGATE THE POULTRY BUSINESS



Write for a free copy of my  
book describing

**Profitable  
Combinations  
of Egg, Broiler  
and Roaster  
Farms**

It gives the prices paid for eggs and poultry week by week for the past three years. It tells how and when a hatch taken off each week in the year could be most profitably marketed. It shows how you can make \$2.00 on a large winter roaster. It tells what profits can be made with each of the popular breeds, and the costs of production.

I have helped thousands to make money with poultry. My Model Incubators and Brooders are used on the money-making farms. It is my business to teach those who use them to do so profitably. Whether your needs are small or large, I will furnish without charge, estimates and plans for a complete equipment that will insure success without your spending a dollar uselessly. Send for my complete literature.

**CHAS. A. CYPHERS**

3927 Henry St. Buffalo, N. Y.

## METAL MOTHER BROODER- HATCHER



Is a marvel; does double work; successfully broods one batch while running another hatch. Gets the kind of chickens we all like. A complete hatching and brooding plant for only \$7.50. Our all metal system is absolutely fire proof, will hatch hen, duck, goose and turkey eggs equally well and at the same time. Our Brooders are made for convenience, economy and to raise healthy chickens. Hatchers \$5.00, Brooders \$5.00, Brooder-Hatchers \$7.50. Catalog free. Write now.



\$5

**CYCLE HATCHER CO.,**  
Box 223, Salem, N. Y.

## HOW TO BUILD INCUBATORS AND BROODERS



ACME COMPOUND WAFER REGULATOR and  
**AUTOMATIC LAMP**

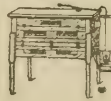
Combined damper and flame regulation, saves  $\frac{1}{2}$  the oil, will fit any machine. Write for catalog.

H. M. SHEER CO.  
Dept. 38, Quincy, Ill.

**PLANS  
FREE**

## BANTA Incubators & Brooders

Backed by 14 Years  
of Successful Use by



poultrymen all over the world. No guesswork. They are automatic in regulation and ventilation. Fully guaranteed to give YOU satisfaction. Send for free book. BANTA - BENDER MFG. CO., Dept. 23, Ligonier, Ind.

**\$12.80 For  
200 Egg  
INCUBATOR**

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

GEO. H. STAHL, Quincy, Ill.



**\$1. PER MONTH**

to \$2. per month rent's any incubator.

Rent takes for it. We Pay the Freight.

**40 Days Trial** at same prices. Buy

build one. Prices, ready to use: 50 egg

\$8.00; 100 egg \$9; 300 egg \$12.75. Brood-

ers, \$3.50 up. Guaranteed. Catalog free.

BUCKEYE INCUBATOR CO., Box 64, Springfield, O.



## LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Counties and Churches. Address

COILED SPRING FENCE CO.,  
Box 443 Winchester, Ind.

## Will You Test This Corn Grader— A Month at My Expense?

This is the Grader that attracted so much notice at the State Fairs last Fall.

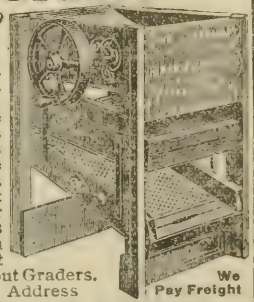
It grades seed corn 98% perfect, so that your edge drop or round hole corn planter gets kernels it can drop evenly—three to a hill. This increases the yield 20 to 30 bushels per acre.

We want you to know this by actual test. So we make you this remarkable offer—

Upon receipt of your order, we will send you a Chatham Corn Grader, freight prepaid. Use it

30 days. Find out what it will do. If it is not as represented, send it back at our expense.

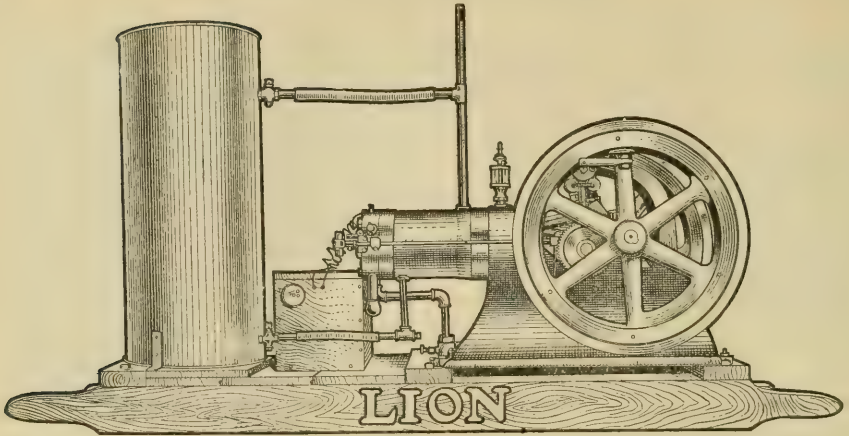
The month's use you have had of it will be FREE. If it is as represented, the price is only ten dollars. And the Grader will save its cost in a single season. We ship direct to you from the nearest of our twenty branch Warehouses in leading cities. Thus you get your Grader promptly. Let us send you our new book about Graders. It's FREE. Ask for it today. Address



We  
Pay Freight

**The Manson Campbell Co., 420 Wesson Ave., Detroit, Mich.**





## IT'S READY TO OPERATE

There's no firing-up—no waiting for steam with a **Lion** Gasoline Engine. It is **always ready to operate**. Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

## *The Lion Engine*

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

**We sell direct from factory to buyer**, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion** engine and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion** engine. It is free if you mention this paper when you write.

**Lyons Engine Company**  
**LYONS, MICHIGAN**



The time is fast approaching when any one who has building to do will own a machine and make hollow concrete building blocks for any structure he is to erect.

With our machines you can make the blocks just as good as any one else by following the instructions we send with each machine.

Medina Concrete Co.,  
22 Court Street  
MEDINA, OHIO.



**PIONEER GUARANTEED  
NURSERY STOCK  
AT WHOLESALE PRICES**

All stock guaranteed disease free and true to name.  
Hart Pioneer Stock is pure bred and produces heavy crops.  
Value received for every dollar sent us. No Agent's Commission  
WRITE FOR COMPLETE PRICE LIST. WE WILL SAVE YOU MONEY  
**HART PIONEER NURSERIES, Est. 1867 Fort Scott, Kan.**

**THE KITCHEN GARDEN**  
JEWELL'S COMPLETE HORTICULTURAL ESTABLISHMENT. Our 5 FREE CATALOGS cover everything that is HARDY in the line of FRUIT TREES and PLANTS and GARDEN SEED. The new Jewell Fruit Catalog is the most complete published.—honest descriptions based on 38 years experience in Minnesota. 1906 Free Catalog of Tested Vegetable Seeds now ready. Remember we have a 1200 acre nursery here devoted to fruit and ornamental stock suited to the NORTH. Every tree guaranteed for 2 years.  
RELIABLE AGENTS WANTED  
**THE JEWELL NURSERIES**  
Box 12 Lake City, Minn.



**STRAWBERRY  
PLANTS**

The Senator Dunlap is the best grower, best producer, best shipper, best seller. I offer over 1,000,000 of these plants at surprisingly low prices; fifty other varieties. Large variety fruit plants, roses, etc. 22d year. Send for free catalogue.  
L. J. FARMER. BOX 608 PULASKI, N. Y.



**HOW TO GROW  
CACTI**

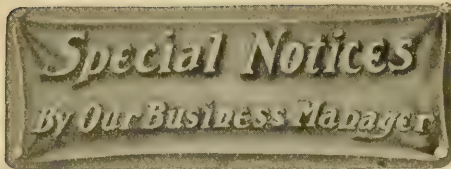


is fully explained in the new book just issued, "Cactus Culture for Amateurs," 80 pages, finely illustrated, describes 500 varieties. Tells where found, treatment to produce bloom, soil, how to graft, how to grow from seed, and where to get all rare Cacti and Succulents, price 25c. 40-page catalogue of Cacti, and nice sample Cactus (named) 10c. E. Texensis (like cut) 25c. Old Man (genuine) 50c. 10 nice Cacti, all different, \$1.00. Circulars free. **The Callander Cactus Co., Dept. 48, Springfield, Ohio.**

**850,000 GRAPE VINES**

69 Varieties. Also Small Fruits, Trees, &c. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. **LEWIS ROESCH, FREDONIA, N.Y.**





#### BEESWAX WANTED.

We are in the market for all the beeswax we can get, and will pay, till further notice, 29 cents cash, 31 in trade, delivered here. We hope the price will not have to go any higher, for if it does we shall have to increase the price of comb foundation as well, and we want to avoid changing the price of that during the season if we can.

#### TOBACCO DUST.

We have furnished many tons of tobacco dust to those who grow lettuce, cucumbers, melons, etc. It is used as an insecticide and fertilizer. We are prepared to supply it in quantities large or small—10-lb. lots, 25 cts.; 100-lb. lots, 2 cts. per lb.; 150 lbs. for \$2.75. Cases of 300 to 400 lbs. each, at 1½ cts per lb. Can ship from here or from Marquette, Mich.

#### ORDERS FILLED PROMPTLY.

The volume of business has been quite gratifying considering the fact that so many supplies were left unused last season, owing to the partial failure of a honey crop. Orders are well filled, and we are in position to take care of new orders promptly. The demand for honey-extractors from Southern California has been greater than it has been before in years, and there is every indication of a good crop of honey in that section. We furnished about 200 extractors in the month of March alone.

#### MAPLE SYRUP.

The weather this spring has been favorable for the production of maple syrup, and the quality of the syrup produced is finer than we have had for several years. We have about 400 gallons in stock put up in one-gallon cans, which we offer in cases of six cans at \$1.00 per gallon; less than full-case lots \$1.10 per gallon.

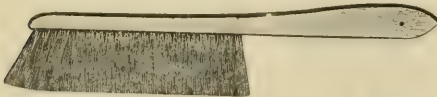
We also have a limited amount of No. 1 maple sugar which we offer at 12 cents per pound as long as it lasts. Now is the best time to ship maple syrup and sugar before the hot weather comes on.

#### ALEXANDER FEEDER.

We are prepared to furnish the Alexander feeder spoken of in an article in this issue. We make them 19 inches long, so they may be used with either an eight or ten frame hive. With a ten-frame hive they will project three inches beyond the hive for feeding, and the block may be laid crosswise of the feeder or be cut off as preferred. With the eight-frame hive the feeder projects five inches, and the block lies lengthwise. We soak the feeders in oil to preserve them, and fill the pores to prevent the feed from soaking in. Price finished, including block, 25 cents each. Ten for \$2.00; 50 for \$9.00.

#### GERMAN BEE-BRUSH.

Some months ago Mr. R. F. Holtermann called our attention to a bee-brush which he received from Germany, made of genuine bristle or horsehair. He had used one a whole season, washing it out often, and it appeared to be as good at the end of the season as at the beginning.



He considered it so far ahead of any thing he had ever seen or used that he wanted no other. We concluded if it was so good for him it must be equally good for others. We are now provided with a stock which we offer at 25 cents each; by mail, 30 cents. The bristles are

black, and about two inches long, extending eight inches on the handle. Made of white bristles it would cost 5 cents each more.

#### HOTBED SASH.

Cypress lumber has been advancing in price as well as other kinds, and the 1½-inch shop grade used in making hotbed sash can not be had at all of any of the mills, so far as we can find. We were fortunate in finding some on the hands of a dealer, and have kept our orders up. We have had a car ordered since last December, which has not been shipped yet, and we can not tell how soon it will be. We have another car ordered from another dealer, so we may hope to be in shape to care for our orders as well as any one can. We have one car on hand which will make several hundred sash. Prices will be 5 cents each higher—I. e., 85 cts. each, \$4.00 for 5; \$7.50 for 10.

### Special Notices by A. I. Root.

#### BASSWOOD-TREES AND OTHERS.

This spring we are sold out on our basswood-trees one foot and under—the kind we have sent mostly by mail. That is, we are sold out of all grown in our own nursery. We have, however, a good supply just collected from the forest. They have been heeled in, and the buds are probably starting nicely. While they are not as nice as those that have been one year in the rich ground of our nursery, I think they will all make nice trees with a little care. To those who care to take them with this understanding we will make these very low rates: 10 trees, 20 cts.; 100, \$1.50. If wanted by mail, add 5 cts postage on 10, or 25 cts. per 100. Larger trees, to go by express, grown in our own nursery, 10 trees, 75 cts.; 100, \$5.00. The basswood is a very hardy tree, and rarely fails to grow.

#### BACK ONCE MORE AT THE MEDINA HOME.

Mrs. Root and I reached here on the afternoon of April 14, and I expect to get at the big pile of letters awaiting my arrival as soon as possible.

On page 526 of the present issue the last word reads *surf* when it ought to be *surf*.

This reminds me that I neglected to tell you how much I enjoyed swimming in the great ocean when the waves were high enough so I could rise and fall with the swell, like a bird on the wing. I do not know but it is as near flying as I shall ever get. For quite a time it took all the courage I could scrape up to let a huge wave roll over me, and to be sure that I would come up on top safe and sound. When you once get to feeling that there is safety and security on the bosom of old mother Ocean there is an exhilaration and buoyancy that is equaled only by the delightfully refreshing feeling for an hour or two after a salt-water bath.

On page 413 of last issue, Ernest almosts suggests that A. I. R. succeeded in raising only four laying queens during his sojourn of four months on the island; but he neglected to tell you that the twin hives ordered in December, and shipped Jan. 2, were not at hand when I left the island, notwithstanding tracer after tracer was sent after them. I am inclined to think our good friend Dr. Miller is about right where he says, on page 488 of this issue, "The average queen reared here before the middle of May is worthless, although she may be nice-looking and seem to lay well for a time." With favorable weather we may be able to raise first-class queens on the island during every month of the year.

#### Convention Notices.

The semiannual meeting of the Western Illinois Beekeepers' Association will be held in the county court-room, in Galesburg, on Wednesday, May 16, beginning at 9 A.M., and lasting all day. C. P. Dadant and J. Q. Smith have promised to be present and contribute to the success of the meeting. Our meetings have been good, but we hope to make this one better. Galesburg has good train service, and all bee-keepers in this part of the State should avail themselves of the opportunity. Come, and bring your wives. E. D. WOODS, SEC.  
Galesburg, Ill.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

# BEE-KEEPERS' SUPPLIES

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

**EVERYTHING USED BY BEE-KEEPERS.**

Headquarters for the Danzenbaker Hive.



**New Metal-spaced  
Hoffman Frames  
are Here in Stock**

## Conversation with Wilson

"Good evening, Mr. Wilson. Come in and have a chair. I haven't seen you since you sent to Pouder for those supplies. Have they arrived yet?"

"Yes, they came long ago, and we have them all put together and painted. Bob put most of them together. You see Bob has been making fun of 'Mandy and me for having the bee-fever; but since Pouder sent those supplies he has the fever as bad as any of us. I heard him ask his ma when she was going to have a quilting-bee, and he wants me to have a husking-bee. Those supplies surely are fine, and how nice every thing did fit! Well, Mr. Smith, I hear you have been over to Indianapolis, and I came over to ask if you saw Pouder, and if you had a talk with him about spring feeding."

"Yes, I had quite a visit with Pouder. He is certainly well equipped to handle a lot of business. We had a long talk about spring

feeding and several other subjects. I was a little surprised when he told me that he is opposed to spring feeding unless colonies have been neglected in the fall. If they have been neglected they must, of course, be fed; but they should have candy, no feeder being satisfactory in cool or cold weather. Pouder thinks that all feeding should be done in the fall and there is no danger of overfeeding. He says that, while others are worried about their bees starving in February or March, he rests easy, knowing that his have an abundance; says he thinks spring feeding often starts spring dwindling, and it sounds pretty reasonable to me."

"How about feeding in the spring just to encourage brood-rearing?"

"Well, we were talking about that too. He says that, when they have an abundance of stores, and are left alone, such colonies build up faster for him than those trifled with."

## BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight; always be sure to attach name to package.

CATALOG FREE

**WALTER S. POUDER,**

513-515 Massachusetts Ave.,

INDIANAPOLIS, IND.



# Bee = keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

## Good Goods, Low Prices and Prompt Shipments

are the POINTS in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

**Page & Lyon Mfg. Co., New London, Wis.**

## **Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!**

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

**BEES AND QUEENS**—Orders booked now for spring delivery.

**HONEY AND WAX**—We handle honey and wax. Write for particulars.

### **The A. I. Root Co.**

Northwestern Branch,  
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

## Do you want Results?

The Best Results will  
be Obtained by Using

## **Dittmer's Foundation**

Now is the time to get your bee-supplies and make them up for the coming season. We make a specialty of working beeswax for cash. Beeswax always wanted. A postal card will bring you our catalog, which also contains valuable information for beginners.

**Retail - Wholesale - Jobbing**

Our warehouse is well stocked with bee-supplies of all kinds.

**Gus Dittmer, Augusta, Wis.**



H. M. ARND, MANAGER

# YORK HONEY AND BEE SUPPLY CO. Not Inc.

141 ONTARIO STREET : CHICAGO, ILLINOIS

CARRY A FULL LINE OF

## Lewis Bee-supplies and Cornell Incubators and Brooders

and poultry-supplies at factory prices. Write for the 1906 catalog of either or both. Honey for sale. Beeswax wanted; 28 cts. cash, or 30 cts. when taking bee-supplies in exchange. Italian bees, in modern hives, for sale, f. o. b. Chicago.



## Michigan Distributors

—FOR—

### G. B. Lewis Co.'s Beeware, Dadant's Foundation.

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service. Regular discounts allowed.

**SPECIAL.** A quantity of Dovetail and Wisconsin hives, slightly discolored by water, in packages of five at \$125 per hive for 1½-story 8 frame; 10-frame, \$1.40 per hive. Satisfaction guaranteed.

**ADVANCED BEE-VEIL.** Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

### A. G. Woodman Co.,

Beeswax Wanted.

Grand Rapids, Mich.

## Southern Bee-keepers!

If you want bee-keepers' supplies of best quality and for the least money possible, you should buy them from the WHITE MANUFACTURING COMPANY. Situated, as we are, right near the great pine belt of North Texas, Louisiana, Arkansas, and Indian Territory, we can secure the best material possible at least cost, thus enabling us to give entire satisfaction. Catalog and price list free.

**White Manufacturing Co. - Blossom, Lamar Co., Texas**

## Bee-keepers' Supplies!

Lewis' famous "Beeware," Root's Smokers and Extractors; Dadant's Comb Foundation, etc.; Queens and Nuclei in Season, Large and Complete Stock; Prompt Service. We will meet all competitors who handle first-class goods. Catalog with practical hints free.

### "Mandy Lee" Incubators and Brooders!

Whether you are experienced in artificial incubation or not, these incubators will give you gratifying results. The "Mandy Lee" brooder is the only brooder made which applies direct contact heat to the little chicks' backs. Our free incubator catalog describes them. Prompt shipments.

**C. M. Scott & Co., Indianapolis, Indiana**  
1004 East Washington Street



# BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

## Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.  
Trestler Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.  
T. B. Vallette & Son, Salina, Kansas.

**BINGHAM**  
Original  
Direct Draft  
CLEAN  
Bee Smokers



Pat'd 1878, '82, '92 & 1903

## Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and last; don't spit fire; don't go out; don't daub themselves all over. We are the most extensive *exclusively* bee-smoker makers in the world.

**T. F. Bingham - Farwell, Mich.**

Chico, California, October 28th, 1905.  
Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.  
J. M. RANKIN.

## A Prosperous

Season is yours.....

if you take time by the forelock, and be prepared for the season when it comes. **DON'T** put off ordering your supplies until you need them. Order now, and get the discounts.

I have a full line of Root's Goods, and sell them at factory prices and discounts. Send me a bill of what you want and let me tell you what I will deliver them at your depot for. Send for my 36-page catalog—it will be sent free—also a full description of the Hilton Chaff Hive and Supers, with a comparison made by the Michigan State Agricultural College between the single and double walled hives. All free for the asking. Cash or goods in exchange for wax.

**Geo. E. Hilton, Fremont, Mich.**

## WISCONSIN - BASSWOOD

### FOR SECTIONS

We make them and the very best of **Dove-tailed Hives, Shipping-cases**, and a full line of Bee-keepers' Supplies always on hand. We make very prompt shipments. Let us hear from you.

**Marshfield Manufacturing Company**  
Marshfield, Wisconsin

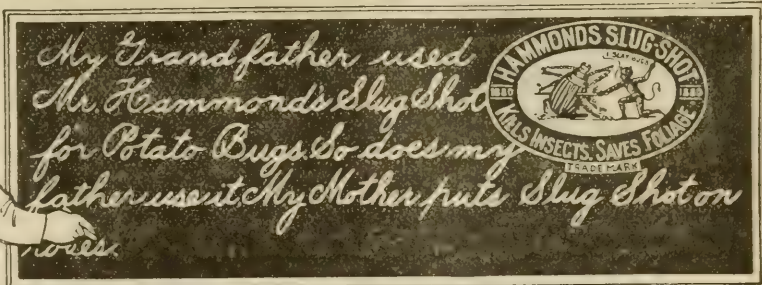
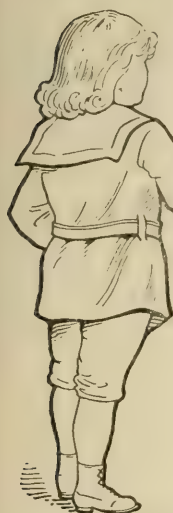
## NORTHEASTERN & NEW ENGLAND

## BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us Beeswax wanted. Bees and queens furnished in season.

**J. B. Mason, Mechanic Falls, Maine**  
MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

**Sold by Dealers in Seeds all over America.**



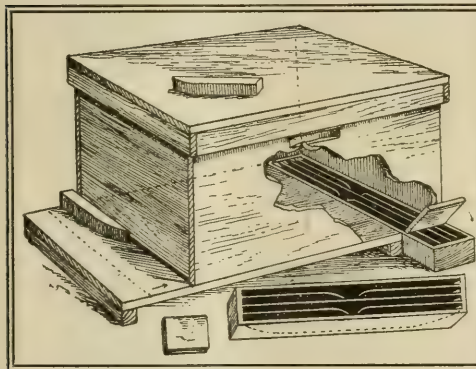
## "SLUG SHOT"

**Used from Ocean to Ocean**

A light, composite, fine powder, easily distributed either by duster, bellows, or in water by spraying. Thoroughly reliable in killing Currant Worms, Potato Bugs, Cabbage Worms, Lice, Slugs, Sow Bugs, etc., and it is also strongly impregnated with fungicides. Put up in Popular Packages at Popular Prices. **Sold by Seed Dealers and Merchants.**

HAMMOND'S SLUG SHOT WORKS, FISHKILL-ON-HUDSON, N. Y.

Write for pamphlets worth having on Bugs and Blight, and for bee-hive paint.



## Alexander's Bee-feeders

are now manufactured by The A. I. Root Co., Medina, Ohio, and by Charles Quackenbush, Barnevill, Schoharie Co., N. Y. These are the most practical bee-feeders that have ever been used in feeding bees, and why? Simply because you can feed a colony in less than 20 seconds, either in the winter or summer; and although the colony may be very weak and the weather cold the bees will empty the feeder at once. There is no danger of robbing, neither will there be any heat lost from the colony, nor a bee killed nor a drop of syrup wasted. The above advantages can not be said of any other bee-feeder. Try them this spring and build up the working force of your colonies so you can have twice the surplus honey in the fall that you would have if you lost the best of your clover harvest in rearing bees that mature only when the harvest is over. See article on Spring Feeding in this number. E. W. ALEXANDER, Inventor, DELANSON, NEW YORK

## Now Ready

To book your orders for bees for May and June shipment.

### Our New Stock of Goods

has arrived, and we can fill orders for eight and ten frame Dovetailed or Danz. hives and supers, also the new **METAL-SPACED HOFFMAN FRAME** on short notice.

Send for price list of Bees, Queens, and Hives.

**W. W. Cary & Son,**  
Lyonsville, Mass.

## I. J. STRINGHAM

OF 105 PARK PLACE

### New York

furnishes every thing a bee-keeper uses. Strong colony of bees, with tested Italian queen, in Dev'd hive complete, \$8.75: in a chaff hive, \$9.50. Three-frame nucleus, with Italian queen, \$4.25. Silk-faced bee-veil, 40 cts. postpaid. Italian queens, \$1 00. Catalog of bee-supplies free.

Apiaries, Glen Cove, Long Island.



# The Quality of Bee Supplies

OUR Bee-supplies are made from the best material, by the most skilled labor. We give an article of superior merit at a great reduction in price. We can do this because we are located in the heart of the lumber district and get our power from the well-known Falls of St. Anthony. Our catalog is a valuable book as it is full of information for the bee-keeper not usually found in a catalog. Write for it to-day.

**Minnesota Bee Supply Co.,**  
**20 Power Building, Minneapolis, Minn.**



## Everything for the Bee Keeper

will be found in our Illustrated Catalogue No. 40. It contains a full line of Hives, Supers, Followers, Sections, Section Holders, Frames, Extractors, Smokers, etc. All these and many other essentials are manufactured by us. Everything is guaranteed to be right and of best quality. Our prices are so reasonable that any bee keeper may afford the best supplies. We cannot tell you here of all the good things in this book.

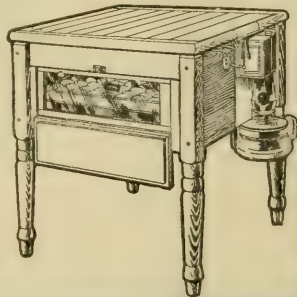
Better send for a copy today. We mail it free, together with a copy of the **Progressive Bee Keeper**, a splendid monthly publication devoted to bee interests. It will help you start right and keep you right after you are started. It is invaluable as an aid to every bee keeper. Ask for the paper and the book.

### We Sell the Best Incubators and Brooders.

Delivered at your station, prices the lowest. Write us at once and save money. Address

**LEAHY MFG. CO., 15 Talmage St., Higginsville, Mo.**

Branches at Omaha, Neb. and East St. Louis, Ill.



## Bees, Queens, and Bee Supplies.

We manufacture standard dovetailed bee-hives and supplies cheaper than you ever bought before. Our queens and bees stand at the head in quality. Untested, 75c each; \$4.25 for 6, or \$8.00 per dozen. Tested, \$1.25 each; \$12.00 per dozen. Select tested, \$1.50 each. Special prices to dealers in large lots on application. State agents for Dittmer's foundation. Catalog free.

**THE BEE AND HONEY CO.,**

Will Atchley, Prop'r, Beeville, Bee Co., Texas,

## If You Want Root's Goods

I have them at Root's prices. Also A B C of Bee Culture—one of the best books printed on bees. Catalog free. Address as below. . . . .

**D. Cooley, Kendall, Michigan**

# Queens.

## Quirin-the-Queen-Breeder

is, as usual, again on hand with his SUPERIOR IMPROVED strain of ITALIAN BEES and queens. The editor of GLEANINGS, in observing the handling of our bees last fall, remarked that "such stock is in great demand." Years ago we used to be obliged to buy bees each spring to keep us agoing; but now we sell perhaps a carload each season; get tons of honey, and raise thousands of queens. We have bred our bees for business; they have no superior either side of the ocean. For a dozen testimonials see our full-page adv't in the Dec. 15th number of GLEANINGS, or ask for circulars.

| Prices of Queens before July 1     | 1      | 6      | 12      |
|------------------------------------|--------|--------|---------|
| Select queens.....                 | \$1 00 | \$5 00 | \$ 9 00 |
| Tested queens.....                 | 1 50   | 8 00   | 15 00   |
| Select tested queens.....          | 2 00   | 10 00  | 18 00   |
| Breeders.....                      | 4 00   |        |         |
| Golden five-band breeders.....     | 6 00   |        |         |
| Two-comb nuclei, no queen.....     | 2 50   | 14 00  | 25 00   |
| Full colonies on eight frames..... | 6 00   | 30 00  |         |

Add the price of whatever grade of queen is wanted, with nuclei or colonies, queens ready in April, nuclei about May 10; can furnish bees on Danzenbaker or L. frames; pure mating and safe arrival guaranteed. We employ 400 to 500 swarms in queen-rearing, and expect to keep 500 to 1000 queens on hand ready to mail. Our North-bred bees are hardy, yet gentle; they will give you results. Address all orders to

## Quirin-the-Queen-Breeder, Bellevue, Ohio

## Tennessee-bred Queens

From Extra Select Mothers

Three-band from dark leather imported; Moore's long tongue or my own; Golden from Laws, Doolittle's, or my own; Caucasians and Carniolans from direct imported. No disease. Contracts with dealers a specialty. Apiaries from  $3\frac{1}{4}$  to 7 miles apart. Write name on postal, and get circular and what others say.

**JOHN M. DAVIS**  
Spring Hill, Tennessee, U. S. A.

## California Sage Queens

For the coming season I am breeding choice Italian queens from best honey-gathering strains of bees that are hustlers. No disease of any kind has ever been in or near my apiary. Prices: Choice untested, \$1.00; six, \$5.00; dozen, \$9.00. Tested, \$1.50; six, \$8.00. No small or inferior queens sent out.

**J. W. GRIFFIN**  
528 Gladys Av., Los Angeles, Cal.

## TAYLOR'S ITALIAN QUEENS FOR 1906

Leather-colored and golden Italians. I have made it a specialty for 18 years to breed for the best honey-gatherers of these races, and I have not been able to get any other stock that will store as much honey as my strains, gentle and beauties. Untested, 75 cts. each; \$3.00 per dozen. Tested, \$1.00, or \$11.00 a dozen. Select tested, \$1.50. Breeders, \$3.00 to \$5.00 each. I guarantee safe arrival on all queens. Untested Caucasians, queens, \$1.00 each. Send your orders to

✓ ✓ **J. W. Taylor, Beeville, Texas**

## Extra Honey Queens

I am offering to the honey-producers this year some of the best Italian stock in Southern California. These bees are not only extraordinary honey-gatherers, but are also gentle, and build very little brace or burr comb. They will bring in sage honey long after other stock has stopped working on sage and gone to work on sumac. They are, in fact, a good bee, and one which I unreservedly guarantee. I sell only one grade—select untested—as I do not sell any queen which is not select.

### Prices

One.....\$1.00      Six.....\$5.00      Twelve..\$9.00

**Francis J. Colahan**  
Bernardo, San Diego Co., Calif.

## COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.

## yellow from Tip to Tip!!!

My Adel bees and queens are yellow all over. Every queen a breeder, and guaranteed to produce all golden queens and bees. \$1 each. Catalog ready. **H. Alley, Wenham, Mass.**



## WE ARE HEADQUARTERS FOR THE ALBINO BEES,

the best in the world. If you are looking for the bee that will gather the most honey, and is the gentlest of all bees in handling, buy the Albino. I also furnish the Italian, but orders stand fifty to one in favor of the Albino.

Prices: Select tested Albino queens for breeding, \$4.00; tested Albino queens as they run, \$2.50; untested, \$1.00. Italians, tested, \$1.50; untested, \$1.00.

**S. VALENTINE,**  
Rocky Ridge, - Frederick Co. - Md.

## It won't Pay You

to keep those poor colonies when young vigorous queens given to them now will increase your honey crop many times. Italian queens only. I rear my queens carefully, guarantee them good and purely mated, or replaced free on notice. You will find my queens will give you satisfaction. No bee disease here. Prices: Untested, \$1.00; six, \$4.50; dozen, \$3.00; tested, \$1.50; six, \$8.00; dozen, \$14.50; breeders, \$5.00. For larger quantities write for prices.

M. D. WHICHER, Los Olivos, Cal.

## Quality Queens

Are the Best Italians yet.

Send for circular. ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀

**H. H. JEPSON,**  
182 Friend St., - Boston, Mass.

## GEORGIA QUEENS.

Standard breed, from our superior golden leather-colored Italians, gray Carniolans. Untested, \$1.00; 6, \$5.00; 12, \$9.00; tested, \$1.50; select, \$2.50; best, \$5.00. For bees, see free circular.

T. S. HALL, Jasper, Pickins Co., Ga.

## GOLDEN ITALIAN QUEENS.

Untested, ready to mail. Select, \$1.00; six for \$4.50. Same old place, same treatment. Write for circular.

**J. B. Case, Port, Orange, Fla.**

### QUEENS FOR SALE.

Golden and three banded Italians, untested, 75c; tested, \$1.50. Hardy and healthy. Orders booked now. Write for circular. Mennie & Fenton, Pine Island, Minn.

## Great Sale of Hives Sections, etc.

To reduce my stock I will sell No. 1 white polished sections at \$3.90; No. 2, \$3.40 (all sizes). Plain, 25c less per 1000. Best white-pine Dovetail hives, 8-frame, 1½ story, \$1.30; 10-frame, \$1.45. Great reduction in smokers, foundation, and all apianian supplies. 24-lb. shipping-cases, very nice, 13c; quart berry-baskets, \$2.75 per 1000. Send for free 24-page illustrated price list

**W. D. Soper, Jackson, Mich. RD3..**

**A. H. Reeves, Perch River, Jefferson Co., N. Y.**

□ DISTRIBUTOR OF ROOT'S GOODS FOR

**NORTHERN NEW YORK  
BEESWAX WANTED**

## Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

**J. H. M. COOK, 70 Cortlandt St., New York**

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.



## SEND 10 CENTS

for this beautiful Wild Rose Centerpiece and receive free one large doily, one small doily, one book-mark, one postage-stamp case, one pin-tray cover, and our catalog of nice things for nice people.

**Mason Supply Co.  
Mechanic Falls, Me.**

## HANDS UP!

Or Confess You Never Saw It.

A dandelion and weed puller that can be used by women and children as well as by men. You do not have to bend; you do not have to stoop; you do not soil your fingers, as the instrument delivers automatically. You do not "puff nor grunt," for it's a pastime and not labor to pull dandelions even at the RATE OF ONE THOUSAND an hour. Not a drop of dirt, nor a mark left on the lawn. Free delivery in your hand on receipt of ONE DOLLAR.

The Standard Incubator Co., Ponca, Neb.

Are you interested in the great and growing South? If so, send 25 cents in stamps or silver and receive the Alabama Times one year.

### THE ALABAMA TIMES

is a large eight-page paper, and is published weekly. It will tell you all about the South. Send in your subscription to-day. Address

THE ALABAMA TIMES, Montgomery, Ala.

## Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.

## CARNIOLANS OUR SPECIALTY

WE HAVE bred this race of bees for twenty years, and find they are among the gentlest bees known. Very hardy and prolific, and the best of honey-gatherers, and their combs are of snowy whiteness. We are wintering fifty select imported and two hundred best select tested Carniolan queens for early orders. Also breeders of Golden and Leather Italians. One untested queen, \$1.00; six for \$5.00; twelve for \$9.00. Tested, \$1.50. Best breeder, \$3.00. Best imported, \$5.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in U. S. or Canada. Descriptive list free.

F. A. Lockhart & Co.—Last Friday I was in the New York office of The A. I. Root Co., and saw a three-frame nucleus of Carniolan bees with queen, which they had just received from you. They were the finest Carniolans I ever saw, entirely free from any trace of yellow markings, and I at once bought them, though the Root people were not very anxious to sell them. I am writing you to-day to ask if you can ship me at once a three-frame nucleus of Carniolans with plenty of drone brood. Send by express to me at Columbia University.

J. H. MCGREGOR.

Department of Zoology, Columbia University,  
June 17, 1905. New York.

**F. A. Lockhart & Co., Lake George, New York**

## SWARTHMORE

Russia, to be mailed direct to customers in sealed cages (which assures them genuine), \$10.00 each in May; \$8.00 in June. Safe arrival guaranteed. Italian, Carniolan, Banat, Cyprian, German Black, and the "funny little bees" from Japan, also direct to customers from their native lands. Home-bred Golden-all-over Queens as usual. Send for circulars.

1000 Nuclei ~~~~~ E. L. PRATT, SWARTHMORE, PENN. ~~~~~ Four Mating-yards

## DOOLITTLE & CLARK

are booking orders for their famous Italian queens. Now is the time to order breeders. Send for circular.

| Grade.                      | One    | Three  | Twelve |
|-----------------------------|--------|--------|--------|
| Untested .....              | \$1.00 | \$2.50 | \$9.00 |
| Select Tested .....         | 1.50   | 4.00   | 14.00  |
| Tested (1905 rearing) ..... | 2.50   |        |        |
| Select Breeding .....       | 5.00   |        |        |
| Extra Select Breeding ..... | 10.00  |        |        |
| Two-frame Nuclei .....      | 2.50   | 7.00   | 25.00  |

**DOOLITTLE & CLARK**

Borodino, Onondaga Co., New York

## Rose Lawn Queens

**Italians Caucasians Carniolans**

Bred in the purple. No finer on earth. Try one of our pure Gold strain, line bred for color and gentleness. Three banders of the "pat-'em-on-the-back" kind that will eat out of your hand. Caucasians from imported breeders direct from the Caucasus. Separate mating yards. A strictly modern plant. Standard prices and honest treatment. Ask for our catalog.

**Rose Lawn Apiary, Lincoln, Nebraska**

Frank G. Odell, Proprietor

**Now Ready, Italian and Red-Clover Queens**

I guarantee safe arrival and perfect satisfaction. Untested, 60 cts.; select untested, 75 cts., or \$3.00 per dozen. Tested, \$1.00, or \$10.00 per dozen. Breeders, \$1.50 each.

**R. O. COX.**

**Rt. 4, Greenville, Ala.**

## QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them."

MALAN BROTHERS, Luserna, San Giovanni, Italy.

## Every Bee - Keeper Knows the Worth of a Good Queen

Knows the worth of a good strain of bees, and also knows how worthless is a poor queen and inferior bees. Try our strain of three-banded Italians. They are bred for business, and will not disappoint you. Home-bred and imported mothers. Tested, \$1.00 each; untested, 75 cts. each; \$8.00 per dozen. Send for price list.

**J. W. K. SHAW & CO.**

Loreauville, : : : : Louisiana



**RED-CLOVER QUEENS AND ITALIANS BETTER THAN EVER.**

Average queen, 75 cts. Untested, \$1.00; tested, \$1.25. Guaranteed to work red clover.

"Our red-clover fields are swarming with your bees," says G. W. Slaybaugh, York Springs, Pa.

Send for my new circular; it's free. Root's Bee Supplies for sale. **G. ROUTZAHN, Biglerville, Pa.**

## QUEENS.

Italian, Carniolan, and Carni-Italian Cross.

Can supply select untested queens at 75c each; three for \$2.00; six for \$3.50. I am now booking orders for early delivery.

**George W. Barnes,**

138N. Pleasant St.

**Norwalk, Ohio.**

## Do You Want to Improve Your Stock?

Are your bees cross? Do they make a good surplus? Do you want a nice queen—one that will please? If so, write for circular.

**A. W. Yates 3 Chapman St., Hartford, Connecticut**



## Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws apiaries, and double your crop of honey.

### I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season. I also offer another car of bees the coming season.

**PRICES:** Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

**W. H. LAWS, BEEVILLE, BEE CO., TEXAS.**

## Caucasian-and-Italian-Queens from California

Prices: CAUCASIAN—One tested, \$3.00; one best breeding, \$6.00; one imported from Caucasus, \$7.00. ITALIAN—One untested, \$1.00. six for \$5.50, 12 for \$10.00; one tested, \$1.50; one best breeding, \$5.00. Caucasians bred from the best imported breeding queens. Italians bred from breeding queens we procure from principal breeders of this country who have the best honey-gatherers. Nuclei and full colonies of bees. Send for particulars, and see our adv. in GLEANINGS, February 1st.

**A. E. Titoff, Ioamosa, San Bernardino Co., California**

## CAUCASIAN QUEENS!

For beginners, the timid, and the city bee-keeper. Not stingless, but gentle. With this race many will master the art of handling bees. I breed HIGH-GRADE ITALIAN QUEENS also. The demand for these queens is great; the supply is limited. Write for particulars today. Address

**Robert B. McCain, Yorkville, Ills. R. F. D.**

## Our Queens Won't Cost You Money!

**They Will Save It!**

They are bred from pure Italian stock, red-clover strain; hardy Northern grown. Prompt shipments at these prices:

Untested.....\$1.00; \$5.00 for six

Select tested.....1.50; \$7.50 for six

For prices in larger numbers and breeders write us. Orders for delivery after May 15th now being booked. Get your order in early.

Handsone booklet mailed free upon request.

**B. C. Terry Co., Hinsdale, Ill.**

## Superior Stock

I make a specialty of long-tongue  
Italian, Carniolan, and Caucasian,

Rearing only from best stock obtainable. My Italian queens are unexcelled; my Carniolans and Caucasians from best imported queens. All races bred in separate yards to insure purity. A postal will bring my price list for 1906.

**CHARLES KOEPPEN**

Fredericksburg, Va.

## PURE ITALIAN BEES!

The most beautiful, gentle, prolific, best working, and being long-tongued, best honey-gatherers. **Prizes**—VI. Swiss Agricultural Exhibition, Berne, 1895; Swiss National Exhibition, Geneva, 1896; Bee-keeping Exposition, Liege, Belgium, 1895; Universal Exposition, St. Louis, U.S.A., 1904. **The Highest Award.**

Extra select breeding Queen, \$3.00; six, \$16.00; dozen, \$30.00. Selected Queen, \$2.00; six, \$11.00; dozen, \$20.00. Young fertilized queen tested, \$1.50; six, \$9.00; dozen, \$16.00. Special prices for 50 and 100 queens. The addresses must be clear; payments by postal money orders. If by chance a queen dies upon the journey she is to be returned immediately, with a postal certificate, and another queen will be sent gratis. Address

**Anthony Biaggi,**

Pedeville, near Bellinzona, Italian Switzerland. This country is politically the Switzerland Republic, but lies geographically in Italy, and possesses the best kind of bees known. Bee-keepers of the Far West can give their orders to my brother Stefano (Stephen) Biaggi, farmer, resident at Wash, Plumas Co., California, who will kindly collect orders. In writing, mention GLEANINGS.

## Italian and Caucasian Queens and Bees



Choice homebred and imported stock. All queens reared in full colonies.

**PRICES FOR APRIL  
ITALIANS**

|                               |        |
|-------------------------------|--------|
| One tested queen .....        | \$1.65 |
| One select tested .....       | 2.20   |
| One breeder queen .....       | 3.30   |
| One comb nucleus, no queen... | 1.50   |

Untested queens in May. Safe arrival guaranteed. For prices on quantities, and description of each grade, send for free catalog.

**J. L. Strong, Clarinda, Iowa, U. S. A.**  
204 East Logan Street

1906 Italian and Caucasian Queens. Price list now ready. Write **E. E. LAWRENCE, Doniphan, Mo.**

# BEES and QUEENS

## The Three-banded Long-tongued Strain of Italians.

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

### Superior Qualities.

Honey-gathering, size of bees, non-swarming, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price.

### Quality Our Motto.

1300 colonies to select from.

|                                    |                             |
|------------------------------------|-----------------------------|
| Untested queens.....               | \$1.00; 6, \$5.00; 12, 9.00 |
| Select untested queens.....        | 1.25; 6, 6.00; 12, 11.00    |
| Tested queens.....                 | 1.50; 6, 8.00; 12, 15.00    |
| Select tested queens.....          | 2.00; 6, 11.00.             |
| Breeding queens, \$3.00 to \$5.00. |                             |

Yours for best service,

**The Victor-Knolle Apiary Co.,**  
Hondo, Texas.

## Red-clover Queens from Westwood Apiary

will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.

Henry Shaffer . . . . . Westwood, Ohio

## MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, \$1.00; six, \$5.00; twelve, \$9.00. Tested, \$1.50; six, \$8.00. Best breeders, \$3.50. Safe arrival guaranteed.

**W. H. Rails, - - - Orange, Calif.**

## H. C. Simpson, Catawba, S. C.

Dealer in

## BEE - KEEPERS' SUPPLIES!

Breeder of Italian bees and queens.  
Root's Goods a specialty.

## ITALIAN QUEENS and GLEANINGS.

For \$1.10 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

**W. T. CRAWFORD, Hinston, La.**

**IMPORTED - CAUCASIAN - QUEENS** are the mothers of my stock. Prices: Tested queens, \$3.00; untested, \$1.50; red-clover Italians, Carniolans, and Carnio-Italians bred from best stock obtainable. Prices: Tested queens, each \$1.50; warranted, each \$1.00; untested, 6 for \$5.00; untested, 12 for \$9.00. After May 15, by return mail. Satisfaction guaranteed.

Rev. J. G. Baumgaertner, New Memphis, Ill.

## CARNIOLAN and ITALIAN QUEENS!

Ready to mail by April 15th. Quality of the highest, prices the lowest. Write me.

**Grant Anderson - Sabinal, Texas**

# Aliso Apiary

For queens, bees, nuclei, supplies, etc., send for price list.  
Root's standard goods. Address

**ALISO APIARY, El Toro, Orange Co., Calif.**

## From Long-tongued Imported Italians.

Trial queen, 60c; only one at this price. Untested, 75c; \$7.50 per doz. Tested, \$1.25; \$12.00 per doz. Breeders, \$2.00 to \$3.00. Send for particulars.

**E. E. MOTT, Glenwood, Mich.**

## Boston Headquarters — FOR — Bees-Queens-Supplies

**H. H. Jepson - 182 Friend St.**

## Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:

Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

## H. M. PARKER, Jr.

**James Island, South Carolina**

## Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

**The JENNIE ATCHLEY CO.,**

Box 18, Beeville, Bee Co., Tex.

**Queens!** Select three or five banded, \$1.00; tested three or five banded, \$1.25. Ready for delivery April 1st. Write for circular. Daniel Wurth, 1111 No. Smith Street, San Antonio, Texas

## Italian and Caucasian Queens

**ITALIANS.**—Golden or leather-colored or honey queens. Before July 1st: Untested, \$1.00 each; 6 for \$5.00; 12 for \$9.00. Warranted, \$1.25 each; 6 for \$7.00; 12 for \$13.00. Tested, \$1.50 each.

**CAUCASIANS.**—Untested, \$1.20 each; 6 for \$7.00; 12 for \$11.00. Warranted tested, \$1.50 each.

**TWO-FRAME NUCLEI.**—No queens, \$2.50; 6 for \$14.00; 12 for \$27.00. Add price of any queen wanted. Nuclei ready by June 1st. Queens ready in May. Breeders from \$5.00 to \$10.00. Book your order now. Safe arrival of all stock guaranteed.

**D. J. Blocher, Pearl City, Illinois**



## Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—Carload of bees in Wisconsin.  
O. S. LUNDE, Wausau, Wis.

**WANTED.**—Hives of bees. Write us full particulars. We pay cash.  
Vinemont Apiary, Marshfield Hills, Mass.

**WANTED.**—Second hand typewriter, Oliver preferred, for bees or supplies.  
"Bee Man," Williamsport, Pa.

**WANTED.**—To exchange typewriter for three-frame nuclei or queen bees to be delivered before May 10.  
WM. DAVENPORT, Wilmette, Ill.

**WANTED.**—Good colonies of bees for cash. State price and quantity.  
F. H. FARMER, 15 Chardon St., Boston, Mass.

**WANTED.**—To exchange Planet Jr. seed and fertilizer drill, for honey-extractor.  
SEWARD STEFFY, Glouster, Ohio.

**WANTED.**—To exchange 50 Col. graphophone outfit for full colonies or nuclei. It is in fine shape.  
F. W. SAMPSON, Littleville, Mass.

**WANTED.**—To exchange my cameras, lenses, printing-frames, burnisher, and entire outfit, for something useful.  
W. S. BRILLHART, Oakwood, Ohio.

**WANTED.**—Refuse from the wax-extractor, or slumgum. State quantity and price.  
OREL L. HERSHISER,  
301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—Address of T. B. Crayton, by a brother who has not seen him for 23 years. Last known of in Indiana. Any one giving address or clue will confer a favor on a bee-keeper.  
W. E. CRAYTON, Lima, O.

**WANTED.**—For delivery by May 1st six five-banded golden breeding queens, for a special customer. These must be extra-fine breeding stock, golden to the tip. Mention price and full particulars.  
THE A. I. ROOT CO., Medina, Ohio.

**WANTED.**—To exchange 500 chaff hives, also Carniolan queens, for honey (hives in flat). Both are as good as can be produced. I have a good market for best quality of white-clover honey and a little buckwheat, but can not raise profitably. Will allow Chicago price for honey. No poor grades of honey wanted.  
W. W. CRIM, Pekin, Ind.

**WANTED.**—Bees to work on shares. I have as good a location, I think, as can be found in the States; two good flows in one season. My crop last year was 16,000 lbs. from 135 colonies. If your bees are not paying you, write me and I will work them for you and give you half the profits. I have a good cellar for wintering. Can move your bees successfully if you are at a distance. Can refer you to the banks here, any business house in town, or The A. I. Root Co.  
F. W. MANLEY, Sandusky, Mich.

## Help Wanted.

**WANTED.**—Young man to help in large apiaries, and do some general work around home. Experience in bee-keeping not necessary. No one wanted who uses intoxicating liquor, tobacco, or profane language.  
J. A. GREEN, Grand Junction, Colo.

**WANTED.**—Young man who has had some experience with bees to work in apiary and do some other general work.  
E. W. ALEXANDER, Delanson, N. Y.

**WANTED.**—Nurses. The Western Pennsylvania Hospital and Eye and Ear Hospital offer exceptional advantages for training. References required. Apply Superintendent's Office, 1945 Fifth Av., Pittsburg, Pa.

**WANTED.**—Man to take charge of an apiary of 150 colonies in western Colorado. Will work on shares or make satisfactory agreement with experienced man.  
BENJ. HAMMAR, Rifle, Colo.

**WANTED.**—Man to work with bees. State age, experience, and wages desired. An opportunity for the right man to secure a steady situation.  
W. HICKOX, Berthoud, Colo.

## Wanted, Situations.

**WANTED.**—Situation by a young man of steady habits to learn bee-keeping.  
E. L. ARMSTRONG, Harrodsburg, Ky.

**WANTED.**—By young man with 1 year's experience in large apiary, situation for the coming season. Southeast preferred.  
Address C. E. THOMAS,  
251 65th Pl., Chicago, Ill.

**WANTED.**—From June 1, employment the year round in California or Florida by colored West Indian, 30 years old. Ten years' experience in tropical bee-keeping. Gold Medalist (for honey). Expert queen-breeder. Can do other work. Useful man. Best references. State pay in first letter to "WORKER," care of GLEANINGS, Medina, Ohio, and wait a few weeks for reply.

## For Sale.

**FOR SALE.**—Twelve varieties of double dahlias, at \$1.00 a dozen.  
MRS. J. W. BACON, Waterloo, N. Y.

**FOR SALE.**—My entire bee-keepers' supply business. All inquiries answered.  
C. J. LAMB, East Calais, Vt.

**FOR SALE.**—Good typewriter, also Water Spaniel dogs and pups.  
G. C. DEAN, New Milford, Pa.

**FOR SALE.**—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog.  
F. R. DANIELS,  
117 Florence St., Springfield, Mass.

**FOR SALE.**—Best land for bee-keepers, farmers, dairymen. Cheap. Write us.  
WRIGHT-ROBINSON, Cumberland, Wis.

**FOR SALE.**—25 colonies Italian bees in 8-frame L. hives, Hoffman frames. \$4.00 each.  
F. P. CATHERMAN, Lewisburg, Pa.

**FOR SALE.**—Root's bee-supplies at factory prices; full colonies Italian bees; queens in season (catalog free); Plymouth Rock chickens and eggs; incubators, brooders, poultry food, etc.  
H. S. DUBY, St. Anne, Ill.

**FOR SALE.**—Trees by mail; one-year-old peach and apple trees, 10c each; \$1.00 per dozen. Guaranteed true to name and free from disease.  
G. A. HAPER, Batchtown, Ill.

**FOR SALE.**—About 300 sixty-pound cans; mostly new, good condition, new cases, two cans to a case; 40 cts. per case, f. o. b. Preston.  
M. V. FACEY, Preston, Fillmore Co, Minn.

**FOR SALE.**—Bees from my great-grandfather's stock. He called them yellow because they are not as black as some bees. They are gentle, and hustlers: good honey-gatherers. Six stands of these bees for \$4.00 each; two-frame nucleus and old queen, \$2.25; queens, 35 cts. each.  
G. W. KELLER, King's Creek, N. C.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to  
FRANK S. STEPHENS,  
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Bees; the right kind, right prices. Safe arrival and satisfaction guaranteed. Ask for illustrated Outfits for Beginners, price list, and our hints on buying bees. MASON SUPPLY CO., Mechanic Fs., Me.

FOR SALE.—100 eight-frame hives of Italian bees after May 10. Will ship in light shipping-cases or D. hives as desired; \$3.00 per hive; 25 at \$2.75 each; the whole lot at \$2.50 each.  
F. C. MORROW, Wallaceburg, Ark.

FOR SALE.—A lot of queens, all ages and all kinds, taken from bees bought up, 20 cts. each. Only those with a fair amount of brood offered.  
W. W. CRIM, Pekin, Ind.

FOR SALE.—Best S. C. Brown Leghorn and Barred Plymouth Rock eggs \$1.50, and finest Southern Pit Game eggs \$2.00 for 15 eggs. Illustrated circular free.  
H. B. Geer, Nashville, Tenn.

FOR SALE.—Barred Rock eggs to set, from America's best strains; \$3.00 per 13; from best pens only. Eggs for incubator use from range flock, \$6.00 per hundred.  
ARVIN CASH, Vermont, Ill.

FOR SALE.—100 colonies of pure Italian bees in eight or ten frame new Dovetailed hives with Hoffman frames; tested queen in each colony. Price \$6.00 each. In lots of ten, \$5.00 each.  
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season.  
W. N. CANNON, Greenville, Ala.

FOR SALE.—25 colonies of bees in 10-frame Simplicity and one-story chaff hives; also 75 empty hives and 150 supers with sections and foundation complete; also about 200 shipping-cases, carriers, etc. Will sell at a bargain because my health has failed.  
G. P. KIME, Route 1, Isleta, Coshocton Co., Ohio.

FOR SALE.—Fine home in Glenwood, Wis.; one large house and two lots in the city, and two acres with large building 25x100 feet (very suitable for bee-supply factory), 150 colonies of bees all in good condition; one of the best white-clover and basswood localities for bee-keeping. Write for particulars.  
J. GOBEL, Glenwood, Wis.

FOR SALE.—A 40-acre tract of land in the Grand Traverse country, the raspberry region of Michigan, about 25 acres of which are cleared and fenced; a house, barn, bee-cellar, root-cellar, poultry-house, etc. About 350 fruit-trees, 60 of which are bearing; about 75 colonies of bees, and hives for 75 colonies more; also many supers and fixtures, making a complete apiary, in a choice location.  
CLINTON F. PULSIFER,  
1022 S. Main, Mount Pleasant, Mich.

## Poultry Offers.

B. P. ROCKS.—Eggs, \$1.00 per setting; 14 chicks guaranteed. MRS. EDITH CHELTON, Landonville, Md.

FOR SALE.—15 Silver-laced Wyandotte eggs for \$1.50. Good layers, excellent broilers.  
J. G. BAUMGAERTNER, New Memphis, Ill.

FOR SALE.—15 White Wyandotte eggs, \$1.00; nice cockerels, \$1.00 each, Duston strain; seed corn. Circular.  
J. F. MICHAEL, Winchester, Ind.

FOR SALE.—Eggs to set. Fine Barred Plymouth Rocks 15 for \$2. No better stock raised anywhere. Orders promptly filled.  
G. H. CRUZAN, Jacksonville, Ill.

FOR SALE.—Eggs for hatching from a superior egg-producing strain of S. C. White Leghorns, \$2.00 for 15, \$3.75 for 30, \$10.00 for 100.  
J. F. RASCH, Marilla, N. Y.

FOR SALE.—Fine homer stock of pigeons, \$1.00 and \$1.50 per pair.  
GOULD & WATERBURY,  
Wisteria Villa Aviary, Springdale, Conn.

FOR SALE.—Choice White P. Rock eggs from farm-range stock, \$1.00 per 20; \$2.00 per 45; \$4.00.  
F. E. SCHRIVER, Forest, O., Rt. 2.

FOR SALE.—Eggs from R. C. Buff Orpingtons; best layers; large size. Satisfaction guaranteed.  
ANDREW MANZ, Bronson, Iowa.

FOR SALE.—Egg machines. S. C. Leghorns, \$1.00 per setting (15); \$3.50 per 100. Thoroughbred Blatchard stock.  
G. RUTZAHN, Biglerville, Pa.

FOR SALE.—Rosecomb Buff Leghorn eggs, \$2.50 for 15, \$10.00 per 100; largest breeder and finest flock in the world; largest and best layers of all Leghorns. Gold Dust (original). F. BOOMHOWER, Gallupville, N. Y.

FOR SALE.—S. C. White Leghorns, choice stock. winter-laying strain. Chicks mature early large birds. Eggs from carefully selected matings at \$1.50 for 15; \$5.00 per 100.  
F. H. PARDEE, New Berlin, N. Y.

FOR SALE.—Rhode Island Reds, White and Barred Rocks, White Wyandottes and Leghorns, Light Brahmas. Farm bred, pure stock. For birds, (moderate prices), or eggs to hatch, at 8c each, write  
WALTER SHERMAN, No. 100 Boulevard, Newport R. I.

FOR SALE.—When you can get M. B. turkey eggs at 25c each, and get \$2.00 to \$3.00 for turkeys at Thanksgiving, it is time to go into the turkey business. Women here are getting from \$100 to \$200 per year for their turkeys.  
A. P. YOUNG, Cave City, Ky.

## Blacks and Hybrids.

Notices in this column are inserted free, and the publishers assume no responsibility for sales made. We believe, however, that every advertiser will do just as he promises.

FOR SALE.—Ten young hybrid queens for sale. All for \$2.00, or one for 25 cts.; 5 for \$1.00.  
WM. WERNER, Chadwick, Ill.

FOR SALE.—Hybrid queens, about 1/4 golden, mated to black and hybrid drones, all good queens, and safe arrival guaranteed. One queen, 40 cts.; 3, \$1.00.  
D. T. GASTER, Rt. 2, Randleman, N. C.

FOR SALE.—Black and hybrid queens at 20 cts. each, if ordered before May 15; delivered after May 20. The hybrids are excellent honey-gatherers.  
MERVOYN E. BALLARD, North Branch, N. Y.

GLEANINGS is the schoolmaster of bee-keeping.

I am very much interested in GLEANINGS and would not like to do without it. We have a few swarms of bees, and since I have been reading GLEANINGS I can where we can do very much better with them than has ever been done before. I can see that they have been shamefully abused both winter and summer, which will not happen again.  
Concord, Mass. C. A. THOMAS.

Do not hide your light under a bushel. If you find a good thing pass it along.

Being a subscriber myself of your valuable paper GLEANINGS, and after having read the last copy I decided to show it to some of my friends. They at once showed themselves to be very enthusiastic about it, and directed me to subscribe for them—three in all.  
Minneapolis, Minn. N. PETERSON.

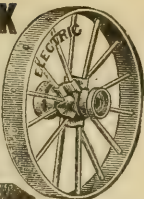


**SAVE YOUR BACK**

Save time, horses, work  
and money by using an

**Electric Handy Wagon**

Low wheels, broad tires. No  
living man can build a better.  
Book on "WheelSense" free.  
Electric Wheel Co. Bx 95, Quincy, Ill.

**YOU SPRAY**

Make it as easy and effective as possible.  
Buy your outfit from a concern that has long  
made a specialty of spraying machinery. A

**DEMING SPRAYING  
OUTFIT**

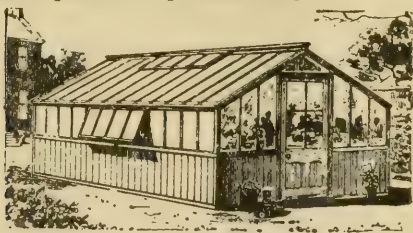
always gives satisfaction. 20  
styles. An outfit for every pur-  
pose including Barrel, Knap-  
sack, Bucket and Hand  
Sprayers and Power Outfits.  
Get free catalog and study the  
Deming line before you buy.

**THE DEMING CO.**

230 Depot St., Salem, O.  
Benion & Hubbell, Western  
Agents, Chicago.

**PLEASURE AND PROFIT**

A Premier Greenhouse will keep you supplied with  
flowers, fruits, and vegetables all the year round. Saves  
its cost in a season; gives tone to your residence, and  
creates a pleasant and profitable hobby.



The illustration shows a Premier Greenhouse—length,  
12 feet; width, 8 feet; height, 8 feet. It has double  
walls, double-strength glass, plant-tables, etc., fitted  
complete; built in sections, and can be erected in two  
hours. The price is \$63.00.

George B. Clementson, Esq., Lancaster, Wis., writes:  
"The Premier Greenhouse is the most attractive propo-  
sition for the plant-lover I have ever seen."

Catalog and price list on application. Greenhouses  
from \$20.00. Conservatories, Garden Frames, Summer  
Cottages, Auto-houses, Poultry-houses, and Portable  
Buildings of every description.

**Charles H. Manley,**

Dept. B C, Premier Manufacturing Works, St. Johns, Mich.

**SCHILDER BROTHERS - CHILLICOTHE, OHIO**

We are extensive growers of  
...ONION SEED...  
Write us for our prices.

**Sweet Potato Seed**

Bright stock; straight from storage;  
best varieties—old and new. Send  
for my free descriptive price list.

**ADDRESS**

L. H. Mahan, Box 143, Terre Haute, Ind

**You Need It. : : : : :**

If you have only a few chickens;  
If you are at all interested in poultry;  
If you are breeding for fancy points;  
If you cater to the market trade;  
If you are in the business on large scale, you need

**Ohio Poultry Journal**

the paper published in the interest of the farmer, begin-  
ner, and small breeder, with plenty of pointers for the  
experienced fancier. Each month is especially edited  
for the needs of that special season of the year. Reg-  
ular price is 50 cts. a **AT HALF PRICE**  
year, but we offer it **AT HALF PRICE**  
for a short time to introduce it to readers of Gleanings.  
Send only 25 cts. and get it a year; or, if you send us \$1  
for a year's subscription to Gleanings in Bee Culture,  
we will send you Ohio Poultry Journal for a year free.  
Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.

**Poultry Magazine,**

Monthly, 50 to 100 pages, its writers  
are the most successful Poultrymen  
and women in the United States. It is

**The POULTRY TRIBUNE,**

nicely illustrated, brimful each month  
of information on How to Care for  
Fowls and Make the Most Money with  
them. In fact so good you can't afford  
to be without it. Price, 50 cents per year. Send at once  
for free sample and **SPECIAL OFFER TO YOU.**

R. R. FISHER, Pub., Box 85, Freeport, Ill.



**Greider's Fine  
Catalog**

of Prize-Winning Poultry for  
1906. This book is printed  
in several Beautiful  
Colors and is larger than  
ever. Contains a Fine  
Chrono. of lifelike  
fowls. It illustrates and  
describes 60 varieties of  
poultry, ducks, geese,  
pigeons, etc. It shows best  
equipped poultry yards and houses—how to build  
houses; cure for diseases; **Best Lice Destroyer**  
how to make hens lay; poultry supplies and all  
kinds of information indispensable to poultry-  
keepers. Prices of eggs and stock within reach  
of all. Send 10 cents for this noted book.

**B. H. GREIDER, RHEEMS, PA.**

**\$1.00 WILL PAY FOR TEN YEARS!**

120 copies and no less than 3840 pages (size  
8x11 3/4 inches) of valuable poultry, pigeon, and  
pet-stock reading, costing us thousands of dol-  
lars to procure. Also your name and address in  
the "Poultry-breeders' Directory" for 10 years;  
revised yearly. Send \$1.00 to-day, and address

**Poultry Item : : Fricks, Pa.****DO YOU RAISE CHICKENS?**

If so, you will find The Poultry Gazette a  
welcome monthly visitor to your home. A  
down-to-date, practical poultry magazine  
that is the acknowledged leader of all West-  
ern poultry papers; ably edited; profusely  
illustrated. Subscribe now, while the price  
is only 25 cts. a year. If you have poultry to  
sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

TO THE  
**BEE-KEEPERS**  
OF CANADA

**W**E ARE pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we are not able to offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers. Moreover, what we do list we propose to keep in large quantities, and will be able to ship promptly.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the **QUALITY**. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

**E. GRAINGER & COMPANY**

Deer Park

**Toronto - Ontario - Canada**

CANADIAN AGENTS FOR  
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

Root's   
**Bee - supplies**

You know what this means. **Four carloads of new goods on hand.** Our business increased last year 100 per cent over 1904. This is proof that we are saving our customers money. Why not let us do the same for you? **Low freight rates from Toledo. Large discounts.** It tells the story. **Two per cent discount this month on bee-supplies.** . .

**Model Incubators. .**  
**. . . . and Brooders**

Made by Charles A. Cynphers. Poultry-supplies of all kinds. Eggs for setting and stock for sale. Our new eighty-page illustrated catalog describes all of these well-known goods. Sent free. Don't be without it. Don't delay. Send to day.

**Griggs Brothers**

523 Monroe St. : Toledo, Ohio

**CENTRAL AND NORTHERN**  
**PENNSYLVANIA**

**Distributor of Root's Goods from the**  
**Best Shipping - point in this State.**  
**WHOLESALE - AND - RETAIL**

I sell at catalog prices, and, with the low low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also **rear** Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

**E. E. PRESSLER, WILLIAMSPORT, PENN.**



# SUPREME EXCELLENCE

is only another name for OUR Make of

## BEE-KEEPERS' SUPPLIES

---

Have you ever used them? If not, give us a trial order this spring. We will do our best to please you. Our prices are as low as any; and if our goods aren't as we claim you'll not have to pay for them.

We have published the AMERICAN BEE-KEEPER for nearly sixteen years. It is the largest and best illustrated magazine of its kind for the price. Edited by two of the most experienced bee-keepers in America; monthly; 50c a year. Sample copy and our large illustrated price list of supplies free on application.

**The W. T. Falconer Manufacturing Co.**  
Jamestown, New York

Dadant's

## Foundation

It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!  
No sagging; no loss.  
Twenty-eighth Year.  
We Guarantee Satisfaction.  
Wax Worked into Foundation.

~~~~~  
Bee-supplies of All Kinds
~~~~~

~~~~~  
Beeswax wanted at all times.
Send for Our 1906 Catalog.

~~~~~  
**Dadant & Sons, Hamilton, Ill.**

## New Goods-Big Stock

New Warehouse, Root's Goods,  
Prompt Shipment, Low Freight.

**Everything for the Bee-keeper at Savannah, Ga.**

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. . . .

## BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog sent free. Correspondence solicited. .

**HOWKINS & RUSH**

124 West Liberty Street

**SAVANNAH - - GEORGIA**

# GLEANINGS

## IN BEE CULTURE



HUBER H. ROOT

THE A. I. ROOT CO.  
MEDINA, OHIO

Eastern Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter.



## Our New Manager at Washington, D. C.

---

Mr. H. G. LaRue is now the manager of our branch at 1100 Maryland Ave., S. W. Mr. La Rue is a bee-keeper of considerable experience. He is also a graduate of one of the best business colleges in Ohio. Our customers are assured of prompt and satisfactory treatment. Freight and boat rates from Washington to the South are very low.

---

### The A. I. Root Company

1100 Maryland Av., S. W.  
Washington, D. C.

## Bee-Supplies

For Southern

Bee-Keeper's

I have been over 20 years in the bee-supply business, manufacturing hives and fixtures, and raising bees and queens. With all this experience and the excellent facilities I have, I am able to fill your orders promptly, and give absolute satisfaction. Though I make my own hives I carry a complete stock of The A. I. Root Company's manufacture. Just specify "Root's Goods" and you will get them.

### Bees and Queens

I breed with scientific, intelligent methods, from the best Imported and Long-tongued stock. Cheap queens may be had elsewhere. My stock is worth every cent of the price. You will be pleased with it. I GUARANTEE IT.

### 64-page Catalog

of Supplies and Bees sent free. Tell me you saw my ad. in GLEANINGS.

**J. M. JENKINS**

**WETUMPKA : ALABAMA**

## MISSISSIPPI

---

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders. . . . .



### Bees and Queens

from Select Stock

---

Correspondence Solicited.

**GEO. A. HUMMER,**  
**BRAZELIA, - MISSISSIPPI**  
Shipping-point, Macon

## PENNSYLVANIA

---

May is the best month to buy supplies. Get everything in shape before the swarms come. . . . .

### ROOT'S GOODS

AT ROOT'S PRICES

We handle the trade in Pennsylvania for these goods, wholesale and retail. Best shipping facilities. Big stock. . . . .

---

**Frank W. Prothero**

Successor to Prothero & Arnold  
**Dubois, Clearfield Co., Pennsylvania**

**C. H. W. Weber,**

**Headquarters for**

# Bee - Supplies.

**Distributor of Root's Goods Exclusive-  
ly, at Root's Factory Prices.**

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

## QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

**C. H. W. WEBER,**

Office and Salesroom, 2146-2148 Central Ave.  
Warehouse, Freeman and Central Avenue.

**Cincinnati, - Ohio.**



## Honey Market.

### GRADING-RULES.

**FANCY.**—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsold by travel-main or otherwise; all the cells sealed except an occasional sell, the outside surface of the wood well scraped of propolis.

**A No. 1.**—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

**No. 1.**—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

**No. 2.**—Three-fourths of the total surface must be filled and sealed.

**No. 3.**—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

**PHILADELPHIA.**—The season now is so far advanced that there is very little call for comb honey; not enough sales to fix a price. Some little odd lots parties are selling at the best offers they can get. Extracted honey for fancy grades is also low. Medium and low grades are in abundance. We quote: Fancy white, 7 to 8; amber, 6 to 7; dark, 5 to 6. We are producers of honey, and do not handle on commission. WM. A. SELSER,

April 23. 10 Vine St., Philadelphia, Pa.

**DENVER.**—Market on choice white comb honey is active; off grades and partly candied not wanted. We quote the following prices: Strictly No. 1 white, per case of 24 sections, \$3.30; off grades No. 1, \$3.00; No. 2 and partly candied, \$2.40 per case. Extracted, 6½ to 7 per lb. We are in the market for beeswax at 24c, delivered here, for average yellow wax.

THE COLORADO HONEY PRODUCERS' ASS'N.,  
April 21. Denver, Colo.

**CHICAGO.**—There is very little comb honey on the market, and, as usual at this season of the year, the demand is very limited. There is no change in the prices obtainable from recent quotations. Choice white comb will bring 15c when wanted; other grades are of uncertain value, ranging from 10 to 14c per lb. Choice white extracted, 6½ to 7; amber grades, 5½ to 6½. Beeswax, 30.  
R. A. BURNETT & Co.,  
April 20. 199 South Water St., Chicago, Ill.

**TORONTO.**—Honey about all sold; very little extracted left; has not been sold so close for some time. Comb honey has not all gone yet. The demand for extracted honey has been better than usual this winter, while comb honey with us has been a little slower. Bees came through outside in fine shape. They are now busy on the maples. Lots of young bees are flying.

Toronto, Ont. E. GRAINGER & Co.

**TOLEDO.**—The market on comb honey at this writing is rather quiet; very little demand for comb or extracted honey. The price ranges about the same as last quotations. Fancy white comb would bring 15 and 16; No. 1, 14; extracted in barrels, 6½; amber, 5 to 5½. Beeswax, 28 and 30. GRIGGS BROS.,  
April 20. 521 Monroe St. Toledo, Ohio.

**KANSAS CITY.**—Receipts of comb honey are light, as is also the demand on comb and extracted. We quote fancy white 24-section cases comb honey at \$3.00 to \$3.25; No. 2, \$2.75. Extracted, amber, 5 to 5½; white, 6 to 6½. Beeswax, 25c  
April 21. C. C. CLEMONS & Co., Kansas City, Mo.

**ATLANTA.**—New honey beginning to move. Demand good at following prices. Fancy, 14 to 15c; A No. 1, 12 to 13. Extracted, white, in barrels, 6½ to 7; amber, 5½ to 6. Beeswax, 28 to 30. JUDSON HEARD & Co.,  
April 21. Atlanta, Ga.

**BUFFALO.**—Honey is all cleaned up in our market. There has been an advance and a very good demand at the advanced price. It is scarce in the country, and we think it will stay high until next crop is ready for market. We quote: No. 1 to fancy white comb, 15 to 16; No. 2, white comb, 12 to 13; No. 1 buckwheat, comb, 12 to 13; No. 2 buckwheat, comb, 11 to 12; white-clover extracted, 8½ to 9; amber extracted, 7 to 7½; dark extracted, 6 to 7. Beeswax, 30 to 32.

W. C. TOWNSEND,  
April 20. Buffalo, N. Y.

**ST. LOUIS.**—There is no change in our honey business. The market drags along slowly at quotations same as last. We quote fancy white comb honey, 13 to 14; No. 1 at 12 to 13; amber, nominal at 11 to 12; there is, however, none of the latter description on the market. Extracted California light amber, 6 to 6½; Spanish needle, 6½ to 7; Southern, in barrels, 4½ to 4¾; in cases, 5 to 5½. Beeswax, 30 to 30½. R. HARTMANN & Co.,  
April 20. 14 So. Second St., St. Louis, Mo.

**CINCINNATI.**—There is no material change in the honey market since our last report. The demand does not come up to expectations, which, in all probability, is due to the inclement weather of the past month. Continue to quote amber in barrels at 5½ to 6½. Fancy white extracted, in crates of two 60-lb. cans, at 6½ to 8½. For choice yellow beeswax we are paying 30 cts. per lb. delivered here. THE FRED W. MUTH CO.,  
April 20. 51 Walnut St., Cincinnati, O.

**NEW YORK.**—Demand for comb honey is fair, especially for the better grades, and fancy white is selling at from 14 to 15; No. 1 at 13; light amber at 11 to 12. No more demand for dark comb honey. Extracted is in good demand, mostly California, at unchanged prices. Beeswax is firm at 29 to 31, according to quality.

HILDRETH & SEGELKEN,  
April 20. 82 Murray St., New York.

## BEE-SUPPLIES!

We handle the finest bee-supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders. Let us figure with you on your wants.

MUTH SPECIAL DOVETAIL HIVES have a honey-board, warp-proof cover and bottom-board. Think of it. Same price as regular styles. Send for catalog.

**The Fred W. Muth Company, Cincinnati, Ohio**  
51 Walnut Street

FOR SALE.—Thirty 5 gallon cans of clover honey. Single can, 7½ cts. per lb.; two or more at 7 cts.  
C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.  
O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

FOR SALE.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.  
HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.  
R. A. BURNETT,  
199 South Water St., Chicago, Ill.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.  
GRIGGS BROS., Toledo, Ohio.

WANTED.—Comb and extracted honey. State quality, quantity, and price.  
JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Carlot or less quantity of fancy comb honey, also extracted basswood or white clover.  
E. R. PAHL & Co.,  
Broadway and Detroit St., Milwaukee, Wis.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.  
HILDRETH & SEGELKEN,  
265-267 Greenwich St., New York.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.  
EVANS & TURNER, Columbus, Ohio.

WANTED.—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.  
THE A. I. ROOT CO., Medina, Ohio.

## LAST CHANCE.

Your choice of any two of the following and the Modern Farmer one year for only \$1.25. Pearson's, Cosmopolitan, Gleanings in Bee Culture, Western Fruit Grower, American Boy, or Kansas Farmer. For \$1.30, Woman's Home Companion, Bryan's Commoner, or American Bee Journal. (New only.) Write for other clubs. You will need to do this quickly.  
MODERN FARMER, St. Joseph, Mo.

## GET RID OF LICE.

For 25 cts. we send formula that never fails to exterminate lice. Costs less than 8c per lb. to make. Guaranteed. Used by many leading poultrymen.  
T. T. POULTRY CO., Springfield, Ohio.

## KEEP YOUR EGGS

all summer while prices are low, and sell next winter at a good profit. Egg-preserving formula, 25 cts.  
T. T. POULTRY CO., Springfield, Ohio.

## The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize  
**A GOLD MEDAL**  
at the World's Fair  
St. Louis, 1904



UP-TO-DATE,  
STRONGEST,  
COOLEST,  
CLEANEST.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

**Every Thing Guaranteed "Root Quality."**

**ALL THAT IS CLAIMED.**—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Platteville, Wis.

**SURPASSES ALL OTHERS.**—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."  
Grant Stanley, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

**F. DANZENBAKER, MIAMI, FLORIDA**

## WE ARE HEADQUARTERS FOR THE ALBINO BEES,

the best in the world. If you are looking for the bee that will gather the most honey, and is the gentlest of all bees in handling, buy the Albino. I also furnish the Italian, but orders stand fifty to one in favor of the Albino.

Prices: Select tested Albino queens for breeding, \$4.00; tested Albino queens as they run, \$2.50; untested, \$1.00. Italians, tested, \$1.50; untested, \$1.00.

**S. VALENTINE,**  
Rocky Ridge, - Frederick Co. - Md.

## Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.

## POULTRY DOLLARS COME EASY.

Our large 52 to 112 page beautifully illustrated magazine, best printed and edited poultry journal, makes it easy to add dollars to your income by keeping a few hens on a town lot or make a success on a large scale, covers every thing. Contains information that will put you in comfortable circumstances if followed. **POULTRY SUCCESS** one year, 50 cts. Large illustrated poultry book free to annual subscribers. "Three months' trial, 10 cts.  
**POULTRY SUCCESS CO., Springfield, Ohio.**



# Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

**E. R. ROOT**  
Editor

**A. I. ROOT**  
Editor Home Departments

**H. H. ROOT**  
Asst. Editor

**DR. C. C. MILLER,**  
**LOUIS H. SCHOLL,**

**J. A. GREEN,**  
**G. M. DOOLITTLE,**

**PROF. A. J. COOK,**  
**W. P. ROOT.**

**J. E. CRANE,**

**J. T. CALVERT, Business Manager**

**A. L. BOYDEN, Advertising Manager**

Circulation 30,000. Reaches every State and 60 foreign countries.  
Established in 1873. Sixty-four pages. Semi-monthly.  
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

**Terms---\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.**

**Postage is Prepaid** by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

**Change of Address.**—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

**Discontinuances.**—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

**How to Remit.**—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

**Agents.**—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

## Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

**Paris, France.** E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

**Kingston, Jamaica.** HOOPER BROS., 20 Orange St. *Per year, postpaid, 5/6.*

**Goodna, Queensland.** H. L. JONES. Any Australian subscriber can order of Mr. Jones *Per year, postpaid, 5/6.*

**Dunedin, New Zealand.** ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 6/.*

Other names will be added from time to time.

**THE A. I. ROOT CO., Medina, Ohio, Publisher.**

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....  
Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY.....STATE.....

DATE.....If you want Gleanings discontinued at expiration, check here ( )

# At last! At last! At last!

Some of the readers of GLEANINGS may remember that, a year or two ago, a New York bee-keeper reported he had a method whereby he could foretell swarming without opening the hive; then nothing more was heard from him, and many wondered why; and it now transpires that sickness and a desire for further experimenting were the cause of his silence. Now he is ready to publish the result of his years of work in this direction, and the REVIEW is fortunate in securing the report for publication.

The April issue contains an illustration of his hive, and the arrangement whereby he can detect the build-

ing of cells. Not only does the inventor, Mr. Olmstead, show how he can detect the building of cells, but he explains how he has carried his plans still further, and is now able to rear a queen, have her fertilized, and take the place of the old queen, thereby preventing swarming, all without removing the supers, or opening or disturbing the brood-nest.

Send ten cents for this issue of the REVIEW, and the ten cents may apply on any subscription sent in during the year.

**W. Z. Hutchinson, Flint, Mich.**

## HERE'S YOUR CHANCE

to win a prize by doing a little work in  
obtaining subscriptions for Gleanings  
in our Second Subscription Contest.

Last contest EVERY contestant that sent in more than ONE subscription obtained a prize. It will doubtless be so in this contest, so that besides the regular commission you will receive a prize that will more than pay any effort made.

### Twenty-five Prizes!

(Variety of queen to be winner's selection)

First Prize ..... \$10.00 queen  
Second Prize ..... 7.50 queen  
Third Prize ..... 5.00 queen

Fourth Prize ..... 3.00 queen  
Fifth Prize ..... 2.00 queen  
6th to 15th Prize ..... One cloth-bound A B C  
16th to 25th Prizes ..... One Junior Corniel smoker

### Conditions!

FIRST.—That subscriptions to be entered in this contest are to be obtained as results of work between February 15 and July 1, 1906.

SECOND.—To be eligible to any one of the first fifteen prizes, contestant must have at least five yearly subscriptions, or their equivalents, to his credit.

THIRD.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

FOURTH.—That subscriptions can be sent in any time, but must be plainly marked "For Second Subscription Contest."

CUT HERE

## Gleanings in Bee Culture

Subscription Contest Department.

Date .....

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Please send agents' terms and enter my name as contestant in Second Subscription Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions and agree to them.

Name .....

P. O. ....

I can use ..... sample copies of Gleanings.

State .....



# CONTENTS OF THIS NUMBER.

|                                                     |     |                                                            |     |
|-----------------------------------------------------|-----|------------------------------------------------------------|-----|
| <b>MARKET QUOTATIONS</b> .....                      | 554 | <b>Rearing Queens for Early Increase</b> .....             | 573 |
| <b>STRAY STRAWS</b> .....                           | 563 | <b>Swarming Time</b> .....                                 | 574 |
| <b>EDITORIAL</b> .....                              | 564 | <b>Cultivate the Home Market</b> .....                     | 575 |
| Our Pennsylvania Article.....                       | 564 | <b>Plain Sections v. Beeway Sections</b> .....             | 577 |
| Importance of Ample Alighting-boards.....           | 564 | <b>Strong Colonies for Production of Extracted</b> .....   | 579 |
| E. W. Alexander Rapidly Improving.....              | 564 | <b>Alexander Method of Curing Foul Brood</b> .....         | 580 |
| Knowing too Much.....                               | 565 | <b>Light on Spring Management of Weak Colonies</b> .....   | 581 |
| Ventilation and Dryness for Bee cellars.....        | 565 | <b>Making Increase</b> .....                               | 582 |
| The Alexander Articles in Book Form.....            | 565 | <b>Non-swarming Plans; Their Faults and Failures</b> ..... | 582 |
| Uniting Weak Colonies with Strong Ones.....         | 565 | <b>Prof. Griffin's Class in Apiculture</b> .....           | 585 |
| Two Queens to a Hive for Rearing Brood.....         | 565 | <b>The Hive Adapted to the Two-queen System</b> .....      | 586 |
| Death of J. M. Hambaugh.....                        | 565 | <b>Marketing Honey</b> .....                               | 587 |
| Convention and Other Matter Crowded Out.....        | 565 | <b>Bee-keeping in Idaho</b> .....                          | 587 |
| Outdoor Feeding.....                                | 565 | <b>Do Bees Store Water?</b> .....                          | 589 |
| Save the Steps.....                                 | 566 | <b>An Educational Bee-hive</b> .....                       | 591 |
| Denatured Alcohol; Effort to Remove Tax.....        | 567 | <b>HEADS OF GRAIN</b> .....                                | 593 |
| Our Junior Editor.....                              | 567 | <b>Two Queens in a Hive</b> .....                          | 593 |
| Colonies Running Short of Stores this Spring.....   | 567 | <b>Producing Comb Honey without Increase</b> .....         | 593 |
| Where Should Entrances be for Outdoor Colonies..... | 568 | <b>Danger of a Mongrel American Bee</b> .....              | 594 |
| Closed-end Frame Colonies; How They've Built.....   | 568 | <b>Cells in Twin Mating-box Combs Slant Wrong</b> .....    | 594 |
| Swarm Control in Production of Comb Honey.....      | 568 | <b>Woodward Self-spacing Frame</b> .....                   | 594 |
| Plan of Shook Swarming without "Shocking".....      | 568 | <b>Bent Wires for Holding Transferred Combs</b> .....      | 594 |
| <b>CONVERSATIONS WITH DOOLITTLE</b> .....           | 569 | <b>A YEAR'S WORK IN AN OUT-APIARY</b> .....                | 595 |
| <b>FANCIES AND FALLACIES</b> .....                  | 570 | <b>NOTES OF TRAVEL</b> .....                               | 598 |
| <b>GLEANINGS FROM THE PACIFIC COAST</b> .....       | 572 | <b>HIGH-PRESSURE GARDENING</b> .....                       | 601 |
| <b>GENERAL CORRESPONDENCE</b> .....                 | 573 | <b>SPECIAL NOTICES</b> .....                               | 615 |

## INDEX TO ADVERTISEMENTS.

|                                              |     |                                           |            |                                              |         |
|----------------------------------------------|-----|-------------------------------------------|------------|----------------------------------------------|---------|
| <b>Banking by Mail.</b>                      |     | <b>C. H. W. Weber</b> .....               | 617        | <b>Honey-buyers.</b>                         |         |
| <b>Savings Dep. Bank Co.</b> .....           | 603 | <b>Jas. W. Bain</b> .....                 | 619        | <b>See page</b> .....                        | 555     |
| <b>Bee Smokers.</b>                          |     | <b>H. A. Ross</b> .....                   | 621        | <b>Household Specialties.</b>                |         |
| <b>T. F. Bingham</b> .....                   | 614 | <b>Sam'l Click</b> .....                  | 618        | <b>Best Light Co.</b> .....                  | 607     |
| <b>F. Danzenbaker</b> .....                  | 555 | <b>E. A. Simmons</b> .....                | 619        | <b>Cleveland Desk Co.</b> .....              | 603     |
| <b>Bee Supplies.</b>                         |     | <b>J. L. Strong</b> .....                 | 620        | <b>Joseph Horne Co.</b> .....                | 603     |
| <b>J. B. Mason</b> .....                     | 561 | <b>A. W. Yates</b> .....                  | 619        | <b>Stromberg-Carlson Tel. Mfg. Co.</b> ..... | 607     |
| <b>E. W. Alexander</b> .....                 | 615 | <b>George W. Barnes</b> .....             | 621        | <b>Incubators</b>                            |         |
| <b>W. W. Cary &amp; Son</b> .....            | 561 | <b>J. G. Baumgaertner</b> .....           | 621        | <b>Banta-Bender Mfg. Co.</b> .....           | 607     |
| <b>D. Cooley</b> .....                       | 613 | <b>J. B. Case</b> .....                   | 620        | <b>Buckeye Incubator Co.</b> .....           | 607     |
| <b>J. H. M. Cook</b> .....                   | 561 | <b>F. J. Colahan</b> .....                | 618        | <b>H. M. Sheer Co.</b> .....                 | 607     |
| <b>W. T. Falconer Mfg. Co., Back Cover</b>   |     | <b>Chas. Koepfen</b> .....                | 620        | <b>Machinery</b>                             |         |
| <b>Geo. E. Hilton</b> .....                  | 614 | <b>J. J. Jepson</b> .....                 | 619        | <b>Electric Wheel Co.</b> .....              | 624     |
| <b>M. H. Hunt &amp; Son</b> .....            | 560 | <b>E. E. Lawrence</b> .....               | 620        | <b>Lyons Engine Co.</b> .....                | 608     |
| <b>Kretschmer Mfg. Co.</b> .....             | 613 | <b>W. H. Laws</b> .....                   | 620        | <b>Medina Concrete Co.</b> .....             | 606     |
| <b>Leahy Mfg. Co.</b> .....                  | 616 | <b>Robert B. McCain</b> .....             | 616        | <b>F. E. Myers &amp; Bros.</b> .....         | 607     |
| <b>G. B. Lewis Co.</b> .....                 | 562 | <b>Malan Brothers</b> .....               | 621        | <b>Miscellaneous.</b>                        |         |
| <b>Marshfield Mfg. Co.</b> .....             | 614 | <b>E. E. Mott</b> .....                   | 621        | <b>Alabama Times</b> .....                   | 624     |
| <b>Minnesota Bee Supply Co.</b> .....        | 616 | <b>H. M. Parker, Jr.</b> .....            | 621        | <b>Best Gate Co.</b> .....                   | 605     |
| <b>Fred W. Muth Co.</b> .....                | 554 | <b>A. E. Ritoff</b> .....                 | 620        | <b>Hardware Specialty Co.</b> .....          | 624     |
| <b>Walter S. Ponder</b> .....                | 611 | <b>W. H. Rails</b> .....                  | 621        | <b>Seaboard Air Line R. R.</b> .....         | 624     |
| <b>The Root Co.</b> .....                    | 615 | <b>J. R. Rambo</b> .....                  | 618        | <b>Home Correspondence School</b> .....      | 608     |
| <b>Page &amp; Lyon</b> .....                 | 612 | <b>Roselawn Apiary</b> .....              | 620        | <b>Lathrop Mfg. Co.</b> .....                | 607     |
| <b>A. H. Reeves</b> .....                    | 616 | <b>H. C. Simpson</b> .....                | 618        | <b>W. R. Hartigen Son</b> .....              | 607     |
| <b>The Root Co., Syracuse, N. Y.</b> .....   | 560 | <b>J. W. Taylor</b> .....                 | 621        | <b>Hammond's Slug-shot</b> .....             | 602     |
| <b>The Root Co., St. Paul, Minn.</b> .....   | 612 | <b>Henry Shaffer</b> .....                | 621        | <b>Standard Incubator Co.</b> .....          | 608     |
| <b>C. M. Scott &amp; Co.</b> .....           | 613 | <b>Victor-Knolle Apiary Co.</b> .....     | 621        | <b>The Deming Co.</b> .....                  | 604     |
| <b>I. J. Stringham</b> .....                 | 561 | <b>Daniel Wurth</b> .....                 | 625        | <b>Willett's Egg-preserver Co.</b> .....     | 607     |
| <b>C. H. W. Weber</b> .....                  | 553 | <b>Mennie &amp; Fenton</b> .....          | 621        | <b>Lofts</b> .....                           | 609     |
| <b>A. G. Woodman Co.</b> .....               | 613 | <b>H. G. Quirin</b> .....                 | 618        | <b>Publishers, Agricultural-paper.</b>       |         |
| <b>York Honey &amp; Bee Supply Co.</b> ..... | 614 | <b>Bee-books.</b>                         |            | <b>Farmer's Call</b> .....                   | 615     |
| <b>Lathrop Mfg. Co.</b> .....                | 615 | <b>A. J. Cook</b> .....                   | 615        | <b>Southern Fruit Grower</b> .....           | 555     |
| <b>George W. York</b> .....                  | 561 | <b>George W. York</b> .....               | 561        | <b>Publishers, Bee-Journal</b>               |         |
| <b>Bees and Queens.</b>                      |     | <b>Buggies.</b>                           |            | <b>W. Z. Hutchinson</b> .....                | 557     |
| <b>T. S. Hall</b> .....                      | 621 | <b>Anderton Mfg. Co.</b> .....            | 604        | <b>W. T. Falconer Mfg. Co., Back Cover</b>   |         |
| <b>G. Routhahn</b> .....                     | 619 | <b>Elkhart Carriage Co.</b> .....         | 604        | <b>Geo. W. York &amp; Co.</b> .....          | 561     |
| <b>M. D. Whicher</b> .....                   | 620 | <b>Ohio Carriage Mfg. Co.</b> .....       | 604        | <b>A. I. Root Co.</b> .....                  | 556-557 |
| <b>Bee &amp; Honey Co.</b> .....             | 613 | <b>Progressive Vehicle Mfg. Co.</b> ..... | 604        | <b>Publishers, Poultry-paper.</b>            |         |
| <b>The Jennie Atchley Co.</b> .....          | 621 | <b>Union Buggy Co.</b> .....              | 604        | <b>R. R. Fisher</b> .....                    | 624     |
| <b>D. J. Blocher</b> .....                   | 619 | <b>Comb Foundation.</b>                   |            | <b>Ohio Poultry Journal</b> .....            | 624     |
| <b>H. H. Jepson</b> .....                    | 621 | <b>Dadant &amp; Son</b> .....             | Back Cover | <b>The Poultry Gazette</b> .....             | 624     |
| <b>Grant Anderson</b> .....                  | 621 | <b>Gus Dittmer</b> .....                  | 612        | <b>Poultry Item</b> .....                    | 624     |
| <b>R. O. Cox</b> .....                       | 618 | <b>Eggs.</b>                              |            | <b>B. H. Greider</b> .....                   | 624     |
| <b>Doolittle &amp; Clark</b> .....           | 619 | <b>M. H. Winebrener</b> .....             | 624        | <b>Seeds and Trees.</b>                      |         |
| <b>Henry Alley</b> .....                     | 618 | <b>Fences.</b>                            |            | <b>Hart Pioneer Nurseries</b> .....          | 606     |
| <b>John M. Davis</b> .....                   | 618 | <b>Coiled Spring Fence Co.</b> .....      | 607-624    | <b>Wants and Exchanges.</b>                  |         |
| <b>J. W. K. Shaw &amp; Co.</b> .....         | 619 | <b>Page Woven-wire Fence Co.</b> .....    | 607        | <b>See page</b> .....                        | 622     |
| <b>F. A. Lockhart &amp; Co.</b> .....        | 619 |                                           |            |                                              |         |
| <b>The Bee and Honey Co.</b> .....           | 613 |                                           |            |                                              |         |
| <b>Best-the-bee man</b> .....                | 616 |                                           |            |                                              |         |
| <b>G. W. Gates</b> .....                     | 616 |                                           |            |                                              |         |

# ADVERTISING TALKS

BY THE AD. MAN.

## WHERE GLEANINGS GOES.

Our advertisers will be interested to know the field which GLEANINGS enters.

We print below a list of sixty foreign countries where we have subscribers—this in addition to every State in the United States, and every Province in Canada. One will readily see that every farming community of the world is represented here.

Any advertiser who realizes the value of foreign trade knows what a desirable and profitable trade this is, and should get in touch with us at once.

GLEANINGS GOES ROUND THE WORLD, AND WE HAVE NO DULL SEASON.

ARGENTINE REPUBLIC,  
AUSTRIA,  
BARBADOS,  
BELGIUM,  
BOHEMIA,  
BRAZIL,  
BRITISH GUIANA,  
BRITISH HONDURAS,  
CANADA,  
CAPE COLONY,  
CEYLON,  
CHILI,  
CHINA,  
COCHIN CHINA,  
CUBA,  
DOMINICAN REPUBLIC,  
EGYPT,  
ENGLAND,  
FRANCE,  
GERMANY,  
GRENADA,  
HAWAIIAN ISLANDS,  
HAYTI,  
HOLLAND,  
HUNGARY,  
INDIA,  
IRELAND,  
ITALY,  
JAMAICA,  
JAPAN,  
MEXICO,  
MONTSERRAT,  
NATAL,  
NEW BRUNSWICK,  
NEWFOUNDLAND,  
NEW SOUTH WALES,  
NEW ZEALAND,  
NOVA SCOTIA,  
NORWAY,  
PALESTINE,  
PERU,  
PHILIPPINE ISLANDS,  
PORTO RICO,  
PORTUGAL,  
QUEENSLAND,  
RUSSIA,  
RHODESIA,  
SCOTLAND,  
SIAM,  
SOUTH AUSTRALIA,  
SPAIN,  
STRAITS SETTLEMENTS,  
SWEDEN,  
SYRIA,  
TASMANIA,  
TRINIDAD,  
VAAL RIVER COLONY,  
VENEZUELA,  
VICTORIA,  
WEST AUSTRALIA.

It is always interesting to feel that your efforts to give satisfaction and full worth to an advertiser, to a customer, or to a friend, are appreciated. Thus we can not refrain from printing an extract from a letter just received:

My first customer came from my ad. in GLEANINGS, and he still orders every season. I have never lost through a customer whom I secured through my GLEANINGS ad. It is a good journal to have about the house, also to advertise in. E. A. SIMMONS.  
Greenville, Ala.

Almost everybody has seen a sectional book-case, and knows how much more convenient this kind of a case is than the old-style cabinet affair.

Perhaps you are in need of a book-case or some other article of furniture. If so, send to the Cleveland Desk Co., Cleveland, Ohio, for their catalogs. Tell what you want a catalog about, and you will receive it free of charge. The Cleveland goods are first-class. They have always satisfied us in our office.

Quite often some of our readers, who recall that Mr. A. I. Root was formerly engaged in the jewelry business, write in for prices and information about watches and jewelry. We no longer handle any thing in this line; but as one of our advertisers, the Joseph Horne Company, Pittsburg, Penn., has a large jewelry department in connection with their department store, we would refer our inquirers to this company. In this number the above company advertise a watch bargain in which you may be interested. We have not had time to send for one of these watches, and to give it a careful examination, but feel safe in saying that it will entirely satisfy you.

The Joseph Horne Company have a reputation for square dealing which must be sustained, and they will treat you squarely. Many attractive articles of jewelry and other lines are shown in their spring catalog, and they invite you to send for it free of charge.

The FARM GATE is a pretty important article. Next to a good fence, come good gates. The gate should be strong, easy to open, and durable.

The Best Gate Company, Shelbyville, Indiana, make a gate which answers these three requirements. If they are so good that one farmer purchased 85 you ought to know about them. Send a postal card for the Best Gate booklet. It will be mailed free of charge.

HAMMOND'S SLUG SHOT is a name familiar to a great many of our readers.

Hammond's Slug Shot Insect-powder is a very effective insecticide. Mr. Hammond has several interesting pamphlets on bugs and blight which he will send to our readers free of charge upon request. Address Hammond's Slug Shot Works, Fishkill-on-Hudson, N. Y.



**The More You  
Know About  
Our Bee  
Goods**

**The More You  
Will Wonder  
Why in the World  
You Have Kept  
Bees without Them.**

A large stock of Bee-keepers' Supplies are in storage at Syracuse, N. Y., for prompt shipment.

The A. I. Root Co., Syracuse, N. Y.

## **Root's Goods in Michigan!!**

Our prices are identical with those of The Root Co. We carry several carloads their goods in stock—hives, sections, foundation, smokers. Every thing for bees.

We can save you time and freight expense in getting your supplies—and they are Root's goods, too.

The Danz. hive—the comb-honey hive, is one of our specialties. We would like to tell you more about it if you are interested.

If you are just beginning with bees, we would like to mail you our booklet, "Outfits for beginners." Our catalog goes with it.

The goods you want now, you want "in a hurry." For Root's Goods "in a hurry" send to

**M. H. HUNT & SON, BELL BRANCH, MICH.**

**Just Out!!!!****Dr. Miller's****New Edition!****"Forty Years Among the Bees"****What Some Say of "Forty Years"**

The more I read the more I am convinced it is one of the most practical books ever written. There are 101—yes, 1001—little kinks, little tricks of the trade, little ideas, and big ones too, which, while they may be old to some of the veterans, I am of the opinion will prove to be new and useful to the majority of them. The doctor has crowded into it his ripest experience; and not only that, he has drawn from the ideas of others so that we have the very latest and best in the way of practical information from one who has actually spent over "forty years among the bees."—*Gleanings in Bee Culture.*

In this the author goes briefly, but concisely, over his forty years of bee-keeping, for he has really kept bees for over forty years. Not only this, but he gives us a very delightfully written biographical sketch of his boyhood in Pennsylvania; his heroic struggles in securing an education, in which he boarded himself, cutting his weekly expense for board down to only thirty-five cents a week, which so affected his health that he has never fully recovered from it. I found this account of his early life so interesting that I read it aloud to the whole family. Most vividly did it recall my own boyhood days, in which I roamed the forest as free as the wild things in whose lives I became so interested. . . . I feel warranted in saying that it is the masterpiece of the author's over forty years among the bees.—*Bee-keepers' Review.*

**A**N APPENDIX added to this latest edition brings it right down to date; 344 pages; bound in beautiful cloth, gold lettered.

Price, postpaid, \$1.00; appendix alone, only 10c. (The appendix alone is specially for those who have the former edition, but any one can have it for the 10c, or free with the Weekly AMERICAN BEE JOURNAL for one year at \$1.00.)

We mail the complete book with the Weekly AMERICAN BEE JOURNAL one year—BOTH FOR ONLY \$1.80. Every reader of GLEANINGS should have both Dr. Miller's book and the Weekly Bee Journal. Sample copy of the latter sent free, or a "Trial Trip" of three months (13 copies) for 20c. But you'd better send \$1.80 NOW for the book, and the Bee Journal a whole year. It will pay you to do so

**George W. York & Co.**

334 Dearborn St., Chicago, Illinois

**Now Ready**

To book your orders for bees for May and June shipment.

**Our New Stock of Goods**

has arrived, and we can fill orders for eight and ten frame Dovetailed or Danz. hives and supers, also the new **METAL-SPACED HOFFMAN FRAME** on short notice.

Send for price list of Bees, Queens, and Hives.

**W. W. Cary & Son,**  
Lyonsville, Mass.

**Something New in Honey-jars...**

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

**J. H. M. COOK, 70 Cortlandt St., New York**

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

**NORTHEASTERN & NEW ENGLAND BEE-KEEPERS**

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

**J. B. Mason, Mechanic Falls, Maine**

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

**I. J. STRINGHAM**  
OF 105 PARK PLACE  
**New York**

furnishes every thing a bee-keeper uses. Strong colony of bees, with tested Italian queen, in Dev'd hive complete, \$8.75: in a chaff hive, \$9.50. Three-frame nucleus, with Italian queen, \$4.25. Silk-faced bee-veil, 40 cts. postpaid. Italian queens, \$1 00. Catalog of bee-supplies free.

Apiaries, Glen Cove, Long Island.



# Hundred Cents on a Dollar is What You Get if You Order Lewis Goods

## FRAMES

The frames you sent me were duly received, and they are the best, finest, and nicest frames I have ever had.

H. P. Wilson, Bathgate, N. D.

Received my 100 brood-frames in fine shape, and I am well pleased with them. They are the best I have ever put together.

D. S. Haag, Rock City, Ill.

I find frames, fences, covers, hive bodies and bottoms perfect, and made of the finest lumber I ever saw supplies made of.

D. M. Landenslayer, Mackeyville, Pa.

## PROMPTNESS

I would like to thank you for your prompt way of doing business in such a season as this when every one is excited.

E. W. Coe, Aug., 1903, Clarence, Ia.

I wish to acknowledge receipt of the goods ordered from you and thank you for your promptness in sending them.

Claude L. Madison, Alden, Ill.

## RESPONSIBILITY

Remembering how well you did with me over 22 years ago on some hives I bought, I hope we may come together again on a small deal.

Leopold Moller, Fremont, Neb.

I thank you for thirty years of friendly dealings.

C. Theilman, Theilman, Minn.

Don't worry about us not handling your goods. I have used and sold your goods for 15 years, and consider them the finest beeware made.

J. Enyhart & Son, McFall, Mo.

I am well pleased with your way of doing business, and satisfied with all goods received from your factory. Can say that they are much better than I can get any place else.

J. F. Nolte, Redfield, Ia.

I received goods o. k. It is a pleasure to deal with a firm like yours.

H. Luke, Burlington, Wis.

## PACKING

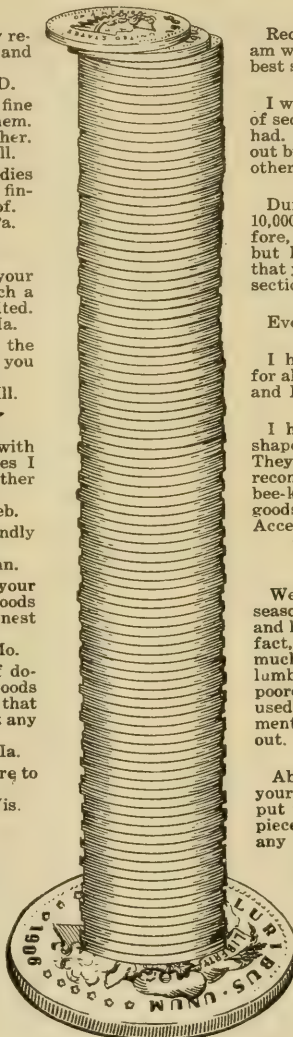
We think your policy of packing goods in first-class shape and a specified number to the crate is a winning card.

The Chas. H. Lilly Co.,  
Seattle, Wash.

I consider your freedom from mistakes quite wonderful considering the number and variety of pieces in the various lines of goods you carry.

W. C. Gibson,

National Home, Milwaukee, Wis.



## SECTIONS

Received my sections in fine shape and am well pleased with them. They are the best sections I have ever put together.

Arthur Strampe, Paullina, Ia.

I want to say that I consider your make of sections the nearest perfect I have ever had. I have folded packages of 500 without breaking one, and I can not say that of others I have used.

George Brown, Deerfield, Ia.

During the last four years I have bought 10,000 sections from three other firms. Before, I had used yours for several years; but have decided, after a thorough trial, that yours are the best and most perfect sections in every way that I've ever used.

David Foote, Riceville, Ia.

Everybody wants Lewis Sections.

A. W. Swan, Centralia, Kan.

I have used your supplies exclusively for almost 14 years, especially the sections, and I don't want any other kind.

C. H. Harlan, Mora, Minn.

I have received those sections in good shape, and I am well pleased with same. They are all right in every way. I shall recommend your bee-supplies to other bee-keepers. I think you make better goods than any other firm in the world. Accept my thanks.

Geo. B. McDaniels, Grand View, Ia.

## HIVES

We note that the Lewis goods for the season of 1906 are finer than ever. Hives and hive parts are without any knots. In fact, they are so nice that we are very much surprised, as we supposed that, as lumber got scarcer and higher, necessarily poorer grades of lumber would have to be used. We are receiving many compliments on the Lewis goods we are shipping out.

A. G. Woodman Co.,  
Grand Rapids, Mich.

About two months ago I bought 25 of your eight-frame Dovetailed hives and I put these together without losing a single piece. I find these hives to be better than any other I have ever used. Although I have a gas-engine and good tools I can buy your hives cheaper, and more accurately made.

E. K. Meredith, Batavia, Ill.

Your hives look as if they had been sandpapered after they are nailed up. I have just finished nailing up 40 two-story hives, and they are as nice as could be.

L. B. Smith, Rescue, Tex.

## Extravagance in the Guise of Economy

When you order bee-supplies, don't sit down and write to a dozen or more concerns, pick out the cheapest dealer, order your goods from him, and then think you are being economical. If you do, you only fool yourself. It doesn't pay to buy poor bee-supplies any more than it pays to send for a poor doctor when you are ill. Lewis goods have been on the market thirty years. They ought to be nearly perfect by this time, and so they are. All parts accurately fitted, smoothly planed, going together like the parts of a watch, made of fine, clear, clean white Wisconsin pine and basswood.

# G. B. Lewis Co., Watertown, Wis.

# GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests  
Illustrated : Semi-monthly : One Dollar per Year  
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

MAY 1, 1906.

No 9



"WE HAVE JUST taken our 240 odd colonies out of our shop bee-cellar," p. 489. What date, please? [April 1.—ED.]

THE CHANGE in making hive-rabbits, shown by R. C. Aikin, p. 500, strengthens "that thin  $\frac{3}{4}$  flange," but leaves it still a weak spot. A cleat, reinforcing it the whole length, is the right thing.

J. A. GREEN says elm blossoms before soft maple, p. 496. Here soft maple comes first, sometimes two weeks before elm. But I think I have known the usual order of some honey-plants to be reversed in some years.

THE PLAN given on page 497, of putting frames of brood over sections, has the serious objection in this locality that the sections are more or less darkened. I wonder if Bro. Doolittle has never had any trouble of the kind.

THE PICTURE of J. A. Green's storage-crates, p. 494, doesn't help me to understand what better ventilation they give than T supers piled up. I can't see where there is any chance for more air to get to the sections. Will he please explain?

"THE BEST WAY to get honey out of cappings is to let them stand for several days until they can drain dry," p. 517. Quite right; and when the honey stops draining, put them in a damp cellar, and they will drain some more thin stuff to make good vinegar.

QUITE RIGHT you are, Mr. Editor, p. 488, in saying "The use of the wet rag depends largely on the temperature of the atmosphere when the bees are carried out." Let me tell you another thing. If doors and windows have been wide open all night before carrying out, no wet rag will be needed.

IS THERE so much danger after all, from the introduction of Caucasians, even supposing they are poor gatherers? In the average locality will they do any more harm than the blacks or hybrids already there? In any locality, where all black blood has been worked out, there is a bee-keeper that knows his business; he is one, if any, likely to try Caucasians, and he is not likely to let them get beyond control.

"THIS GOING OVER all colonies once every week looking for queen-cells, as many advise, is an endless job," so Bro. Doolittle advises treating all as if they were bent on swarming. Lot of work saved by that. But it has one drawback, at least for me; it gives no chance to spot those colonies that go through the season without any swarming. But perhaps not many will think it worth while to be working toward a non-swarming strain.

MRS. MILLER is asked to pass judgment upon the kind of corpse that A. I. Root has been for the past ten or twelve years, p. 523. It wasn't Mrs. Miller, Bro. A. I., but another inquisitive female who asked that saucy question about your fur cap. But you have full permission from both of them to wear a fur cap, two of 'em if you want to, if you will only keep on being a "lively corpse."

ONE THING not brought out in the discussion between you and Mr. Latham, Mr. Editor, is that location and protection from winds may make an important difference as to size of winter entrances. The entrance to a hive in a location sheltered on all sides



in a region not given to strong winds may be three times as large as that of a hive in a bleak location in a region where winds blow fiercely for hours at a time. [Quite right.—ED.]

I AGREE WITH YOU, I think entirely, Mr. Editor, in your views, p. 488, about getting better stock, unless it be as to increased chances from increased purchases. The chances would be better with 5 queens than with one, and still better with 100; but not by any means 100 times as great. Indeed, with the right care on the part of purchaser and seller the purchase of 100 queens ought not to improve chances 10 per cent over the purchase of one.

H. H. S. ASKS, p. 507, about drones over excluder, when a weak colony is put over a strong one. Will a colony rear drones so long as it is weak enough to be thus kept over another colony? But in the *American Bee Journal* a man reports using the plan without any excluder at all, and in ten or twelve cases only one queen was lost. Would there be much danger of a queen being killed so long as the cluster in the upper hive did not reach down to the lower cluster?

"LET ALL factory people adopt the plain bar and this method of fastening starters," p. 501. Please don't punish the rest of us, Bro. Aikin, because the groove-and-wedge plan of fastening foundation doesn't work with you. I have never had a failure with it yet, and can work it faster than waxing, although I have waxed thousands of frames. [I do not understand why some of our good bee-keepers are not able to make the double-groove-and-wedge plan of fastening foundation work. Inquiry into the difficulty often reveals the fact that the wedge is not driven *below* the surface of the wood. This is very important.—ED.]

STIMULATIVE FEEDING is, to be sure, practiced in Europe, but it is there called a two-edged sword, and I think I have seen more warnings against it in German than in American bee-journals. [A good deal depends on the locality. One place, as soon as it warms up, will keep warm, while another will warm up to stay that way for a week or ten days, then turn chilly to cold. In such a place a colony that has been induced to rear a lot of brood finds itself at a great disadvantage in taking care of this brood. For this reason, in this locality we do not find it advisable to give artificial substitutes for pollen, such as Indian meal, etc.—ED.]

I WONDER, Mr. Editor, how you got the impression that "the bees did not build over these splints perfectly in all cases," page 487. I am thinking carefully of what I am saying when I say that I do not recall ever seeing a single cell not occupied by brood because of foundation-splints. But truth compels me to say that too many of my combs are not built down perfectly to the bottom-bar because so many of them were built when the bees were half idle, and at such a time the bees enjoy gnawing out a passage-way. [I do not know but we ought to con-

sider the advisability of constructing a machine that will make these splints. The ordinary buzz-saw and table is not suitable for this work, although it *can* make them; but not a few of the splints will shoot down between the saw and the slot in the table, wedging against the saw to the extent that our workmen dislike making them. The saw must be stopped and the splints pulled out. I remember when I was at your place you showed me some very nice combs; but I was under the impression that a few of them were not perfect.—ED.]



It is a good time now to clean out propolis, dead bees, or any mold that may exist, from the bottom-boards of colonies, light or strong. A long-handled scraper with a thin blade on one end can be used to good advantage, even when bees are in the hive, if smoke be used to keep them from "resenting the intrusion."

#### OUR PENNSYLVANIA ARTICLE.

We had planned for this issue to put in a special Pennsylvania article, but found it would be impossible to do so, owing to the crowded condition of our columns, as noticed elsewhere, and to the lack of some material which has not yet come in. We hope to give this, however, either in the June 1st or 15th issue.

#### IMPORTANCE OF AMPLE ALIGHTING-BOARDS.

DURING the early spring months it is very important to have either large alighting-boards, or better, perhaps, an inclined runway from the ground up to the entrance, that is free of obstructions. During the chilly days of spring, many bees are lost that might all be saved if they could but crawl into the entrance when they miss the ordinary alighting-board.

#### E. W. ALEXANDER RAPIDLY IMPROVING.

It was with much regret that we had to chronicle in our last issue the fact that our valued correspondent, Mr. E. W. Alexander, who has given us many helpful hints, was critically ill. We have received two reports from the bedside since then, stating that the danger is past, and that he is rapidly on the mend. He wishes to thank his friends for the sympathetic expressions that have been tendered him during his sickness. Through his wife he reports that he will be able to continue his series. He has some new good things to give, and these will follow in the due course of time.

## KNOWING TOO MUCH.

"WHAT'S the use of knowing so much, when so much you know ain't so?" remarked Josh Billings. Perhaps we might vary the question a little by asking, "What's the use of telling so much, when so much you tell ain't so?" Possibly this thought has come to the subscribers of bee-papers after testing some things recommended by editors and correspondents alike.

## VENTILATION AND DRYNESS FOR BEE-CELLARS.

THE reports are coming in now at a fairly good rate, proving the value of dryness and pure air, and lots of it, for indoor winter repositories, especially where there is very much variation in temperature. Mr. J. E. Hand, of Birmingham, O., who has just had a very satisfactory experience in his house cellar, says: "Put me down for a warm dry cellar with abundant ventilation."

## THE ALEXANDER ARTICLES IN BOOK FORM.

SEVERAL suggestions have come in of late to the effect that we have the entire series of Alexander articles put into book form. We should like to have postal-card votes on this point, from our subscribers. If we can have a sufficient call we will have them put into permanent form for easy reference on your library shelves. Some of our subscribers have said that some single articles from Mr. Alexander have saved them the price of a year's subscription to GLEANINGS many times over.

UNITING WEAK COLONIES WITH STRONG ONES  
A LA ALEXANDER.

WE have received quite a number of favorable reports indorsing the Alexander method of uniting a weak colony, with its queen, to a strong colony with its queen. Among the number is Mr. J. E. Hand, of Birmingham, Ohio—a practical bee-keeper who writes as follows:

I heartily indorse what Mr. Alexander says, p. 354, about uniting weak colonies with strong ones, preserving both queens. It simply means one strong colony with two laying queens. It does away entirely with all weak colonies in the spring—no robbing out of weak colonies. It is a system for which my shallow sectional brood-chambers are especially adapted. I had 40 colonies last spring, with two queens in each, laying right along, and they built up very rapidly. J. E. HAND.  
Birmingham, Ohio.

## TWO QUEENS TO A HIVE FOR REARING BROOD.

MR. E. W. ALEXANDER, in our last issue, and Mr. A. K. Ferris, in this number, both describe two different methods for getting a large amount of brood by combining the forces of two colonies and the egg-laying capacity of two queens all in one big colony. That is to say, they both utilize, by two entirely different methods, the heat of two clusters and the capacity of two queens in such a way as to secure powerful colonies for the harvest when it comes on. Both of these methods should receive the thoughtful consideration of our subscribers. We should be pleased to have reports later on.

## DEATH OF J. M. HAMBAUGH.

WE are very sorry to announce the death of J. M. Hambaugh, late a director of the National Bee-keepers' Association, as a result of cancer on the neck.

Mr. Hambaugh was the inventor of the Hambaugh roller for fastening foundation to the top-bar, and a user and an admirer of the Dadant-Quinby hive. He was for two terms Representative in the Illinois legislature, during which time he left the strong impress of his personality on the records of that body. He was quite extensively engaged in bee-keeping, being an old neighbor of the Dadants. Ill health caused him to migrate to California, where he has resided for the last ten years.

He was a man of marked ability, successful as a bee-keeper, and influential in every circle in which he moved. The bee-keeping fraternity will miss a strong man by his death.

CONVENTION AND OTHER MATTER CROWDED  
OUT AND AWAITING PUBLICATION.

NOTWITHSTANDING our journal has been nearly doubled in size by additional matter, we have on hand enough good material to fill up three or four issues. It begins to look as if we should have to get out one or two double numbers. These will be larger than any thing we have ever gotten out before. Owing to this congestion we have not been able to publish a lot of good matter for weeks and sometimes months after it has been sent in. The Hershiser and Dr. Miller articles in this issue bear evidence on this point.

For a like reason we have not been able to publish any convention matter, notwithstanding the editor and his assistant have taken notes at the late meetings in the expectation of placing them in these columns. But in justice to writers who sent in communications several months ago, we consider it our duty to give place to these, rather than to some new editorial matter gathered by our editorial staff. It will only be possible to say that the Pennsylvania State and Northern Michigan conventions were not only enthusiastic but successful meetings. At some later time we may be able to give a *resume* of some valuable papers and talks. As it is we have had on hand a full report of one convention for months, and at this rate it may never be published.

## OUTDOOR FEEDING.

THOSE interested in this subject will do well to read carefully what Louis Scholl, of Texas, has to say on this subject in the last issue, p. 493. The feeder described seems to be so arranged that bees will not have an opportunity to struggle against each other, otherwise they will wear themselves out prematurely in "scrapping" over the feed. The feeder recommended by Mr. Scholl is 16 feet long. This would make, approximately, a line of bees 33 feet long by about one inch wide. It will take a large number of bees to



cover this feeding-line so completely that it would make it unnecessary for them to struggle against each other. The larger the apiary, the longer, or perhaps more feeders of the kind should be used. At our home yard I should estimate that it would require some three or four such feeders.

But for queen-rearing purposes, and especially where I did not care to fill up the hives for winter, but only desired to keep the bees out of mischief—those bees that are inclined to poke their noses into every thing when a hive is opened, greatly to the annoyance of the bees of the colony or the operator—I should prefer the elevated square can with holes punched in the top. Three or four of these cans will keep all of these stray stragglers busy, and yet there will not be any considerable quantity of syrup fed, because of the fact that it takes these busybodies a long time to get their honey-sacs filled.

I particularly indorse Mr. Scholl's statement that the outdoor feeder should be located remote from the bee-yard. First, I would locate the feeder close to the yard, then when the bees got well started I would move it slowly to a distance of perhaps a quarter of a mile.

#### COMB-HONEY CANARDS NOT DEAD YET.

THE comb-honey canards continually bob up here and there to disturb the general public mind concerning the genuineness of all comb honey. As I have said repeatedly I say again, I hope our subscribers will either go personally or write to the offending publisher, as a statement from a local bee-keeper will have much more weight than a letter from a manufacturer of bee-keepers' supplies. Some of these publishers imagine that we bee editors and supply-makers are in collusion with the so-called manufacturers of comb honey, and are trying to cover up the fact, and for that reason they take our statement with a grain of salt. We shall, of course, be glad to be advised of any published statement touching on the defamation of the honey business. But the first thing to do is to follow the case up yourself immediately.

#### PROSPECTS FOR THE COMING SEASON; PRICES ON HONEY FOR 1906.

THE past winter has not been a severe one on bees, taking the country as a whole. Some particular sections have lost heavily; but as a rule there have been no great losses, although the aggregate of colonies that came through will be somewhat lighter in strength owing to the severe March weather that prevailed throughout the northern belt of States. April opened up well everywhere. Brood-rearing, so far as we can ascertain, has progressed finely, and indications are that bees will more than make up for their setback in March. In fact, it has been one of the prettiest Aprils in our locality that we have ever had.

So far as reported, the prospects in Southern California are good, there having been

good rains. In the central part of that great State conditions are likewise favorable although it seldom has a failure.

The prospects for clover and basswood in the Northern States were never better. The warm winter, the large amount of precipitation, and the heavy snows in March, have given the young clovers a great boost.

Prices on honey for this season ought to rule strong, however, even if we do get a good crop of clover and basswood, for we have indisputable evidence now that the year 1905 was about the poorest one for honey on record both for Eastern and Western honey as well. Indeed, we happen to know that one buyer actually cornered the market on Western honey. Save one or two stray cars, he bought all there was in sight. There never was a year before when that would have been possible. This honey has all been disposed of, and the markets are in fine condition for the new crop.

If bee-keepers everywhere will keep up prices, or, I may say, if they will take a bee-journal and know the ruling prices, the market would not be depressed by some small producers dumping in little dabs here and there in quantities just sufficient to create a downward tendency in prices.

It may seem like a selfish suggestion, but it is nevertheless true that those who do take a bee-paper should urge all others in the business to do likewise, if for nothing more than simply to be in touch with the great market centers.

#### SMALL RETAIL HONEY-PACKAGES.

OUR advertising man, Mr. T. P. Hallock, recently called on Mr. O. L. Hershiser, in Buffalo, and at that time Mr. Hershiser fully explained his method of selling his honey. Mr. Hallock, after returning, read Mr. Hershiser's article and desires to add the following:

What Mr. Hershiser says on p. 575 should be carefully noted by every bee-keeper who is looking for help in solving the marketing problem. This plan of putting up honey in a package just large enough for consumption at one meal by the average family is quite a business scheme. Some people are afraid to have honey two meals in succession, and yet always keep a little of it in the house. By putting it up as Mr. Hershiser does, the consumer must buy immediately after he has eaten. The packer's label and style of jar will be fresh in his mind, and thus the packer will be benefited. There is a good sound business reason in this plan, and it will be worth looking into for you.

THE editor has been "playing with" an incubator. Chickens? Yes, I've got 'em, and some "experience" besides. If I had room I'd tell about it.

#### SAVE THE STEPS.

IN this issue, in Mr. Doolittle's series of special articles, you will note that he has a definite plan, and every thing has been thought out with the view of *saving steps and time*. Note exactly how he maneuvers in even so comparatively unimportant a matter as mowing grass in the bee-yard. You will see by the diagram in his article how he plans to save steps.

Over and over again we find that there is a great difference in our employees. One will make an intelligent co-operation between his head and hands and feet. Another will make his hands and his feet work like an automaton, without any idea of how those important members may work to the best advantage. It is needless to say, that the one does or will command more wages than the other.

Even when working for yourself, it is just as much if not more important that you plan to save useless walking and useless movements, that you may be able to get the very utmost out of your muscles that are perfectly willing to do your bidding, and can do your bidding better if you plan to economize the reserve force in your body tissue. A workman who is all jaded out at the close of the day's work is not half the man of him who has planned to save his physical self.

That reminds me that it is good economy to sit down when working over a hive whenever you can. This relieves the strain on the legs, and you can do as much work, and more too, by taking it easy. In short, let one part of yourself rest while the other works.

#### DENATURED ALCOHOL; AN EFFORT TO REMOVE THE GOVERNMENT TAX FROM THE SAME.

OUR readers are, perhaps, aware that an effort is now being made to remove the internal-revenue tax from denatured alcohol. This product, like wood alcohol, is undrinkable, and therefore its use in the arts would in nowise increase drunkenness. It has been estimated that this alcohol could be put on the market in competition with gasoline to produce light, run gas-engines, and heat stoves for cooking. In some respects it is very much superior to gasoline.

"But," you inquire, "what has this to do with bee-keeping?" A good deal. A large proportion of our honey-producers are also tillers of the soil. There is a large amount of unsalable farm produce which could be converted into denatured alcohol, giving the farmer an outlet at a good price for what now goes on the compost-heap, or does worse — is allowed to rot in the fields or orchard, an unsightly mess and a menace to man and beast alike. But this is not all. A good deal of the unsalable honey, partially fermented, could be used for making this new fuel.

It is estimated that this new product could be sold for 12 or 15 cents per gallon, and thus compete with gasoline. Whether true or not, we have been told that the gasoline interests are leaving no stone unturned to prevent action on the part of Congress in removing this internal-revenue tax.

Our readers are requested to write to their Senators (the House has already passed the measure) requesting them to vote to remove this tax from denatured alcohol.

Farmers especially, as well as bee-keepers, should fire in the letters by the scores and hundreds and thousands. The Senate

may block us in the game; but if it does, it will be only another spoke in the wheel that will ultimately bring us to the time when we can elect our Senators by popular vote, and not by the General Assemblies of the various States, which Assemblies are often controlled by conscienceless bosses.

#### OUR JUNIOR EDITOR.

OUR readers have already been apprised of the fact that our editorial staff has been increased by the addition of new and younger blood in the person of Huber H. Root, named after the great Huber of a century ago. The younger Huber, like his great namesake, is of an investigating turn of mind, and an enthusiast on bees. He is fresh from college, and now has thrown his whole heart and soul into the general subject of bee-keeping. Like his father, he is a genius in getting up new contrivances. Indeed, several patents and useful inventions used by the Root Co. are the product of the brain of the youngest member of The A. I. Root Co.

Huber now occupies the position of sifting a large part of the copy that we use for GLEANINGS. The rest I pass on myself, preparing all the footnotes and the editorial matter. It goes without saying, that he is lifting a great load from his elder brother, who, 21 years his senior, begins to feel somewhat the wear and tear of years, but who now, by reason of a lifted burden, is able to devote himself with more intelligent care and thought to the work of getting out a larger and better journal and a better A B C of Bee Culture.

The young man knows nothing of this; and if he did, it is doubtful if he would let me tell my whole story. Our printing force has been pledged to secrecy until such a time as this matter goes to press with his picture on the front cover page, when it will be too late to recall it.

I am glad, therefore, to introduce you to him, just as we see him every day. Now that he is happily married, and living in the parental mansion "upstairs," he and his better half have come to be, I hope, permanent fixtures of Rootville and of the GLEANINGS force.

#### COLONIES RUNNING SHORT OF STORES THIS SPRING; WHAT AND HOW TO FEED.

If a colony is running short of stores there is nothing *quite* the equal of a comb of sealed honey or sugar syrup, put right down alongside of the brood-nest. Do not make the mistake of putting it down in the center, if there are only three or four combs of brood and bees in the hive. If the colony is strong it may be put anywhere, but preferably in the center.

Again, do not make the mistake of letting a colony run short of stores. If you have no combs of sealed stores, feed with an Alexander or Boardman feeder. Doolittle makes a splendid point when he says that colonies should be "rich in stores" so



the bees will not have to check brood-rearing for fear of running short of honey. But if stores are scanty they will, just as sure as fate, cut down the amount of brood that will be reared, and this is very expensive at this time of the year.

#### WHERE SHOULD THE ENTRANCE BE FOR COLONIES WINTERED OUTDOORS?

A VERY strange thing occurred in our apiary. We had some colonies in outdoor winter cases. For convenience the entrance was placed clear over to one side, and not in the center as usual. Instead of using two sticks and leaving a space of two or three inches between them we used one long one, or two inches in length less than the inside width of the hive. The entrances of all of these colonies were  $\frac{3}{4}$  inch deep, so that the contracted entrances were from 1 to 2 inches by  $\frac{3}{4}$ . Quite to our surprise we found that a large percentage of these side-entrance colonies were dead; combs were wet and moldy; bees dead, and signs of dysentery. But colonies that had the entrances in the center were in good condition.

When Mr. Vernon Burt was here I called his attention to this. He stated that he too had found by dear experience that colonies with side entrances were liable to die before spring, while those with openings in the center would come out all right.

If any one can give any philosophical reason *why* this should be so, I should like to have him explain. Heretofore we have always wintered with center entrances; consequently this is our first experience with side entrances, and, I may say, it will be our last.

#### CLOSED-END FRAME COLONIES AND HOW THEY HAVE BUILT UP IN THE SPRING.

It is a very noticeable fact, says our Mr. Pritchard, that the colonies in closed-end frames, even though in single-walled hives, are building up faster and more satisfactorily than those in open-end frames in double-walled chaff hives. This statement is made in the face of the fact that he has been prejudiced against the Danzenbaker hive (in which this frame is used). He has several times begged to be excused from having any thing to do with closed ends; but now unreservedly he gives this testimony in their favor as to their "springing" qualities. A comb-honey producer might well afford to put up with some degree of inconvenience if he can thereby get more brood at the *right time* of the year.

Father Quinby, the pioneer in closed-end frames in this country, and nearly all the original users of such frames, have made this same claim in favor of their brooding value; and, what is more, those same people seldom or never see fit to change to the open-end style. Some of these adherents claim that they can handle just as many bees on the closed ends as on any other style of frame—that it is largely a matter of "know how" and the elimination of old prejudice.

We have had some very flattering reports regarding the building-up qualities of closed-end frames in the spring; but somehow I have been slow to believe that they had any superiority. Our old friend Danzenbaker can well testify to my unbelief; but when the proof of the pudding is seen in our own apiary I may have to give up.

#### SWARM CONTROL IN THE PRODUCTION OF COMB HONEY AT OUTYARDS.

DURING the twenty years I have been editor of this journal I do not remember the time when there seemed to be so much good matter on the subject of swarm control in the production of comb honey as now. We have already published several articles, and more are to follow.

It has been no great trick to control swarm in the production of *extracted* honey, for practically all that was needed was to give the bees unlimited room in a large hive, or a series of them, one on top of the other. But to control swarming at outyards when running for *comb* honey, aye—that is where we have halted and failed. "Shook swarming," by some of its different methods, has afforded considerable relief, but it has not been altogether satisfactory in some localities and with some bee-keepers. The plan proposed by Mr. G. M. Doolittle, in the series of articles now running, will prove very helpful, I hope, to bee-keepers situated in localities where store combs of honey have been laid aside the summer previous after the main flow.

#### A UNIQUE PLAN OF SHOOK SWARMING WITHOUT THE "SHOOKING."

The plan proposed by Mr. J. E. Chambers, in this issue, looks as if it might work. It combines the features of shook swarming without the disagreeableness and loss of "shooking" (Dr. Miller will please pardon the expression). Besides that, as Mr. Chamber says, it secures the features of requeening and of swarming automatically into a new brood-nest.

When Mr. Chambers first described this last fall, I really did not catch on to the scheme. In fact, he did not really make it plain as I now look at it; but in the mean time I went back over quite a voluminous private correspondence, gathered up the "missing links" which I did not get hold of in the published article, and welded them all together in the introductory note at the beginning of his article in this issue, p. 582.

I should be glad to have our correspondents test this and report, as there will be time to put it into application, and the expense of applying it will be comparatively light.

A little later on we hope to present some original ideas on swarm control for the production of comb honey at outyards, *whereby as much comb honey as extracted can be secured*. I have seen the manuscript, and am now negotiating with the writer for its use in GLEANINGS.



## RAPID INCREASE.

"Good morning, Mr. Doolittle. It is rainy this morning."

"Yes. We are having rain and cloudy weather nearly all the time now — an offset to the clear weather nearly all winter, I suppose. I believe you are from Pennsylvania. How is the weather in your State?"

"We are having a fairly good spring. Have you the bees out of the cellar yet?"

"Only a few colonies we set out the sunshiny day we had last week, so we could hear their merry hum again. But they have not hummed very much for us, and I am glad no more were put out. This is April 12, and it looks as if it would be very late before we get them out this year."

"You remember you sold me some bees eight or ten years ago, do you not?"

"This is Mrs. Akers, of Johnstown, Pa., is it not?"

"Yes."

"I think I do remember about our correspondence, and sending you some bees. Have you bees now?"

"No. With a large family, so many cares came that I was obliged to give them up; but that dread disease, diphtheria, came and took some of our little ones away, and I, unfortunately, have more time now, so I wished to stock with bees again the combs I have."

"Then you kept the combs?"

"Yes, and have plenty of every thing to stock six hives complete. And I have bought of The A. I. Root Co. a three-frame nucleus with a good queen. Can I stock those six hives, with bees from this nucleus by fall?"

"The Roots say in their queen catalog that their three-frame nucleus, properly managed, can be increased to four, five, or even ten full colonies in one year; but I fear that the majority would fail on the 'properly managed' part."

"Well, I want to try it, and came to see you to have you tell me how to do it."

"But it was not I who said it could be done. Would it not have been better for you to have gone to the Roots?"

"I will risk what you tell me, for I had excellent success under your instructions when I had bees before."

"How early do you expect your three-frame nucleus?"

"About the 15th of May."

"That would be in good time for this locality. The first thing to do is to build that nucleus up to a full colony, and with your

combs it should not be a long job, especially if your combs have honey in them. If they do not, you must feed at all times when honey is not coming from the fields."

"Yes, I understand that."

"As soon as your nucleus gets built up to a fair-sized colony, which will be by June 15 to 20, if you are successful, start some queen-cells. You have my queen-book, do you not?"

"Yes."

"Instead of trying to raise the queens in upper-stories, as given in the book, as you have only the one colony it will be better to slip a right-sized sheet of queen-excluding metal down in the hive so as to shut off two frames of brood next to one side of the hive from the queen, and raise your queen-cells there. For the few you want, you need only to prepare a few cell-cups, and push these into the comb just above the brood that is in the frames, when the bees will work them just the same as they do when the cups are on bars. In this way you can gain a week or ten days, as the colony need not be so strong as is necessary for rearing queens in upper stories."

"I see, and I thank you for the suggestion."

"I believe you also have one of the big funnels for shaking bees through, and some of the boxes to keep the bees after they are shaken in."

"Yes, I have all those things which you described in GLEANINGS during the past."

"Well, keep close watch of the queen-cells after the expiration of ten days after you started them, and at 10½ to 11½ days you will hear the young queens gnawing at the capping to their cells to get out; and if you hold the cells up before a strong light you will see the queens moving in them before they even commence to bite at their cells. As soon as you see any movement in the cells, get your boxes and funnel (two or three would be all I would try to make at this time), and shake about a pint or quart of bees into each box. If you take the bees from the cell-building combs, they will be more at home in your box than will those from the other combs."

"Why will that be so?"

"Because you are to give these bees one of those cells in which you see the queen moving around, and these bees are expecting that queen more than you are. But don't shake these combs while the cells are on them, for if you do you will be apt to injure the wings of the young queen, especially if you do the work as soon as you see the queens move in their cells."

"Do you think a pint or quart of bees will be enough to establish a colony? Would it not be better to use more?"

"Undoubtedly better for the little colony if we could use more; but not so well for the cell-rearing colony; for this is our principal stock in trade, and we must not do any thing which will reduce this colony too much for its future prosperity."



"Thank you. Having the bees in the box, what next?"

"Take one of the queen-cells in which you see a queen moving about; slip it into a queen-cell protector, close the protector, and by means of a wire hang this protector down in the box so it will come just below the top of the same, having the cell hang point downward. Now provide the little colony with food in some way, and keep them in the box for three days, setting the box in some room which is dark, or nearly so, and which keeps at a temperature of from 60 to 75 degrees."

"Shall I leave the excluder in the old hive all this time?"

"No. I am glad you called my attention to this. When you take the cells out, take out the excluder so the queen can have all the combs again, for we wish her to lay as fast as possible all the while, consistent with our work."

"When the three days are up with the little colonies in the box, what then?"

"A little before sundown go to your colony and select a comb having as little brood in it as any you can find, and one that is in the egg and larva state as far as possible. Put this comb into one of your empty hives, placed where you wish a colony to stand, and put on each side of this comb of brood one of your old combs, having honey in it, if possible. If this is not possible, put in a feeder and feed the little colony, using a dummy or division-board to shut the combs and colony next to one side of the hive. Fix each of your two or three hives in this way, and put combs in the old colony to take the place of those you have taken out. If you alternate these combs with combs of brood you will coax the queen to lay faster."

"Thanks for that suggestion. I might not have thought of it. But what next?"

"Go and get your boxes of bees, and hive one in each hive by dumping them down on the bottom-board of the hive, or any way to get them on the combs you have placed there. I generally arrange so as to dump them next the side they are to occupy, and then draw the combs along the rabbets till they are over the bees. But others hive them the same as they would a swarm. You will have no trouble in this matter, as the three days with their young queen has taken all former notions of their old home from them."

"What next?"

"As soon as the young queens become fertile, coax them along the line of brood-rearing as fast as possible by feeding when no honey is coming in, and by giving combs as needed; or by giving a frame of brood from the old hive, if that can spare it without materially weakening it."

"Yes, but that makes me only four colonies at the most."

"I know; but there is nothing to hinder your going over this same ground again in two or three weeks, if you did not draw too heavily from the old one at first."

"Then you would do that?"

"Certainly. And probably you could make four the next time; and if so, you would have eight colonies in all in the fall, which would use all your combs and some more."

"That is so, and I thank you very much for this talk."

"You are entirely welcome; and should you desire a still greater increase, the series of articles on 'A Year's Work in an Out-apiary,' now running in GLEANINGS, will tell you later on how you can profitably make colonies even as late as September."



#### THE COLOR QUESTION AND ITS RELATION TO HEAT AND COLD ON HIVES.

On pages 1212 and 1214 of GLEANINGS for 1905 is an exceedingly readable article by Allen Latham on heat radiation of white and black; and while I can not quite agree with him in thinking that there is quite as much virtue in black as he seems to think, I have little doubt that, under proper conditions, it has its uses. It seems quite reasonable to suppose that the color of those animals that have a white coat in winter is quite as much for the purpose of preventing sudden changes of temperature as would result from wearing a dark coat when they would get very warm during the day and again cool down at night, which, continued day after day, would be quite sure to do them harm. While, on the other hand, it might be very beneficial to have our bees warmed up a little in winter so as to dry out the air and combs of the hives and give the bees a chance to change their cluster.

I believe, Mr. Editor, you are quite right in calling attention, on page 85, that, if black can do such good work in keeping a hive cool in summer, it will also keep it cooler in winter when the sun fails to shine on it, which, hereabout, is a good deal of the time. But then, aren't you a little off when you intimate that the color of the snow has any thing to do with its keeping the earth warm? Snow keeps the earth warm because it is very porous and full of air (and air is a poor conductor of heat or cold), the same as leaves, sawdust, or straw, and not because it is white. But it is a good thing the snow is white; for if it were black it would absorb the heat from the sun and soon melt, and then the ground would freeze sure.

Now about the color of hives. Twenty-five years ago I could have told just how they should be painted under any and all circumstances; but now I have somewhat different ideas; for did I not, even with hives painted white, have combs melt down now

and then? but now, with hives of all colors, I do not remember to have had any combs melt down in the hives in twenty years, and most or a majority of my hives are exposed to the sun most of the day. In fact, I have become rather partial to colors. Red seems to absorb heat about as much as black, but rarely seems objectionable; but remember I have heavy double-walled hives almost altogether. These are left packed at the sides during the summer, and during the day absorb a considerable amount of heat, but not so much as to make the brood-chamber as hot as in a single-walled hive. As the wall of packing absorbs heat during the day it gives it out during the night to some extent to the brood chamber. I do not even use shade-boards on top of my hives, but instead I raise the roof or cover on one side an inch or so, which seems to answer every purpose. I do not share the feelings of some, that, because bees cluster outside, work inside must be at a standstill. Much of the work of the hive during the honey harvest is reducing the nectar to honey and producing wax, and this work can go on just as well outside the hive as inside. A damp atmosphere often has quite as much to do with bees clustering out as a high temperature.

As to shade for hives, I have hives that scarcely see a ray of sun from January to December, yet they seem to thrive as well as those in the sun. In fact, I have one yard in a pine grove so thick that much of it is always in the shade; but, oh my! didn't they pile in the honey last summer in good weather, and neither shade nor extracting kept them from swarming. So it looks as though I were in favor of hives of color, no shade boards, but shady groves for hives; and really I don't think it makes much difference, where one has double-walled hives well packed between walls; but if I were using single-walled hives I should prefer to have them painted white and use a shade-board, and, perhaps, set them in the sun. Mr. Alexander may be right in preferring no shade-trees for his bees, and thinking the bees do a little better set in the sun; but I know that, personally, I do a great deal better when I can work in the shade of a tree, on an intensely hot July day, when the sun pours down "enough to melt the very stones." A yard of bees sheltered from the wind in extremely hot weather is a pretty hot place, and sometimes I can keep going only by constantly wetting my head in cool water.

#### DOES A STING PROVE FATAL TO A QUEEN?

Among those very interesting notes from Germany, Dr. Brunnich mentions a worker-bee as being stung by a queen one or more times, and the worker died in a moment, while on the same day he saw a worker sting a virgin queen he had recently given. He actually saw the worker withdraw its sting from the thorax of the queen when it lost the use of the middle left leg. He amputated her useless leg, and afterward she became fertile, and now works in a full colony. These statements bring up some reflections

that are quite new to me. Can a bee be stung, and the sting not prove fatal? or does it always prove fatal to a worker and not always to a queen? Does the greater vitality of the queen enable it many times to overcome the effects of a sting? We all know that there is a great difference in the virulence of the stings of different bees, some affecting us but slightly, while others appear to us as the most concentrated form of poison possible. But it is singular, surely, that the poison should affect only one leg, wholly destroying the use of that member, without doing any other harm, apparently. My attention has been drawn to this subject, more particularly because I have occasionally found queens with one leg defective or useless, and apparently dead, and sometimes the end gone. I have been quite unable to account for it satisfactorily, and never before do I remember seeing the subject mentioned in print. Such defective queens are often fairly prolific, and do good work at egg-laying in spite of their rather awkward locomotion across the combs.

#### BEEES AND POULTRY.

Considerable interest is manifested in this part of the world in Frank McGlade's somewhat humorous account of his poultry experience. While it shows that the "hen business" was not much of a success with him, it shows even more clearly, that, in order to succeed, one must take a pride in his work and enjoy it. Just look at that photo. Why, he wouldn't be satisfied unless he could have his picture taken with his wife and baby and bee-hives all in one group.

#### REQUEENING ON A LARGE OR SMALL SCALE.

On page 1139 of GLEANINGS for 1905, Mr. J. N. Cruickshank gives a method of requeening and prevention of increase to those who can be on hand at all times when bees are in the mood for swarming. The method is, briefly, this: Destroy all old queens of first swarms, allowing them to return, and then when they come out again with a young queen destroy all remaining queen-cells, and again return the swarm, when it will be content. This is a very good way when one desires to requeen without any increase, when it works all right. There would likely be but little trouble with a few colonies; but when you try to manage a hundred colonies in one yard in this way your patience will be sorely tried. It is easy to destroy old queens and let first swarms go back the first of the season; but after ten days, when your swarms begin to issue a second time with virgin queens they are quite likely in a large yard to come out at the same time as others with a laying queen, and unite, when the virgin is quite sure to be balled or stung, when the bees will return to their respective hives, or perchance all pile into some one or more hives in a very promiscuous way, only to repeat the circus as long as a virgin queen can be had to cheer them on day after day. It is so uncertain what will happen that I have long since tried to prevent, so far as possible, swarms issuing with virgin queens.



Of course, if they should happen to issue when the air is free from other swarms, all may go well; but if otherwise all may go wrong.



#### MOTHS AND BUTTERFLIES.

These, the gems of the organic world, are aptly known as *Lepidoptera*, as this word means scale-winged. Indeed, the wondrous beauty of the moth and butterfly depends upon the myriad of tiny scales that cover, as do shingles a roof, the wings and bodies of these "animal flowers." These scales are as varied in pattern as they are beautiful and varied in coloration. They are very delicate and easily rubbed off, and thus we understand why a moth or butterfly loses its beauty when roughly handled or rubbed. A perfect collection of these gems of nature is incomparably beautiful. The mouth-parts of the lepidopteron are fashioned for sipping or sucking; and the tongue, or sucking-tube, which may be nearly obsolete, is, in some of the moths like the "tomato-sphinx," very long. This, when not in use, is closely rolled up, and scarcely visible at all. Of course, these insects all pass through complete transformations as do all the higher orders. The larvæ are known as caterpillars, and are unlike the imago or mature insect, as they have jaws, and eat, as do beetles and locusts. These larvæ have, usually, sixteen legs, the last ten of which are finger-like and without joints. They are known as pro or prop legs. Some moths—one family, *Geometridæ*—have only ten legs, and as these loop or bend up as they walk they are known as "loopers," or measuring-worms. Of course, they are not worms at all, as worms never have any feet, and it were better to call them measuring-caterpillars, as this would be strictly true. Some of these caterpillars—indeed, many of them—are as beautiful as are the moths, and it is a most unfortunate prejudice (shall we say unreasoning abhorrence?) on the part of many that robs them of real pleasure in admiring these exquisite forms of nature's finest handiwork? They may be smooth, or variously decked, and ornamented with fine hairs and spines, often brilliantly colored. In rare cases these spines emit a poison, and so these irritate, much as does the nettle when handled.

All caterpillars, with a few exceptions like the bee-moth and clothes-moth, feed on vegetation, and so all are injurious to our plants; and if the plants are useful, then the caterpillars are injurious to man. Many

of our most destructive insects, like the cabbage-butterfly, the canker-worm, moth, the gypsy and brown-tail moths, belong to this order. As they eat or devour the foliage, they can be poisoned by the use of the arsenites.

If we except the honey-bee, which, in view of its invaluable work of pollinating plants, is the most important of all insects, then we must say that in this order we find the insect that is most valuable to man. Commercially, no insect can at all compare in importance with the silk-moth. The value of the annual silk product, of course, runs away up into the millions of dollars.

The insect that is best known as a universal pest to the bee-industry is the old bee-moth, *Galleria melonella*, the caterpillar of which infests the comb. The wee bee-moth is a much less destructive insect. The informed, cautious bee-keeper dreads not the old bee-moth, as it does serious harm only where ignorance and neglect give it a foothold.

#### THE GYPSY AND BROWN-TAIL MOTHS.

Of course, all bee-keepers and everybody, the country over, are interested in the fight which now for fifteen years has been carried on in Eastern Massachusetts against the gypsy-moth, and which is now being waged with more energy than ever before against this insect and the equally alarming brown-tail moth. The gypsy-moth is an indiscriminate feeder, and so the great splendid parks and forests, and the so justly famed street-trees of New England, seem doomed unless man's interference puts a stop to the frightful destruction of these two insects. The brown-tail does not feed so generally, but is mostly confined to roseaceous plants like apple, pear, etc., and the oak. It is white, though the abdomen is tipped with red or brown, and hence the name. The female of the gypsy-moth does not fly, while the brown-tail is strong on the wing, so this latter spreads far more rapidly than the other; yet the caterpillar of the gypsy-moth, like canker-worms, has the habit of dropping by a web or silken thread which it spins at will, in the same way that spiders suspend; and, of course, a passing wagon or automobile catches them up, and may hurry them off for miles to drop them and their mischief in a new and distant center of invasion and ruin. To-day nearly 30,000 acres of parks and woodlands in Eastern Massachusetts are attacked, nearly half very seriously. Add to this the roadside trees, and we have a picture that may make us tremble. From 1890 to 1900 the great Bay State expended nearly a million dollars fighting the gypsy-moth. She so lessened its ravages that effort ceased until 1904. Now the evil is twice extended, and worse than ever. "Putting the hand to the plow and looking back" was a costly mistake of our hubbitt friends. The brown-tail has now reached about half the State, and has spread to Rhode Island, New Hampshire, and even Maine. As yet the gypsy-moth has reached only Eastern Massachu-

setts and a narrow border of New Hampshire and Rhode Island. Both these moths came from Europe, where they are held in check by parasites, so that only in occasional years do they work serious harm. As I have already explained in GLEANINGS, these parasites are being introduced here in the hope that the devastation may be stayed. In California we have a very effective quarantine, in expert hands, that we may keep such evils from entering our State. Bee-keepers, all of us who love trees and beauty, are tremendously interested in this contest in Massachusetts, and should urge the general government to aid the old Bay State in the fight. It is a matter of vast national importance. We all should also work for more general information and quarantine, that such evils may be kept from coming among us.

Berlin, Prussia.



## REARING QUEENS FOR EARLY INCREASE.

How to Utilize Upper Stories and Perforated Zinc for Getting Several Queens Fertilized from One Colony; a Scheme for Getting a Large Amount of Brood; a Valuable and Seasonable Article.

BY E. W. ALEXANDER.

During the past few weeks I have received several letters requesting me to state through GLEANINGS just how we rear our queens so as to have them laying in time to make a large increase early in the season.

First, by way of explanation I will say that, in order to do this, we stimulate our bees by early feeding to early breeding, so we have many strong colonies quite early in the season; and in recommending this I am well aware that some very good bee-keepers prefer to have their colonies only of medium strength until about the commencement of their harvest for surplus. But as we handle our bees quite differently in many ways from some, we try hard to have all the strong full colonies we can as early as possible, and we seldom keep a queen after she is two years old. We supersede them some time during their third summer. This necessitates killing about one-third every year.

Now, after taking them from their winter quarters we walk along in front of our hives and count how many we have that are two years old. This is very easily done, for the little tin tag on the front of each hive tells us at a glance the age of the queen in the hive. These colonies we now give especial

attention to, we feed them regularly, and rather more at a time than we do the colonies that have younger queens. We also frequently give them frames of hatching brood from other colonies, and at all times try to keep them as warm as we can. In this way we have no trouble in building them up strong and full of brood early in May; and while we are doing this we insert frames of comb that have some drone comb in near the middle of the two or three hives we wish to rear drones from to mate with our early queens. This should be done about ten days before we start the rearing of queen-cells. Then about May 15 we borrow the bees from several of our strongest colonies for one day to start our queen-cells, as is now practiced by Mr. Pratt, of Swarthmore, Pa., which I consider the finest way to start the rearing of choice queens of anything I have ever tried, as we have to use these bees only one day, then we can give them their queen and brood, which leaves them in about as good condition as they were in before they were disturbed. When we counted up our old queens we found we had about 200 to be superseded. Now, this will require 400 young queens if we divide each one; then we have about 100 colonies that have younger queens that we wish to divide. They will require 100 more, so we find that we shall need some 500 young queens to make our increase and supersede our old queens. Then we should allow about 50 for those that are lost, so we will start the rearing of about 600 cells. We would much rather have more cells and queens than we can use than to be short only a few. As soon as this is done we go to half the colonies that have two-year-old queens and kill their queens, *also* destroy any eggs or larvae they may have in any queen-cells. Then we go to the boxes that have our newly started cells in, and take out five or six cells for each colony that has been made queenless. These we insert near the center of their brood, and they will soon build them out into as nice cells as we ever saw. Then about two days before these cells are ready to hatch we kill the remaining old queens; then we tier up with two hives of combs all the queenless colonies we have. But be sure you divide the combs of brood and honey that are in the hive below about equal so each one of the three will have some brood and honey. Then insert one of these nearly ripe queen cells into each one of the hives as they stand on top of each other, and put a queen-excluder between each two hives; also have a separate entrance for each hive that the queen may use when she goes out to mate. You see, aside from the queen the colony has access to each one of the three hives through the excluders. In this way you will soon have three nice young laying queens in nearly every colony that contained your old queens. Then to use up our surplus queen-cells we form nuclei by taking one or two frames of honey or brood and about a quart of bees, and put them into an empty hive, and set them near the hive we take the brood and bees from so as



to give them back to the old colony as soon as the young queen is mated. In this way we have no trouble in rearing and in having fertilized all the young queens we care for to make our increase and supersede all our old queens at the same time.

After you have practiced this method of rearing queens you will have no trouble in having all you want ready to use for early increase some time before there is any harvest of surplus honey in our Northern States.

With us this method of rearing early queens is so easy that we frequently have more than we can use. Sometimes we have 30 or more full colonies in our apiary that contain two or three laying queens each, nearly all summer, until we can find or make a place to use them. They make a fine colony to draw brood from. When there are two or three good queens in a three-story hive the bees all work from one entrance as one colony; for as soon as the young queens commence to lay we close up the entrance that was made for them to fly from, and they all work together.

Some of you may want to know what I would do if my queens were all young and I had none I cared to kill. In that case I would do the same with the colonies as in the case with the old queens, only I would save these younger queens in nuclei until I could use them in making increase.

We manipulate our bees so much through May and June that it is no uncommon thing for us to make 100 or more new colonies, mostly nuclei, to-day, for some special purpose, and then in a few days unite the most of them again with other colonies. We can do this very easily, as we use our common hives and combs for all this work.

In the article I wrote for the Dec. 1st GLEANINGS I made some assertions as to what might be made from 100 colonies in a year providing we gave them the best of care. Since then I have received some letters that show the writers think I am in a tight place, and can not rear the necessary queens in time to make as early increase as I advise. To those doubting Thomases I wish to say that we can rear *twice* as many queens as is necessary to double our colonies before June 10; and I assure you if you handled *your* bees as we sometimes handle ours, all that I have ever claimed *can be done*. Many bee-keepers seem to think that, if they set their bees out of the cellar about April 1, that is all there is to do until they have some swarms and put on their clamps of empty sections. We find about as much to do from the time they are set out up to Aug. 1, when we commence to extract, as we do when we are extracting; and there is no slack time. The bees are kept busy every day, either to rear queens, make increase, form nuclei, draw out foundation, or something that is necessary to be done by them in order to be in proper condition for our August harvest. We usually spend the last week in July uniting all weak colonies and nuclei with stronger swarms so as to have the yard well cleaned up of those that are not in condition to

give us a good surplus. Then we can give all our attention to extracting and caring for our surplus honey.

In conclusion let me assure you that there is not much danger of having your colonies too strong in bees at any time if you will use them as you should, for they are the principal factor in making your business a success. We like them in the spring to rear those nice early queens from. We like them to make our increase from. We like them to get our surplus from. Yes, my friends, and there is a pleasure in putting away good strong full colonies in their winter quarters, as you would put money away in the bank to draw an income from in the future.

Delanson, N. Y.

[I believe I have already stated that, when I was present last summer in Mr. Alexander's yard, he showed me hive after hive where he had two and three queens, all of them doing full service in stacked-up hives. He had no trouble at all from bees killing the queens, and yet all the bees of the colony had access to every brood-chamber, therefore coming in contact with the two or three queens.

Our Delanson friend showed me what a convenience it was to have these stacked-up hives, with queens in reserve that were fresh in their egg-laying, that were not weakened by long journeys in the mails, but were ready to do service in any colony as soon as introduced.

Not every one has been able to make the Pratt cell-starting box, with borrowed bees, a success; but enough have done it to show that it can be done with a great economy of time and bee force. That Mr. Alexander should be one of the first to make the plan a success only goes to show how readily he adapts himself to new ideas.

This whole article is replete with valuable hints; and, coming just at this time, it may be put into application at once.

The reader should not forget that Mr. Alexander's honey harvest really begins about the time that the basswood and clover flows in most northern localities close. He has, therefore, fully a month of time more in which he can get his colonies in shape. This gives him something of an advantage over the majority of bee-keepers in the clover belt. If we could, like him, defer our main honey-flow to the middle of July or the first of August it would be much easier for us to get our bees in shape. But Mr. Alexander explains what can be done up to the 10th of June, which is about the time the main harvest begins in most localities. — ED.]

#### SWARMING TIME.

Some General Principles to Think over in Advance.

BY W. R. GILBERT.

Bees up to this time have been kept very closely to their hives since the weather first gave them the opportunity of much-needed

cleansing flights. But, though they have had the opportunity of flying abroad very frequently, they have not, as a consequence of their enforced confinement, been inactive; for if we could see the inside of the hive we should find that the real work of the spring, which is breeding, has been going on uninterruptedly.

That will be the condition of things in every hive that is in proper condition as regards the queen, the quantity of bees to support her, and the food supply. Provided all these requirements are granted, the bees will in nowise have suffered through what may appear, to those unversed in bee-lore, enforced idleness.

We shall see, on the first hot day, bees tumbling out of the hives by thousands, and giving evidence of the imminence of swarming time.

Now, the question with most bee-keepers is, how to check the desire bees have to split up by swarming, because, usually, by lessening the numbers in the parent hive, neither stock nor swarm does much honey-storing. The bees do, of course, gather honey; but in one case they have to requeen the hive, or, rather, await the requeening, and mating of the queen, before any more eggs will be deposited in the cells.

From the time the last egg is laid by the queen that accompanies the swarm to the time a bee emerges from a cell in which her successor has deposited an egg, will be a period of about five weeks. If we keep the queen and bees in one hive, the new bees hatching daily more than balance those worn out, and therefore we have a huge colony whose united energies are, to a great extent, directed to the storing of surplus honey.

If swarms leave hives in which supers are progressing it is most annoying, particularly if honey and not increase of stocks is desired. In all such cases the proper course would be to place the swarm in a fresh hive, upon a small number of frames of foundation; give a queen-excluder to confine the queen to the frames, and then remove the supers from the stock, placed in some other part of the garden, and give them to the swarm. By doing this, and setting the swarm on the site occupied by the stock, not only the bees composing the swarm but the flying bees of the stock will unite and make a good working force, because, in the first place, they are mainly honey-gatherers, and, secondly, they have no brood to care for at starting.

The swarm might be thrown down on the ground, and the queen sought for and removed. Being thus rendered queenless they would return to their hive, and for some days swarming would be delayed. As the stock would be queenless the introduction of a young queen and a rearrangement of the brood and surplus chambers might put an end to swarming for the season.

If a swarm is to be treated in an orthodox manner it should be hived on the evening of the day it issues, and given, at starting,

five, six, or more frames according to the size of the swarm.

The question, then, for the bee-keeper will be as to whether he should, for the present, induce the swarm to produce honey in supers or build it up at once into a good-sized stock for a late flow of honey or the next season's work. If it leaves the hives fairly early in the season it might store some surplus, and there would then be time to convert it into a stock of good proportions by the end of the season.

Medicine Hat, Alberta, Canada.

#### CULTIVATE THE HOME MARKET.

The Best Packages for Extracted Honey at Retail; the Importance of Catering to the Whims of the Consumer Rather than the Convenience of the Producer; a Valuable Article from One who has had a Large Experience in Retailing Honey in Glass.

BY OREL L. HERSHISER.

Unequal distribution is the chief cause of the depression and inactivity of the honey market. Apiarists generally have been engaged chiefly in producing large crops of honey and in studying methods whereby bees may be handled in greater numbers. But if apiculture is to remain a profitable pursuit for the bee-keeper actively engaged in the production of honey, much more attention must be given to the distribution and sale of the product. It is true that bee-keepers producing honey by the carload in remote and sparsely settled parts of the country can dispose of but a very small fraction of their product locally; but it is quite otherwise with the great majority of apiarists residing in the more densely settled parts. This latter class of bee keepers have it within their power to improve market conditions greatly by having their honey exposed for sale in the most attractive, convenient, and salable forms in every store within their reach where table eatables are sold. The result would be that less honey in bulk would find its way into the jobbers' hands; there would be less to offer to wholesale consumers; the prices of bulk honey would be stimulated by a more active demand, resulting in a substantial advance in price; and the apiarists, thus disposing of their product in the markets in their own locality, and those who are remotely located, would be alike greatly benefited.

Careful study, and the exercise of sound judgment as to the most profitable containers to use in marketing honey, will be profitable to many bee keepers. There is a certain special demand for glass bottles and jars made and sold especially for honey-containers. They are required where something unusually attractive is needed for fair and exposition exhibits, and to supply the most exclusive trade in a few large cities, where the matter of five or ten cents additional for a fancy container, which will be thrown away when emptied, is of no conse-



quence to the purchaser. Excepting these special requirements the cheaper we can obtain a neat attractive container of the most approved size—one which, after being emptied, will be useful for some other purpose—the more honey can we sell. Pause a moment. Look over the display of table dainties in any first-class grocery. You will notice that the most expensive fruits and vegetables are put up in the cheapest tin cans that will contain them; jellies in jelly-tumblers of little intrinsic value, and some special delicacies, such as orange marmalade and the like, where less than a pound of the contents costs from 25 to 35 cents or more, put up in stone-jar containers of insignificant expense. The packers of these goods recognize the fact that, as the container will be practically useless when empty, it would be folly to put needless expense into it and thus throw a mighty barrier in their own way, preventing the widest possible distribution and consumption of their product, and, consequently, dwarfing the success of their business.

The apiarist who establishes a honey-route, going over the ground periodically, or sells from door to door, or who has an extensive family trade, can profitably use a few 60-pound cans and a considerable number of tin pails of various sizes holding from 5 to 15 pounds. The objection to the use of these containers is that they are of no special value to the consumer when emptied. If we can relieve the consumer from paying for something he does not want, either directly or indirectly, we have overcome a great obstacle. For the 5-pound parcel the half-gallon Mason jar is preferable, and I am inclined to prefer three of them in place of the one 15-pound pail. The value of the jar is about six cents, which amount, in addition to the value of the honey, the housewife is usually willing to pay, since it is very useful when empty. The only objection to this jar for the family trade is that it is too large for ordinary family use when empty, the one-quart jar finding greater favor for canning, pickling, and preserving of fruits.

Undoubtedly the retail grocery trade sells more extracted honey for table consumption in glass containers holding one pound or less than in any other form. Why is this so? Not because the bee-keeper or packer prefers to put it up in this way; not because the consumer gets it cheaper per pound. There is a deeper and more potent reason which we as bee-keepers will do well to recognize; viz., it is just about the amount of honey a customer wants at one time. Some have said, "Use a larger container; and when a sale has been made, more honey has been sold," but there is a boomerang to that argument, as will appear when you consider the great number who will not purchase at all if the parcel is larger than they desire, or costs more than they care to pay at one time. Moreover, the housewife who purchases a small parcel of good honey will be pleased with the quality, and the whole family will have their appetites whetted for more of

the delicious sweet. Such an amount of honey is consumed by a moderate-sized family at one meal, and there is no daubing sticky mess to set away. The canning-factories and the cereal-manufacturers long ago learned the art of catering to the needs and wants of the consumer by putting the goods up in small parcels that could be sold at a popular price. Wholesale grocers and packing-houses which engage in the business of repacking bulk goods into smaller parcels practice the same thing; and many carloads of good honey find their way into these houses. The bee-keeper might have much of the profit from this repacking of his honey if he would but take a tip from these wholesale concerns, and do the trick himself in the manner demanded by the consumer. These concerns use containers holding less than a pound. It is usually some form of cheap bottle with a cork stopper, this form of container being selected, undoubtedly, because shipping of the goods is necessary, and honey well put up in a cork bottle will not leak. Jelly-tumblers also have been largely used by the wholesale grocers in large cities for local trade.

As the result of my experience in putting up extracted honey for the retail trade, covering a period of more than twenty years, during which time I have used nearly every kind of container recommended for the purpose, both the fancy and expensive styles, and those that are more commonplace, I have adopted a jelly-tumbler holding  $\frac{1}{2}$  pound of honey, net. It is technically known as the 6-oz. jelly-tumbler. It is neat and attractive in appearance. It has a plain tin cover. The tumbler without the cover makes a handsome drinking-glass for those not too fastidious, as the top of it shows no special construction for the tin cover, as is the case with some makes of jelly-tumblers. It is, therefore, a useful article in every household. It is cheap, being the least costly per given quantity of honey contained, of any of the glass containers, not excepting the Mason jars, and, what is more to the point, this is a case where the *cheapest is the best*.

Personally I had rather use a larger size tumbler, as it would require less time to put up a given quantity of honey, and there would be a saving in cases and some other ways; but the purchasing public thinks differently. A larger tumbler must be sold for more money or I am the loser. The purchaser is stubborn about this matter of not wanting to pay proportionately for a large-sized parcel, and insists on paying a *popular* price regardless of the fact that, in forcing such a condition upon the party who puts up the goods, he is paying more for a given quantity. Very well; let him have his own way. Let us be meek and not oppose stubbornness with stubbornness. It is idle to argue the matter with him; and if we refrain from doing so we shall have saved some energy with which to extol the excellent quality of the goods. Let him have what he demands, even if it costs him a

little more, and we are no better off for having sold more glass than was necessary to hold a given quantity of honey. We as bee-keepers are entitled to a fair price for our honey; and if the purchaser imposes the obligation of furnishing him a given quantity of glass in order that we may receive such price, let us perform that obligation cheerfully. We are engaged in a noble and honorable occupation; but in reference to putting up honey for sale by the retailer, while we should all practice frugality, we shall be wise if we teach that virtue only incidentally.

The 6 oz. tumbler is readily sold to the grocery trade, either directly or through the jobber, at one dollar per dozen. In some markets it would easily bring more; but *under no circumstances* should it ever be sold for less. To go below that figure is but to demoralize your market and admit that you are "playing horse" with your occupation. Selling at one dollar per dozen the honey will net 12 to 12½ cents per pound, after deducting the cost of the tumblers and the packing-cases; and if a pound of good table honey can not be sold for that price, net, put up in such neat attractive form, the fault lies entirely with the salesman.

There has been one objection to the jelly-tumbler. As commonly used, the honey had an untidy habit of oozing out of the tumbler, the tin cover not having been made for the purpose of a sealer. For this reason it was not suited for shipment; and, furthermore, the tin cover, not fitting tightly enough to exclude the air, the honey would candy. I have overcome both these objections by the use of paraffine paper as an inside lining to the tin cover. This was first suggested and used by my brother, R. Hershiser. This inside lining is made by cutting circular pieces of the paraffine paper, which, when laid on top of the tumbler, projects about ¼ inch all around. A medium flexible quality of the paper is used, folding it so a dozen or more of the paper linings may be cut with the scissors at one operation. After the tumbler is filled, the paper is laid on top and the tin lid pressed down over the paper, thus practically sealing it. The filled tumblers are then subjected to a water bath, raising the temperature until the honey has reached about 135 degrees F. Jelly-tumblers so filled and treated will not leak or candy. I make this statement advisedly, having never had a complaint from either of these causes.

There is just one objection to the Mason jar as a container for supplying the retail trade, and that is a serious one, as above pointed out. It holds too much. The capacity of the pint size is 1½ pounds of honey. These jars cost \$5.75 per gross, or 4.8 cents each. Reckoning the cost of the jars and the packing-cases, the goods will have to sell for \$3.00 per dozen in order that the bee-keeper or packer may realize 12 cents per pound for his honey, no allowance being made for transportation or breakage.

Moreover, I have no hesitancy in estimating that any good jobber or other salesman could easily sell over 25 cases of honey in jelly-tumblers to one in pint Mason jars. This jelly-tumbler is the best seller of any and all containers with which I have had any experience.

The strenuous time of active honey production is yet some months ahead of us. There is no better time of year to consider how best to dispose of that forthcoming bounteous honey crop about which we are dreaming. Reflection, *planning, doing, efforts* intelligently and properly directed, as to how every pound of that honey may be made to return to the producer its honest and true equivalent, will yield to the apiarist many an easily earned dollar.

Buffalo, N. Y., Jan. 17.

[As will be seen by the date of this article it should have appeared much earlier; but owing to the fact that our space has been so greatly crowded we have not been able to give it to our readers sooner.

Mr. Hershiser is a man who goes down deep into things; and those who do not know him as a successful bee-keeper and as a first-class salesman should be told that his communication above is well worth a careful reading. Some of the things that he emphasizes have been given before, but not all.

The great bulk of extracted honey that is put up in glass goes mainly into Mason jars and jelly-tumblers, because both of these articles have a value of their own when emptied.

If Mr. Hershiser's method of heating and sealing in these tumblers will prevent granulation, he has given us something that bee-keepers have been looking for for a long time.—ED.]

#### PLAIN SECTIONS VS. BEEWAY SECTIONS.

Do the Former Run More Uniform in Weight?  
Dr. Miller "Jabs" Back at the Editor.

BY DR. C. C. MILLER.

So you had a chance to "jab" me again, did you, Mr. Editor, page 1306? Before you jab me some more, please give me the floor for a little while. You say, "Comb honey in beeway sections will vary considerably in weight, while that in plain sections will run much more uniform." I think that was never mentioned till Mr. Crane mentioned it in that same article to which your footnote is attached. If there is difference enough to be noticeable, why did no one ever mention it before? Neither is there satisfactory proof in Mr. Crane's case. He has more even sections than formerly, but there may be other reasons than difference in sections.

I've just been measuring and studying over a 1½ two-beeway section. At top and bottom it measures 1½ wide, not differing from Mr. Crane's plain section. (His two-beeway section seems to have measured 1½, unnecessarily wide.) Keep in mind that Mr. Crane accounts for a difference in re-



sults by the fact that the bees can more readily get at all the edges of the comb in the plain section. At the sides I don't see that there can be any difference in the two kinds of sections, for, although the plain section is narrower, the post of the fence comes in to make one kind of section just as wide as the other so far as concerns the bees getting at the edge of the comb. The only difference, then, is that made by the "naughty corners," and they occupy  $\frac{1}{8}$  of the entire contour of the comb. Now, ought there to be so very much difference in results if the bees can get at the edge throughout  $\frac{1}{8}$  of the contour?

But I don't see how that can make any difference—that is, any difference in the matter under discussion. Remember that we're not considering whether the bees will do exactly the same work in the two kinds of sections, but whether they will do as even work in one kind as in the other. Admit that the bees don't do the same work on  $\frac{1}{8}$  of the outer edge in a two-beeway section as they do in a plain section—admit, if you like, that there's a difference throughout the entire  $\frac{1}{8}$ ; whatever that difference may be, is it not the same in all the two-beeway sections, seeing they are all made exactly alike? and, if so, how can they be less uniform in weight than the plain sections?

There are some other things to be considered. The uneven weight of sections is not altogether, nor even in large part, a difference of sections in the same super. There is a difference in bees. Here is a colony that does not fill out its sections as plumply as a second colony standing beside it, each colony having the same kind of sections. Now, do you think that, if you give plain sections to each, you will do away with that difference in the two colonies, making them both fill out alike? There is a difference in seasons, the average weight of sections being greater one season than another. At one period in the same season, owing to a difference in the flow, sections will average lighter than at another time. Do you think that the plain sections will even up the seasons, and the different periods of the same season?

Please don't understand that I'm trying to throw any discredit upon Mr. Crane's testimony. J. E. Crane is a man whom I greatly respect, and his word goes with me, and I don't for a minute dispute his assertion that he has more even weights than formerly. But the reason for it is another thing, and I think it remains yet to be proved that the difference is owing to plain sections. If he had tried the two kinds of sections half and half in the same apiary at the same time, we would have had something a little more conclusive. You say, Mr. Editor, that those who advocate selling by weight are largely beeway men, and the piece-sellers plain-section men. Oh! oh! oh! did you never hear of selling by the piece before plain sections were heard of? Are those Colorado and Canada men,

who not only advocate selling by the piece but who actually do sell by the case, are they mostly plain-section men?

You say you have noticed that old-timers have stuck to the old sections, and beginners take kindly to plain sections. I don't doubt it, but I greatly doubt your reason for it, that is, prejudice on the part of old-timers and the lack of prejudice on the part of beginners. With your powerful influence constantly urging that plain sections are away ahead, and beginners taking every word you say as law and gospel, what can they do but to adopt plain sections?

Admit that "old-timers" grow conservative—prejudiced, if you will—don't you know any among them who are constantly on the lookout for improvements? and don't you know any of them who have tried plain sections only to reject them? If they thought there was money in it, don't you believe they would be prompt to change? Take my own case if you think I'm fairly entitled to be classed with the old-timers. Don't you know that I threw away thousands of brood-frames because I thought something else just a little better, and for the sake of being in line with others, although the change in size was only  $\frac{3}{8}$  of an inch? I threw away my whole outfit of surplus arrangements, all as good as new, and at an expense of \$250 changed to something else because I thought it was better. One of the reasons I don't paint hives is because of the possibility that at any time I may want to change to something better. And then you'll go and hint that it's only forbearance on your part that prevents you from calling me "mossback." "Mossback" yourself—and not only to hint, but to say in plain words, that we are "perhaps less able to appreciate the value of a new device." Save the mark! Why, yes; to get any thing fully appreciated, don't go to one who has a lot of experience, and has been on the search for years for some better thing, but go to one so new that he doesn't know of any thing different, for of course knowledge and experience dull one's capability to appreciate, and ignorance sharpens it!

Neither has my prejudice prevented my trying the new plain sections. I've produced perhaps more honey in plain sections than you suppose—shipped a few cases as late as this year—have tried them enough to satisfy myself that there's no money in changing—at least no money for me—and yet I'm ready to make a change whenever I see any thing to be gained by it.

Marengo, Ill.

[I will concede that the amount of beeway in a plain section over that given to an ordinary two-beeway section is only  $\frac{1}{8}$  more than the entire contour of the comb. But you overlook two very important considerations—first, that those naughty corners on a beeway section lessen the actual beeway by almost  $\frac{1}{2}$  inches. Or, to put it another way, the passageway to the plain section is almost  $\frac{1}{2}$  inches wider than that al-

lowed by the ordinary beeway section or three inches for top and bottom. This 1½-inch space is placed right where it amounts to something. If you add half an inch to your nose, it would mean a good deal more than if you added that much to the circumference of your well-rounded body; so that in talking about the difference in beeways we must consider *where* this difference is.

The second consideration you have overlooked is that a fence has horizontal slots through which the bees can pass back and forth. When you take into consideration the fact that a wire-cloth separator (and facts prove it, I think) will give more regular, more uniform, and more even combs than the ordinary solid separator, then in proportion as the fence or wire-cloth separator is more open, in that proportion it will produce more even filling and more uniformity of weight.

Possibly, according to your experience, plain sections in fences are filled out no better or no more uniformly than beeway sections with solid separators. This may be true with your mixed strain of bees: but the plain sections of honey we buy at Medina (and we buy thousands of them) are certainly more uniform in weight, and are better filled than the ordinary beeway section.\* I am well aware when I make this statement that there are some who will disagree radically with me; but I am stating what I see and observe.

You will remember there are Texas bee-keepers who will testify that the Hyde-Scholl separator—a separator that is virtually identical in principle with the wire-cloth separator when used with plain sections—gives a more uniform and better filling of sections than a solid separator or even a fence, because the bees can pass laterally from section to section. I think there is plenty of testimony on that point, that we can produce if called on.

I admit that there is a difference in bees. But this does not enter into consideration, as I view it, for we are not talking about the nature of bees, but the effect of two different appliances on that nature as we find it in the average strain.

I was aware that the Colorado bee-keepers (largely users of beeway sections) and Canadian bee-keepers (largely users of seven-to-foot beeway sections) sell by the piece and by the case; but this applies more particularly to Colorado than to Canada, where both the piece and weight methods prevail. But conditions in Colorado are such that there will be a better filling of sections with the beeway or plain section than in other portions of the United States. The principal reason of this is that bee-keepers can calculate pretty closely on the length of the honey-flows, and the number of them, provided there has been a good previous

snowfall on the mountains. In Canada the selling-by-the-piece proposition is made the more feasible because the sections are thinner. The thinner the combs, up to a certain limit, the more uniform the weight.

When I made the statement under consideration I had in mind the aggregate of small bee-keepers in various parts of the United States. If a plain section is more get-at-able to the bees to the extent of beeways 3 inches wider and more get-at-able by reason of the horizontal slots from section to section, then it seems reasonable to suppose that those sections would be more uniform in weight for the reason that the bees would be less divided off into little rooms, each room of bees building its comb separate by itself; then when we go one step further and use a Hyde-Scholl separator or wire-cloth separator between the sections, where the bees can pass laterally from one section to another as over a brood-comb the results are very much more marked in the way of uniformity of weight. I am not stating this from my own experience, but from what I have actually seen in different yards I have visited.

You may be partly right in your explanation as to the attitude of old-timers toward plain sections; but is it not a fact that, the older we grow, the less inclined we are to adopt new devices?

When you threw aside your old brood-frames and hives because there was a difference of only ½, you did not do it because the new hives, ¾ shorter, were actually better for honey or for bees. You did it as a matter of convenience and economy—convenience in getting supplies, and economy because regular goods could be purchased for less money than odd-sized stuff; so that I really do not see that this argument has any bearing on the old-timer proposition.

With regard to the matter of using paint on your hives, did you not tell me once that your unpainted hives would last as long as you lived, and that you preferred them because you thought them warmer?

Dr. Miller's article was sent in shortly after the Dec. 15th issue was mailed; but being crowded at the time for space, I have held it until the discussion would be more timely—toward the comb-honey season.—ED.]

## STRONG COLONIES FOR THE PRODUCTION OF EXTRACTED HONEY.

Why it is a Mistake to Imagine that Weak Colonies Will Do.

BY E. D. TOWNSEND.

In reading current literature on the production of extracted honey, one is easily led to believe that any old colony, in any kind of condition, is good enough to produce extracted honey. In reading the report of the Texas convention, in the *American Bee Journal*, where Mr. Milam says weak colonies are no good for comb honey, they are

\*I have just referred this statement to our honey-man and he says I am entirely correct. He also adds that we very often get from the same man a mixed shipment of beeway and no-beeway sections; that a much larger proportion of the latter will grade fancy.



worked for extracted, I find a sentiment that has gone the rounds of the bee press altogether too long. Let us look into the matter a little. In the first place, I think we can all agree that, to produce a first-class article of either comb or extracted honey, one must have his colonies sufficiently strong so that every part of the hive, including the supers, should have a good covering of bees. It is hard to conceive of any thing more detrimental to the welfare of the colony than the practice of giving a weak colony an upper story when they have only enough bees to work nicely their one-story (brood-nest).

We will now suppose our white-clover season is open. The little colony will not do much in its upper story the first week, they having room in the brood-nest to keep them busy during this time. Now they have their brood-nest full, watch them as they begin to move up into the upper story. The first attempt will be made during the middle of the day, while it is warm; then they go below during the night or cool weather. Now this process of working above, while it is warm, and leaving the surplus receptacle during the night or cool periods, will be repeated more or less, depending upon the weather and the length of time it takes for the little colony to breed up to a normal condition. At any rate, their first upper story will be produced under the conditions named above, where there is a portion of the surplus honey that the bees leave during cool nights or otherwise unfavorable weather.

Now, right here is a point I wish to emphasize; and that is, any part of the surplus honey, while on the hive, if allowed to remain without a good covering of bees, will get poorer every day it is left; for a hive without bees to fill it full, that portion which is without bees is one of the dampest places one can imagine, and, of course, would be the worst place one could store honey. Now, if this is a fact, how could one expect a weak colony to produce good ripe extracted honey?

Then there are the colonies that have cast swarms. Their surplus receptacles should be given to some swarm that is in condition to take care of it; for a colony that has cast a swarm is in much the same condition as the weak swarm mentioned above.

In producing extracted honey the same system should be followed as in the production of comb honey; i. e., it must be finished; for, take my word, the time is coming when the market will demand finished extracted honey as well as finished comb honey, and that means to leave it on the hive until it is *all capped*, and cured before extracting.

The weak colonies can be united at the commencement of the honey season, so as to make all strong, as these weak colonies can be used to make up winter loss, or increase, as one may desire.

Remus, Mich.

[These points are all well taken, and I hope those who have been deluded by the heresy of weak colonies for extracted will

read what our correspondent has to say. Be it known he is one of the largest producers in Michigan.—ED.]

#### THE ALEXANDER METHOD OF CURING FOUL BROOD.

Is it Not a Mistake to Suppose that Bees Store Honey in Cells Containing Disease-germs?

BY J. G. BAUMGAERTNER.

The articles by Mr. Simmins and Mr. Gibson, pages 22 and 23, on the possibility of curing foul brood by the Alexander method for curing black brood, have interested me exceedingly, especially since foul brood has been in this vicinity the past season, and is quite likely to make its appearance again this year. Twelve colonies of my bees had contracted a disease which, according to all indications, was genuine foul brood, and had the McEvoy treatment administered promptly. Since I have read the reports of successful eradication of the disease by the Alexander treatment I regret that I did not make at least an attempt to winter some of my diseased colonies so I could have applied this new treatment. For, if nothing more, it would have been a most interesting experiment, and it is by experimenting and putting matters to actual test that the truth is sifted out and knowledge gained. However, my neighbor has still some colonies which were pretty badly infected last summer; and if they outlive the rigors of winter I shall make it a point to obtain permission from their owner to try the new treatment on them.

Now, as to the doubts you express, Mr. Editor, in your footnote to the two articles named above: "Honey is known to be a medium for carrying foul brood. Supposing that the germs of this disease are in honey that is sealed up in combs in the hive under treatment, if the bees clean out the brood-combs containing the dead matter, what is to prevent reinfection of the new brood fed on this honey? We have demonstrated time and again that honey from a diseased hive will carry the infection to another one perfectly healthy." This was the stumbling-block I could not get around when, after reading Mr. Alexander's description of his cure for black brood, I tried to decide for myself, in thoughts, whether or not those twelve colonies, whose combs, brood, and honey I destroyed, could have been cured the same way. After many hours of studying over this question, especially in view of the testimony given by Messrs. Simmins and Gibson, I confess that my faith in the doctrine that the sealed honey in the brood-combs of colonies having foul brood contains the germs of the disease, and will carry the infection further, has become severely shaken. How do we know that reinfection may take place through the honey which is in the hive? And how do we know that it

is the *honey* through which infection is carried from one colony to another?

It is said that, when bees from a healthy colony rob a colony which is diseased, they will carry the disease home. I do not doubt that this is true; but I do doubt very much that these bees carry home the disease in the *honey*. Did not the bees clean the cells before the honey was deposited? I do not believe that bees deposit their honey in cells containing any foul matter. They are too cleanly for any thing like that. Mr. Doolittle supports this when he says, in the *American Bee Journal* for Jan. 4, page 9, "I am confident that the bees always clean all cells, in which they deposit honey, absolutely clean before they store any honey therein." If this is true, will they not also, while ripening and sealing the honey, remove any germs that have entered it?

Instead of the honey carried home by the bees containing the germs, is it not possible that these bees carry home minute particles of the foul matter itself, which adheres to their bodies while they are passing over the diseased combs and over the bottom-board of the diseased hive on to which latter the cappings of the diseased cells which the bees have torn open, as well as parts of the larvæ which the bees have tried to remove and torn to pieces, have dropped?

An old physician of my acquaintance, who has been an extensive bee-keeper for more than sixty years, believes that the disease might spread when bees of a healthy colony visit a flower which has just previously been visited by bees from a hive containing foul brood.

It is further claimed that, if the honey extracted from infected combs be fed to healthy colonies, the disease will be spread; but does that prove that the honey contained the germs *before it was extracted*, or while it was yet *sealed in the comb*? Is it not probable that these germs were carried into the honey by the uncapping-knife, which had just passed through an infected cell, or possibly the foul body of a dead larva in that cell before it entered cells containing honey?

Again, while those combs were whirled around in the extractor to throw out the honey, was it not then that some germs were mixed with the honey running down over the side of the diseased comb? Or possibly the contents of some diseased cells were thrown into the honey. Small wonder if such honey is infectious!

Supposing that the spores of *Bacillus alvei* have really penetrated into the cells containing honey, would not those spores also die after the natural soil of the bacillus, the brood, was all gone, and thus its source of nourishment cut off?

At all events, let us not be content with any thing short of facts established by deliberate experimenting with the new method; and let no prejudice based upon theories generally accepted keep us from giving it a fair chance. "The proof of the pudding is

in the eating;" so in applying this treatment we shall find the proof of its value.

New Memphis, Ill.

[Your points are all very well taken. It is possible that sealed honey in the combs, *before* man has had any thing to do with it, is free from disease-germs. Your attitude of taking nothing for granted is that of a true scientist. I respectfully urge that Dr. Phillips bring this question before the bacteriologist of the Department of Agriculture, Washington, D. C.—ED.]

#### SOME MORE LIGHT ON SPRING MANAGEMENT OF WEAK COLONIES.

A Case in Point where the Alexander Method of Uniting a Weak to a Strong Colony gave Excellent Results.

BY Q. A. PEARCE.

In March 15th issue there is an article from Mr. E. W. Alexander on the spring management of weak colonies, with some quotations from a former article of mine in the *Review*, in which I state that I had 16 light and 16 very heavy colonies which I united successfully. These, you will observe, were not united till quite late, after I had time to go through the yard and get a record of the bees; but what seems to be wanted just now, and on which even Mr. Alexander himself does not seem to be entirely clear, is whether it will do to unite these weak colonies with the strong as soon as they are taken from the cellar; and as I had some good experience along that line last spring I will relate it.

When I set my bees out quite early in March last year, as is my habit now, it was quite warm and nice, for a few days; so after the bees were all out I went through the yard and lifted the hives to see if there was any dangerously light, and to tuck them up nice and snug against any bad weather that might come later. I soon came to a very light colony which I supposed was dead; but as I lifted the frames out I came to a little bunch of bees, and a queen still alive. She too looked pinched and small. There were less than thirty bees. The hive that I had just looked over before I reached this one was very strong, and lots of bees boiling up through the top, so I just picked this little hive up without the bottom on it, and set it on top of this strong colony, with an excluder between, and I want to confess right now that I did not have much faith that any thing would come of it. The good book says, you know, if we have faith as a grain of mustard seed that we can remove mountains; so it did not require much faith to lift that little clump of bees and their queen on to that strong colony; and as we never know any thing till we try I thought I would try this and see what would come of it. Now for results:

The bad weather soon came on, and I did not do much with the bees for over three



weeks, then I went through to clip the queens, and I found generally two to four frames of brood; but when I came to this little colony I found it the strongest one in the yard. It had five frames of brood, and eggs in two other frames. You see this hive had no honey in, and there was nothing in the way, so this queen went right on and deposited it full of eggs, and the bees from below came up and brought up honey and pollen to feed them, and plenty of heat from below supplied the needed warmth, and it made me a good strong colony for the honey harvest, as also the one below did, as later I set these top colonies off the proper time to do it. You can judge for yourself. If you leave them on too long they will get stronger than the ones below. It is an automatic way of equalizing your bees in the spring. We aim first to put the very lightest colony on the very heaviest one, and so on down. It makes these light colonies safe from robbers and all other calamities. It would be, if you please, like taking a regiment at the front which had been all cut up and depleted, and moving them back behind a strong battery of Gatling guns with the commissary wagons just behind them. They are perfectly safe from all comers; and when they eventually work their way down through the strong and out at the lower entrance, as their own entrance above is closed, they have so acquired the scent of the big colony that there is no fighting, or at least in three years' trial under all conditions I have not detected any. Yes, it is all right to set the light colonies right up at once on the strong ones. It is the best thing in every way for relieving us of this most troublesome problem in our bee-work. It is equal to the cat's trick of climbing a tree to get rid of dogs, which was worth all that the fox had, and more. Long live Alexander, the big-hearted man! and long live the bee-journals for recording these things and getting them to us in such good shape.

Grand Rapids, Mich.

[Yes, this plan of strengthening weak colonies is one of the best things that has ever been given to the public. But it is important to carry out directions in full. The colony below should be a *strong* one or the plan will fail. Uniting two weak colonies will not work. The two clusters will unite in one, leaving the deserted queen high and dry, when she soon dies.—ED.]

### MAKING INCREASE.

A Reply to E. W. Alexander's Criticism.

BY F. L. DAY.

I see Mr. Alexander has made a rather scathing criticism, p. 1189, of my report of a test of his plan of making increase, page 1017. I can not blame him for being vexed with the report, even though he is mistaken in part. In the spring, when I divided the four colonies in question it was done June 1, as stated in my report; but the first prepa-

ration was made May 22, not April 22. The error was made in copying from my record of individual colonies. But had Mr. Alexander read my whole report with perhaps a little more care he would have noticed where it said, "Here was 75 per cent of swarming, actual or anticipated, at *nine* days from preparation of colonies." When I stated in the report that three of the upper stories had queen-cells, some of them almost ready to hatch, I was not quibbling on one-fourth or one half of a day, but meant that they would hatch in one or two days. From May 22 to June 1 is ten days—just the time the colonies were to remain after being prepared. The nine days was a part of the old mistake. On the tenth day I divided the four colonies in the forenoon and also had the first swarm from one of the lower stories in the afternoon. If Mr. Alexander will refer to my full report in the *American Bee Journal* for Nov. 2, page 764, he will see where I gave the four colonies treated on his plan credit for producing about 45 per cent more honey than those colonies which were not divided. Is not this a fair showing? He will also notice that all my bees swarmed excessively, which accounts in a measure for the poor success of his plan.

Mr. Alexander speaks disparagingly of my queen-excluders; but I assure him they are all right. In four years I have never known even a virgin, much less a laying queen, to get through one of them.

Detroit City, Minn., Nov. 25, 1905.

### NON-SWARMING PLANS; THEIR FAULTS AND FAILURES.

The Chambers Non-swarming Device.

BY J. E. CHAMBERS.

[In explanation it may be well to say that this article is based upon the one by the same author that appears in the Nov. 15th issue, page 1181. It would be well if the reader would turn first to this former article, and then note that, in the one here given, several improvements are described.

As many (and perhaps a majority) of our readers will not have the issue of GLEANINGS above mentioned at hand, it will be necessary, in order to understand how this non-swarming attachment is used, to make an explanation of the method right here. The attachment, consisting of the honey-board and chute, is so fully described in what follows that no further explanation is needed.

#### HOW TO USE FOR EXTRACTED HONEY.

When a colony shows preparations for swarming it is removed from its stand to one side, and a frame of brood with adhering bees is taken out and put into an empty hive, as at B, the same being placed on the old stand. The space on either side in the hive is filled out with empty combs or full sheets of foundation. The dividing board is now placed on top with the slide (I) shoved in. Over this, again, is placed the parent hive (A) with the queen, brood, bees, and all, minus the frame of brood in B. The wire cloth chute is then attached to the front of both hives, as shown in the illustrations. The operation is this: The bees in the old parent hive now above, as at A, will pass out of the opening at H, down through the perforated metal G, strike the wire cloth, and pass upward at the exit above in block C. On returning they will enter the regular entrance to which they are accustomed, in the lower hive, where they will unite with the bees on the frame of brood. This process will continue until the old bees are all out. The young bees at the first playspell will come out of the upper hive in

like manner and return to the lower entrance, adding their strength to the old bees. This process will continue and would continue on until all the brood and the queen in the upper hive is deserted; but before this happens the slide (I) must be opened so that enough bees from below can pass upward through the holes D, D, covered with perforated zinc, to take care of them. In eight days lift off the upper hive; remove the comb of brood from the lower one on which are cells, and cut out all but the best one. Replace the comb, putting back the upper story, with the dividing-board between as before, with the chute. When the virgin below is hatched out and laying, remove the dividing-board; and the young queen, if the old one is of no value, will "settle the old one," so Mr. Chambers says.

A colony so treated, he explains, will not swarm. Every bit of brood has been saved, and added to the parent colony after it has hatched, thus giving the "swarm" the strength of both the new and the old force of bees.

#### HOW TO USE FOR COMB HONEY.

When running for comb honey the process is varied somewhat. Use starters in the lower story, but give no frame of brood. Shake the old queen in front of the entrance of lower hive, and put the case of sections directly on top of hive B. On top of the super place the dividing-board and then the hive A with its brood and bees minus the queen, which is now in hive B with frames of starters, but no brood. It will be necessary to have in hive A a mature queen-cell, as the constant accession of bees from the upper to the lower hive will leave the upper one in poor condition to rear good cells. Although Mr. Chambers does not say so, I suppose when the upper hive has hatched out all its brood it is removed.

Mr. Chambers feels that any modern hive can be made perfectly non-swarming by the use of these two simple attachments—a dividing-board and a chute in front. Personally I am inclined to think Mr. Chambers has a good thing, and I should be glad to have our readers try it and report.

With the explanation that has already been given, the reader will be fully able to understand what Mr. Chambers now has to say.—ED.]

During the past seven years there have appeared quite a number of non-swarming plans, some possessing real value, but all more or less uncertain at different times and under different conditions. In the hands of the novice these several plans failed very often because of the multiplicity of advice regarding the time and method of manipulating. One said, manipulate only when the bees are ready to swarm; another said the right time is when there is a honey-flow on. One said shake, another said brush; and still another said drive, and the novice was at a loss to know which to follow. Many times he did not follow any one very closely, perhaps, and scored a failure or concluded that no one knew much about it any way. Many of these plans were failures because of inability of the operator to comprehend the small details and their relation to the natural instinct of the bees. But more often they were failures because, as I suspect, there was too much tedious work and too much complication ever to be faithfully carried out by the average bee-keeper.

Among the most meritorious of these plans I have no hesitancy in saying was the Stachelhausen, or brushed-swarm plan. I was very familiar with this plan from the start, and it always worked satisfactorily in my hands. However, I always considered it weak in some features; and one of its objectionable weaknesses was that it did not allow of requeening at the time of the other manipulations, and this I consider a most serious weakness; for to the man who wishes to produce honey nothing is of as much

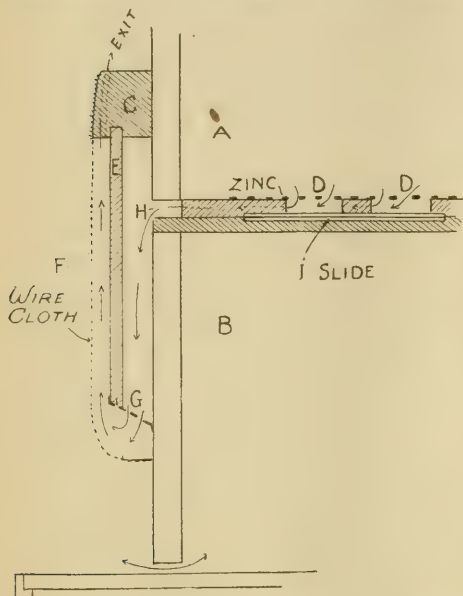
importance as thrifty young queens; and while I do not maintain that all queens should be replaced by young ones every year, still I fully believe that more honey would be produced if this were the universal practice. Another weakness of the Stachelhausen plan was that every comb had to be handled unless the operator was fortunate enough to be using the shallow hive, in which case he could handle parts of hives instead of combs. Still another weakness was that honey was shaken out to such an extent that robbing was invited, and at times this was not desirable; in short, the undesirable features were so many that I could not enumerate them all, and this was the best by all odds of the plans brought forward during the past eight years.

Now, the Chambers non-swarming plan and mechanical device, as described in GLEANINGS for Nov. 15, 1905, is entirely free from any and all of these faults, and, besides, possesses many desirable features that none of these earlier plans ever had—first to recognize the value of requeening; first to realize that the entire force must be diverted to the working hive, if the greatest amount of surplus is to be secured, and first to make possible a non-swarming manipulation without the handling of all combs or shaking-out of honey. All these advantages, with the certain and sure control of all swarming, the rapid and up-to-date manner of manipulating, and the simplicity and ease of operating the device and plan, together with the trifling cost of the device, render the plan one of the most advantageous ever brought out, especially for the specialist, who needs something that will do the work systematically and surely, and with business speed.

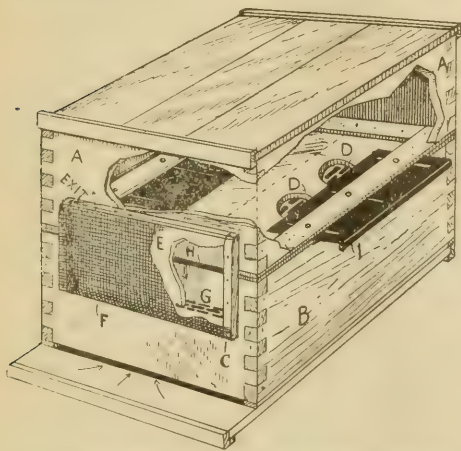
I also want to call attention to the fact that this plan, unlike many of the so-called non-swarming plans, entirely carries out the desire of the bees to swarm and requeen, and thus satisfies that primary instinct of bee nature. This prevents all sulking and failure to enter the supers; and during the entire time or period of manipulation there is no loss of brood, nor has the old queen ever entirely stopped laying until the young queen is in full egg-laying sway; and all must admit that this gets very near to nature's way, and, as I know, is always safe and sure. Since my article appeared in GLEANINGS I have received many letters from all parts of our country, asking for additional information regarding the operation of the device on hives of different construction. In answer to all such inquiries I wish to say that this device can be used successfully on any kind of modern hives, but will need to be slightly changed or modified to fit the different widths and depths, otherwise the principle remains the same. The article describing this device was sent in early in the spring; but it was some time before Editor Root and Mr. Murray could thoroughly understand its construction so that drawings could be correctly made. Since the article describing it was used,



Nov. 15, 1905, I have all along been experimenting with a view to further improvement, and have, I think, nearly perfected it. In the illustrations the improved device is shown in perspective and cross-sectional views, and a close examination of these will aid very materially in arriving at a clear understanding of every part of the device.



At D, D, in the sectional view, a very clear idea of the relative position of both zinc-covered holes and tin-slides is obtained; and at I the opening through the side rail of the dividing-board is shown, though not very



J. E. CHAMBERS' NON-SWARMING ATTACHMENT.

distinctly. The exit, H, is shown with the arrows pointing the downward flight of the bees through the zinc-covered slot G, at the bottom of the partition E, and turning up-

ward against the wire cloth F, going out at the final exit at the top near the beveled head-block C. This view also shows how the wire cloth is attached to the bottom of the end-post, and drawn upward over the partition-board E, and fastened down over the beveled head-block or end-post.

In the other illustration, A represents the top and B the bottom hive, and C is the chute, or trap, in correct position on the hive. The dividing-board is clearly shown with the zinc-covered holes at D, D, and the tin slides at I. The slides are drawn out to uncover the holes. The exit from the upper hive, A, through the front end of the dividing-board, is shown at H, and the zinc-covered slot on the bottom of the partition E is seen at G. The partition-board E is grooved into the end-post in such a manner as to form a  $\frac{3}{4}$  partition between the board and the front end of the hives. Through this partition or channel the bees travel in their downward flight, one inch below where they go through the zinc G. They strike the wire cloth F, which is drawn upward and forms the half-inch outward partition, or escape. One inch from the top the side or end posts are beveled down so as to form a fourth-inch opening or escape. This bevel is shown only at C in the cross-section of the head-block, though a close examination will show the end-blocks to be beveled; and the arrow at the exit indicates that the opening has been narrowed down considerably.

#### DIRECTIONS FOR MAKING THE CHUTE OR TRAP.

Take two pieces of timber 6 inches long,  $1\frac{1}{2}$  inches wide, and  $\frac{3}{4}$  thick. Half an inch from either edge of these pieces make a groove and slip a thin board into it. This board should be  $15\frac{1}{2}$  inches long,  $\frac{1}{2}$  thick, and 5 inches wide. This is the partition-board E. At the bottom of this board saw into the end-post  $\frac{3}{8}$  inch, and fit the strip of perforated zinc into this saw-kerf. Nail to the edge of the board with fine nails.

Now, as will be seen by reference to the cross-sectional view, the end-post extends one inch below this zinc slot, and here is where the wire cloth is first fastened with small nails to these end-posts and drawn upward and fastened again at C, where the tops of the posts are beveled down to  $\frac{1}{2}$  inch. Across the opening at the top, between the partition E and the end of the hives, fit a piece of timber  $\frac{3}{4} \times \frac{3}{4}$ , 16 inches long, by sawing and mortising out a shoulder, allowing it to drop down  $\frac{1}{2}$  inch below the top edge of the partition-board. Nailing through the upper edge of the partition-board completes this part of the device. The construction of the dividing-board can be seen so plainly that it needs no explanation.

With reference to the system of manipulation to be used in conjunction with this device I will say that the article in GLEANINGS, Nov. 15, 1905, page 1181, gives full details, and all interested parties are referred to it for the required information.

Vigo, Texas.

### PROF. GRIFFIN'S CLASS IN APICULTURE.

Advantage of Tall Hive-stands; Avoiding the Killing of Bees.

BY E. R. ROOT.

The class in apiculture under Prof. Griffin, at the Missouri Valley College, here shown, have been studying insects of all kinds during the summer; and the proximity of an apiary belonging to a practical up-to-date bee-man, Mr. M. E. Tribble, makes it possible for the students to get some personal and practical knowledge concerning the life-history of the most useful insect known to man—namely, the honey-bee.

It is getting to be quite the fashion to give practical demonstrations to students in entomology at several of the modern progres-

sired to show to the world their entire confidence in the bees.

The little that shows in the picture proves that Mr. Tribble is an up-to-date bee-keeper. He has modern hives, modern hive-stands that raise the hives high enough from the ground to make manipulation a pleasure and a convenience. The only possible objection that can be urged against having hives so elevated is that, early in the spring, some bees will be lost owing to their inability to rise in flight from the ground high enough to gain the entrance; but where the alighting-board projects well out in front as shown, this objection will be largely overcome, because the bees will alight on the board without missing it.

As another evidence of Mr. Tribble's up-to-dateness may be mentioned the fact that, when he lifted the upper story off from the



PROF. GRIFFIN'S CLASS IN APICULTURE; PHOTO BY M. E. TRIBBLE, 3D PRIZE, CLASS A.

sive colleges. Bee life is always interesting to an outsider; and when the student sees what can actually be done, his whole interest in the study of insects in general is aroused as never before.

Referring to the picture, Mr. Tribble, the apiarist, stands at the edge of the group, with a globe bee-veil on. Strangely enough, the students have lifted their face-protectors while the owner himself stands as if he were afraid to take his off. Of course, this is not true; but it is a good joke on our friend. At the time the photo was taken he probably did not observe that all but himself de-

lower one, instead of setting it flat on the ground, and killing bees, he put one edge over the cover. I know this is a small thing; but when I see a bee-keeper deliberately smash bees, causing the whole colony to be angered by the cries and the blood of their mangled comrades, I always feel that *that* bee-keeper has something yet to learn. While I do not believe it is necessary to go so far as to waste valuable time to save the lives of two or three bees, yet, if one manages rightly, scarcely a bee need be killed; and the time lost will hardly be worth figuring.



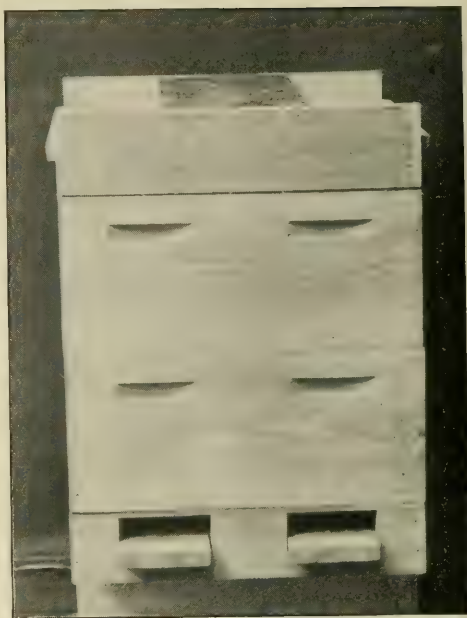
## THE HIVE ADAPTED TO THE TWO-QUEEN SYSTEM.

Reasons why the Ten-frame Hive is Unsuitable.

BY A. K. FERRIS.

While the ten-frame hive of standard style can be used for this system, yet there are some serious objections to it. Foremost of these is the fact that, when a colony is as large as they invariably become during a good honey-flow, tiering up has to be practiced so extensively, and they fill the stories so quickly, that the hive reaches too great a height to be easy of operation, and the honey has to be extracted unripe in order to give storage room. I have had such a colony fill the available space in five stories in seven days. The past season, though a very poor one, they attained five and six stories before I could commence extracting; therefore, in order to have well-ripened honey I was forced to adopt a larger hive, taking the standard frame, for I could not tolerate two sizes of frames, and I hated to change hives; but I concluded to accept the lesser of the two evils, and so adopted the hive shown. It takes twelve of the standard Hoffman L. frames, two followers, and a  $\frac{7}{8}$ -inch center division, or fourteen frames when followers and division are out. It is a perfect square—21 inches outside, and two of these stories make a perfect cube.

The bottom is so arranged that the entrance to each set of frames can be enlarged automatically, from entirely closed to  $1\frac{1}{2} \times 5\frac{1}{2}$  inches; thus when the flow is on you can have a combined entrance  $1\frac{1}{2} \times 11$  inches, and can diminish it at any time as much as desired, without disturbing the bees. The alighting-board and bottom of the hive are one; and raising the front end up or down controls the entrance—see cut. In transferring to the cellar, double tongs fastened to a pole are used, each hook of the tongs entering under the alighting-boards and in kerfs at the back. In this hive we can winter two good six-frame nuclei; and as there



A TWELVE-FRAME HIVE ADAPTED TO THE FERRIS SYSTEM.

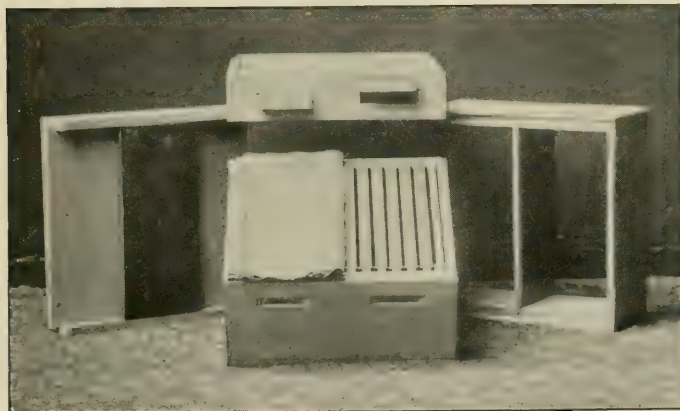
is  $1\frac{1}{2}$ -inch wood at the ends, and a  $\frac{3}{4}$ -inch air-space on the sides formed by the follower, it makes practically a double walled hive.

When each queen has her six frames well filled with brood, another story is added; and as the division-board in the center slides in a  $\frac{1}{2} \times \frac{1}{2}$  inch groove, and can be slipped in and out easily, the one having the quilt tacked on can be exchanged with one not having a quilt, and the second story added, still keeping both queens and their bees separate; yet one colony receives the benefit of the heat of the other.

I find that, if I wait till there is brood in all the combs, I can alternate them with the ones given, to a profit. This gives 12 frames to each queen, and this is generally all that will be needed till the flow begins on clover, except, perhaps, where there is quite a flow on fruit-bloom.

When the flow begins, this colony can be dequeened by making a one-frame nucleus with each queen, or by destroying the queens.

In a day or so take out the division-boards and you have only one colony to deal with all through the flow. By placing a queen-excluder over the first story, and adding two empty



THE TWELVE-FRAME HIVE OPENED TO SHOW CONSTRUCTION.

combs, we have the queen confined below on fourteen frames. In this case the queen will seldom become crowded, and we can tier up as high as we choose without fear of wind, and our honey can be well ripened before extracting. I believe one of the worst evils the bee-keeper has to meet is the effects of unripe honey on the market.

About Aug. 1st, in this locality, replace the central divisions, give another queen, and you will get plenty of brood of the right age for wintering.

In this we have a unique system of controlling swarming, yet producing more than double the average amount of honey with only one hive to operate. This greatly reduces the cost and enlarges the income.

Madison, Wis.

### MARKETING HONEY.

#### How to get Permanent Customers.

BY T. P. HALLOCK.

At the last National convention of beekeepers the subject of increasing the demand and sale of honey was discussed. This topic seemed to have become the foremost one of the whole convention. Indeed, it is the all-important problem which confronts you, Mr. Beekeeper. You know what a perfect food good honey is—how pure, how indispensable in your home; but how about the people in your home town? Do they all use honey? How many families in your community do not buy twelve pounds of honey a year? How many not one pound? Many? Yes, I dare say there are, and your community is no exception. The same condition prevails nearly everywhere. Now for a remedy:

I suggest education. If people can be educated to buy crackers in a sealed paste-board box because they are told that in this way handling the crackers is eliminated, and that this is the only clean way in which crackers can be bought, why can they not be taught to buy pure delicious honey instead of jams and jellies? extracted honey instead of diluted maple syrup? They can. Just demonstrate to some family who has never used extracted honey how much better it is for buckwheat cakes than syrup, and you have a convert for life. Education spreads. Were this not true, savage races could never be civilized. If personal solicitation were necessary, the force of missionaries in the foreign fields would have to be increased thousands of times. One family, learning of the purity and deliciousness of honey, the many uses which can be made of it, will tell others. Thus the education will spread.

#### HOW TO EDUCATE RAPIDLY.

The best way to reach a majority of the people in a community is, of course, through the press. Now, Mr. Beekeeper, you did not know it would be possible for you to get free advertising in your local paper, did you? But you can, to a certain extent. You sit down and write an article on honey as a pure

food; tell the people what honey contains. Tell your story in a plain, simple, and unprejudiced manner; do not use your name in the article; do not try to advertise your apiary. Just tell the people that honey is good to eat, and some of the many ways in which it can be used. Write as you would talk to a friend whom you wanted to convince of the value of honey in the household, but whom you would not ask to buy. Take this article to the editor of your local paper, and ask him if he will kindly publish it. The chances are many in your favor that he will. Write something new every once in a while, at least once a month, just as long and as often as you can get them published. Tell every thing you know about honey.

Then there is another way to educate. If you have an observatory hive, take it to your local school—all the nearby schools, show how the bee lives, tell the pupils the story of the honey-bee. You can do it. Do not be bashful or afraid. That's why honey is not the marketable product it should be. Bee-keepers do not talk enough about honey. Remember that it will take a boy or girl who sees such a demonstration made—who learns of the purity of honey—a lifetime to forget the lesson. Remember that the boy and girl of to day will be the heads of the household of to-morrow.

There is still another way which will help to boom honey in your locality. Invite people to visit your apiary—put an ad. in your local paper, stating that at such a time you will conduct through your bee-yard all who choose to come; invite the school-children to come and learn more about the bee in its home.

Talk of the purity of honey at all times. The country is aroused on the pure food question, and you can easily set honey as the standard of pure foods. Demonstrate, whenever you can, how it is impossible to make artificial comb honey. Market just as much of your honey as you possibly can in your home town. You will profit. Figure up how much honey you sold last year in your own community. Then conduct a vigorous campaign for this season, and figure up again. If the sales have not doubled or quadrupled it will be your fault.

### BEE-KEEPING IN IDAHO.

Some Conveniences About the Apiary; Wiring Frames; How to Cut the Wires; the Acme Lid.

BY E. F. ATWATER.

Among the conveniences of a well-equipped shop are suitable arrangements for wiring frames, and for holding covers or bottom-boards while being painted. The cuts show fairly well our wiring gauges on which the frames rest while the wire is being threaded through the frames and fastened to tacks at the ends. We use three wires in the standard frame, with medium brood





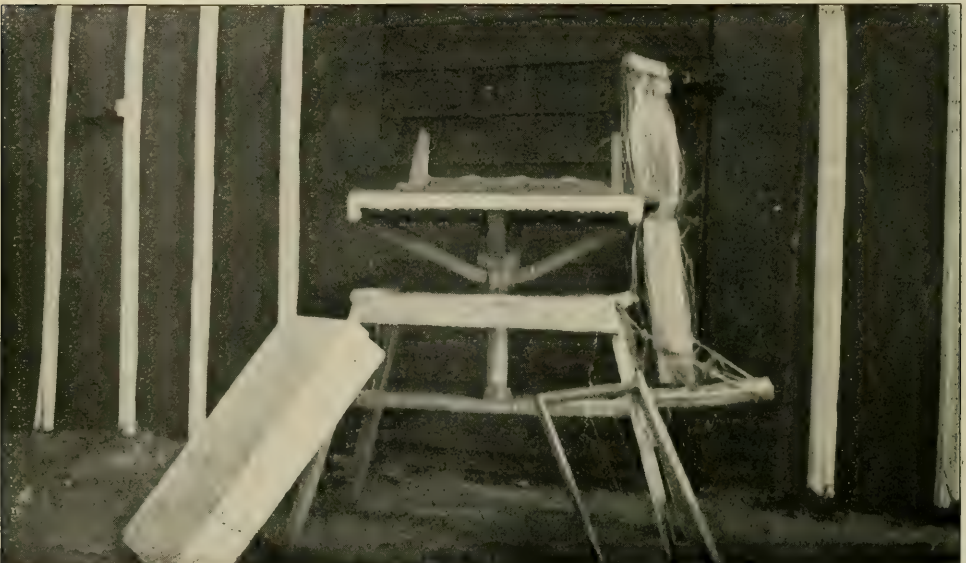
A RACK FOR HOLDING FRAMES IN A CONVENIENT POSITION FOR WIRING.

foundation. The frame is wired as though we were to use four wires—that is, the first wire  $\frac{3}{4}$  inch from the top-bar, and the next wire  $1\frac{3}{4}$  to 2 inches lower, and the third wire  $1\frac{3}{4}$  to 2 inches below the middle wire. Most of the sag is in the upper half of the frame, so that is the place for most of the wires.

Do not begin with one end of the wire, and thread that end through all the holes, but begin at the upper right-hand corner, cross to the upper left-hand corner, and fasten the

end of the wire to the tack. Now take the other end of the wire and thread it through the middle right-hand hole, across the frame and through the middle left-hand hole; then through the third left-hand hole, across frame, and finally through the third right-hand hole, then fasten to the tack. This saves time, and one is not handling so long a piece of wire at once, so there is less trouble from kinking.

Notice the  $\frac{1}{2} \times 4 \times 30$  inch board covered



ATWATER'S REVOLVING TABLE USED WHEN PAINTING COVERS AND BOTTOM-BOARDS.

with wires, especially the upper end where two  $\frac{1}{2} \times 4 \times 4$ -inch blocks are so nailed as to leave an opening between to insert tin snips or shears to cut all the wires at once.

In a recent number of the *American Bee Journal* Mr. Getaz objected to winding the wire from a spool on to such a board because of the subsequent trouble from kinking when using the short wires so prepared. But by standing off about fifty feet from the spool when winding the wire on the board, and with tension on the spool, the wire is stretched slightly, taking out the tendency to kink and curl. We have never been able to do any thing with the 5-lb. coils of wire. They will curl and tangle when unwinding in spite of every precaution, and in spite of various reels, etc., on which we have mounted them. I have had my temper tried more by the 5-lb. coil of wire than by almost any thing else; so I am sure that the 5-lb. coil of wire is an invention of the evil one. Don't use



E. F. ATWATER.

them. Use 1-lb. spools. When we have about  $\frac{1}{2}$  lb. of wire on our board we tie a stout cord around each end, and one in the middle, then cut all the wires at the place provided, when we can draw one at a time, limp and straight, just enough to wire a frame. We mount the spool of wire in a little reel and produce any desired tension by a flat super-spring pressing against the spool on the flange at one end.

We consider the old rocker Easterday wire-imbedder to be "1000 miles" ahead of the spur, as the spur nearly cuts the wire in two, and does not then do a good job of imbedding. When one hauls wagonloads of extracting-supers and hives full of wired frames and full sheets of foundation over all kinds of roads to outyards he soon learns the reliable methods. When we are not pressed for time we find it much more satisfactory, with

either Easterday or spur imbedder, to run over the wire, after imbedding, with a small brush dipped in hot wax, or with an Onderdonk spoon with a small notch in the end to follow the wire. This effectually waxes the wires in place, and makes the foundation strongest where the wires run. If this latter method is used the spur is quite satisfactory.

In the photo the wiring-gauge is resting on the revolving table, on which we paint our lids and floors, as illustrated by Rambler several years ago. This revolving table is a great convenience in painting lids and floors; but for supers and bodies we prefer to pile them on a ladder resting on the ground its whole length, in piles about five feet high, and paint each pile instead of handling each super or body separately.

Leaning against the revolving stand is one of our "Acme" lids, covered with tin painted white. This lid has a rim  $2\frac{1}{2}$  inches deep to telescope the hive or super, and rests on two cleats  $\frac{3}{4} \times 1 \times 14$ , nailed across the ends inside, and next to the top. It is equally good, either to use with an inner cover or with a quilt. This lid is somewhat similar to your shallow metal-covered telescope lid, but much more substantial. It is also similar to the Alexander telescope cap. We made 200 of these lids last year to use on our comb-honey hives, and we are beginning to think that a telescope lid is the only lid fit to put on a hive. They shed all water away from the hive, obviate need of shade, are best when a new swarm is hived, and if any colony is a little short of stores there is plenty of room, by raising the quilt, for a full comb of honey lying flat on top-bars, or for a large cake of candy.

Meridian, Idaho.

## DO BEES STORE WATER?

A Report of an Interesting Experiment.

BY DR. PHIL. MAX BOELTE.

There is in GLEANINGS for April 15, 1905, a short article by Prof. A. J. Cook on this question, with reference to a suggestion by the editor. When I first read Prof Cook's remark I was much surprised to see that a man of such unquestionable learning could make such an assertion. I wish to state only what I have seen. We all know that bees need water, and at some seasons of the year they need it in great quantities. Now, in order to arrive at a conclusion for my own satisfaction, as well as to see if Prof Cook was correct or not in his assertions, I decided to make a few observations. My apiary is about 120 yards from house and well. There is generally water running in a gulch up to about the middle of May. In order not to be bothered by the bees around the house and well I have trained them to two watering-places. It was then an easy matter to make my observations, which have been conducted, off and on, for the past



seven months on rather hot and dry days, and also, later on, on damp and cool ones.

Provided with a small long-handled paint-brush and some white paint, I sat down near one of the drinking-places and put some little dabs of paint on sundry bees. After having thus spotted some twelve or fifteen bees I waited to see if those same bees would come back. In from five to twelve minutes, there they were with their paint. I have repeatedly tried this experiment on cool as well as on hot and dry days. Of course, the quantity of bees coming to the watering-places was much larger on dry and hot days than on cool and damp ones; yet I have seen them every day, even when the temperature was only 5), and snow clouds passed overhead.

Now, what have we to deduct from these observations?

1. That the same bees make repeated trips to the water.

2. That not all the flying bees come for water, but, as I have convinced myself, go to the fields. Have we to conclude that the bees that come for water are nurses, or especially chosen bees for this water-carrying? I have seen these spotted bees going into the hives, without any attention being paid to them. Only a few times I have noticed that a "guard" had, apparently, a "confab" with such water-carrier; but I can not be sure whether the

guard got water from the river; neither have I been able to ascertain whether these water-carrying bees are only nurse-bees, but I incline to that belief.

I am much interested in this matter, and shall follow it up the coming season with one or two observatory hives. From what I have seen so far I feel confident that the bees carry the water in their honey-stomach into the hives; but, of course, I do not know they store it. Perhaps they use it for diluting the honey, etc.; during the time when



THE BIGELOW EDUCATIONAL HIVE.

Complete hive with shields removed. Main hive in front consists of base, observation chamber, super with four sections, and two "traveling hives" at top. In the rear is the flying-cage.

there is not enough nectar in flowers to be found. During the bloom of certain nectar-bearing flowers the number of bees at the drinking-places has decreased to an astonishing degree.

Lilac, Cal.

### AN EDUCATIONAL BEE-HIVE.

BY EDWARD F. BIGELOW.

*From The Nature-Study Review, Sept., 1905.*

In a booklet recently published and distributed free of charge to those who ask for it, I have explained why a bee-hive seems to be needed for educational purposes, a hive that shall be worthy of the interest sure to be aroused by the instructive and often unknown or unappreciated habits of the honey-bee.

In that booklet I have briefly set forth the main points of this special hive. What I have there stated regarding its advantages I trust will be made clearer by the accompanying illustrations, their subjoined legends, and this additional description.

The structure is not so much a hive, which is a mere home for the honey-bee; but rather a complete, elaborate, handsome apiarian apparatus or laboratory supplied with every facility for observation, instruction, and experiment. I have long been of the belief that full justice—if not more than justice—has been done to cheap, homemade, simple contrivances for keeping and observing these most fascinating and useful members of the insect world. That it is an expensive hive I admit. That I have purposely made it so, I also admit; and I strongly advise that it be ordered only in oak or in ash, the wood to be as highly polished as possible. No patent has been put upon the hive, and the purchaser pays only for the material and the labor. I have made such arrangements with the company which manufactures and places it in the market, that I am convinced they are doing it without any pecuniary profit, trusting for that to come from an increasing interest which this hive will excite in bees, and therefore an increase in orders for the ordinary apiarian goods.

*The Complete Hive.*—As set up in my laboratory, there are placed in the entire hive ten frames in base, ten in observation chamber, three in "traveling hives" (at top) and twelve in flying cage—thus a total of thirty-five. The flying cage holds twenty frames, but it is preferable to put in not over twelve—two sets of three each on each support. It

would be even better, perhaps, to put fewer frames in the flying cage when it is used in connection with the rest of the hive.

It is also intended that usually only one frame shall be put in each half of the two observation chambers. This arrangement brings under full observation the outsides (half of whole frame) as follows—two in base, two in observation chamber, four in traveling hives, four in flying cage. There will also be seen fairly well the inside surfaces of the four frames (one of each set) nearest the center of the flying cage. Thus there are visible sixteen sides of frames or an equivalent in sides of an entire eight-frame ordinary hive. But in actual practice, this Educational hive gives an equivalent of two eight-frame hives, fully under observation, because as the two sides of any one frame are usually about the same, a full observation of an ordinary hive would show eight different combs, or stages of progress in the work, while this Educational hive shows sixteen different frames under observation at once. And, as has been previously explained, if it is desired to crowd the hive to fairly full capacity, there would be a storage or "base of supplies" in [nineteen



Side view of the Bigelow Educational hive, showing storage of honey in outside frame at base, three rows of developing queen-cells in observation chamber, four full sections of honey in super, and brood, honey, and bees working in "traveling hive" at top.

lent of two eight-frame hives, fully under observation, because as the two sides of any one frame are usually about the same, a full observation of an ordinary hive would show eight different combs, or stages of progress in the work, while this Educational hive shows sixteen different frames under observation at once. And, as has been previously explained, if it is desired to crowd the hive to fairly full capacity, there would be a storage or "base of supplies" in [nineteen



additional frames (not visible), a total of thirty-five. Thus it will be readily seen that the hive is of enormous capacity for observation or work, and admits of a great variety of combinations and arrangements, to meet the needs of experiment, or to suit the fancy of the operator.

The entire structure full of frames would hold forty-three, of which twelve sides would be easily under observation at one time. (When the flying cage is filled with frames, of course no interior surfaces are visible. When fewer than twelve frames are put in, if separated, more than four interiors may be seen). This is in addition to eight outside sections in super, and gives full facilities for exhibition of the stages of comb-making, the storage of honey, the cell structures, the queen, the drone and the worker brood, and a variety of novel experiments.

There is ample room under, above, and between the two tiers of frames in the flying-cage for any form or for several forms of base feeders such as the Page or the Miller.

Between the one-frame and the two-frame hives at the top of the main division are two glass-jar feeders, in which the bees are sucking downward (or feeding from under side) the syrup. In all others they are sucking it upward (feeding from top). The hive as a whole is designed to be set up at some distance from the window or other exit through the wall of a building, for temporary exhibition at a fair, a museum, or for special visitors' day at a school (when it is not convenient to take a large number of visitors to the regular location of the hive in another part of the building).

In devising this form, I have had in mind also an exhibition in the center of large stores. To the storekeeper this would be a novel and excellent advertisement to attract people to the store, to the apiarist a source of income for the placing and the renting of the hive and contents, and to the advancement of bee-keeping, because producing an increased interest on the part of the public.

*Body of Hive.*—This holds ten regular frames, a "base of supplies," a brood-chamber and force of bees. One side of each of

the two outside frames is visible. It is recommended that stored honey in full (as in the illustration) be shown in this.

*Observation Chamber.*—Designed especially to show processes of queen-rearing. This chamber is of extra depth, and the glass (as in body and super) is readily removable. Frames may be taken out or put in at the side. These chambers (two made by an especially deep padded division-board) are automatically filled or emptied (as are the one-frame and two-frame "traveling hives" above the super). This is done by a system of slides—a long slide covering plain slot and a Porter bee-escape slot in base of chamber to be filled, and a long plain slot corresponding in length to both above it, in the base below the operating-chamber.

When the slide in the base of the operating-chamber is out, bees go in or out. When the slide is half way in, bees go out only;



A large reading-glass, preferably one five inches in diameter, makes more interesting and easier to observe all the activities of the hive.

and by pushing the slide fully in, bees go neither in nor out. Thus one or more brood-frames in either chamber may be isolated or emptied of bees by manipulating this slide. The same principle is applied to the bases of the one-frame and the two-frame traveling hives and to the magnifying feeder.

*Super.*—This has thirty-two full sections, each four by five inches, the entire one side of eight being plainly visible.

*One-Frame and Two-Frame Traveling Hives.*—These have the automatic filling, emptying, and isolating devices by a system of two slots, two slides and bee-escape, as explained under the head of observation chamber. They are fastened by hooks to the super cover, and are easily isolated or carried to any distance. I have carried a one-frame with the queen, and about five thousand workers and one hundred drones,

to the four normal schools in the State of Michigan. I spent a week at three of these schools and a day at the fourth. When the frame was not in use before public audiences, the bees went out to view the country and to gather material. The hive was placed on the lawn, or by an open window in school-room or in my room at the hotel, and the sliding wire net before the entrance at the lower part of one end was drawn out. When I arrived home the entire swarm was in better condition than it was when I started.

*Magnifying Feeder.*—This is regarded by many persons as the most original, novel, and interesting part of the hive. It is fully described in the booklet previously mentioned.

*Flying Cage.*—Three sides of this are of glass, the fourth being of wire netting. Ordinary frames may be placed in it, but it is made of special depth so that rustic sticks may be placed on supports, so that the bees may build natural combs, and not the shallow, square-cornered combs of the artificial frames. When thus used separately with the exit open into the free air (not into the main portion of the hive) it becomes an observation box hive, or the interior of the original bee-tree, with combs on any sort of sticks, and of any length that the bees see fit to build. By having a hole in the center of the cover board, a super or any other apparatus may be placed above it. But for this purpose the writer prefers the original straw hive, and thus in one complete structure would be shown the interior of the original bee-tree, the first steps in hive-making (the straw hive above it) and at the left a complete modern hive with most improved experimental apparatus and accessories.

The use of a hand-lens five inches in diameter makes any part of the hive, or of any structure, or the movements of the bees more readily and effectively seen, and is strongly advised.

I believe this hive to be worthy of the subject. It is a great and unusual convenience. Its facilities are unlimited, and it will soon become a joy to the purchaser, especially if he will use it for the study of the *Apis mellifica*.

My best wish to you, my reader, is that you may obtain as much instruction and enjoyment in the use of this hive as I have found. I own three complete with about forty-five sides of frames under constant observation.

If you can't get the whole, start with the one-frame traveling hive. Watch the two sides, and be happy—and dream of getting more hives and more happiness.

Is sweet-clover honey very good to winter bees on?

A SUBSCRIBER.

Brighton, Colo.

[Sweet-clover honey will make an excellent bee-feed for winter.—ED.]



#### TWO QUEENS IN A HIVE.

During the season of 1905 I received four queens from a breeder, two of them worthless. One of these was much deformed, and laid very few eggs, so I paid little heed to her small colony. I opened the hive on a warm October day, expecting to find her dead; but on withdrawing the middle comb I found on the side next to me a well-formed and good-sized queen, doubtless fertile. A small patch of brood was present. Turning the comb about I saw the worthless crooked one—no guesswork. I am sure of it, for I was surprised, and looked times enough to make certain.

Sylvania, Pa.

RICHARD SIMMONS.

[The case you report is quite a common one—so common, indeed, that usually in an apiary of one or two hundred colonies there is liable to be one or two cases of dual queens in a hive in a season. The cases are most common where the old queen begins to fail, and a young queen comes on to take her place. Though contrary to the general rule that applies in all such cases, both queens are permitted to do service at the same time. The old queen very soon turns up missing, as a rule.—ED.]

#### A PLAN FOR PRODUCING COMB HONEY WITHOUT INCREASE.

I should like to submit the following plan for producing comb honey without increase: When a colony swarms, set the old hive to one side and put a new hive with full sheets of foundation on the old stand. Take the supers off the old hive and put them on the new one. Over this put a bee-escape board. Finally, set the old hive on the bee-escape and put on the cover. As the young bees hatch they will go below. In six days cut out the queen-cells so as to prevent them from raising a queen in the old hive. This work should be done while the swarm is in the air, and then hive them on the returning plan. The queens should, of course, all be clipped.

Do you think this plan would work? I have tried hiving swarms. I have tried this method all but using the bee-escape board; but by having the old combs above, the sections were capped over with pieces of the old comb, making them quite dark or travel-stained. By using the bee-escape the coloring of the honey in the supers would be prevented.

G. O. EVANS.

Fulton, Mich., Nov. 10, 1905.

[Your plan, in connection with the Porter bee escape, would be liable to result in the



desertion of the brood in the upper hive. The young bees to a great extent would remain above, but all the older ones would go below. The loss of this body heat from the older bees and the loss of the body heat from some of the younger bees going down might prove to be disastrous to the brood left above, especially if any of it were left unsealed. Your better way is to set the parent hive to one side (entrance pointing same way) and allow sufficient time to elapse until all or a large part of the brood is hatched out; then shake all the bees in front of the hive with the swarm, removing the parent hive. You will secure the same effect precisely without the loss of brood, and without the danger of soiling the combs of the sections from the old brood-combs above. This plan has been used to quite an extent, and I would urge it instead of the one you propose. But it would be advisable, before shaking, to put perforated zinc in front of the entrance of the swarm to catch any virgins that may have hatched. If the queen of the swarm is not valuable, let the virgins run in with the rest. They will fight it out on the principle of the survival of the fittest.—ED.]

#### THE DANGER OF A MONGREL AMERICAN BEE.

I don't think I've seen anything published against the possibilities of a mongrel American bee. As long as the Italian was, *par excellence*, the standard, we had a high and reliable type. What will be the result of a general mixture of Italians, Cyprians, Caucasians, Carniolans, German, etc.? While they can be kept "pure blood" or properly crossed, the benefits of any one race or cross are apparent; but is there not great danger that the high value of each, which is due to its distinctiveness of certain characters, may be lost by careless or unpreventable cross-breeding and mixing?

With *intelligent* crossing, certain undesirable features may be eliminated—i. e., the temper of the Cyprians; but we must be constantly alert to prevent a slump in quality; and I fear that, the greater the number of races of bees in any one community, the greater will be the chances and dangers of such deterioration. H. A. SURFACE.

Harrisburg, Pa.

[I do not believe it is advisable to introduce into one locality too many different strains of bees, just for the reason pointed out by Prof. Surface. It is well enough, however, to bring in these new strains, but let each strain have a locality of its own.—ED.]

#### THE CELLS IN THE TWIN MATING-BOX COMBS SLANT THE WRONG WAY.

The twin mating-box which you described in the Jan. 1st issue is almost perfection; but from the description given, the small frames are put in the large frames lengthwise; and when taken out to put into the mating-box the cells, instead of slanting upward, are slanting sidewise. Will the queen

lay with the cells in that position? and will the bees be satisfied? W. M. PARRISH.

Lawrence, Kan., Jan. 6.

[You will find no trouble by turning the cells around at right angles to their former position. As a matter of fact combs can be turned upside down, and young brood will be reared just the same. Years ago, when reversing had grown to be quite a fad, the combs in all reversible hives or frames were turned bottom upward once and sometimes twice in a season. No difficulty was ever experienced to the effect that the queen refused to lay nor that the bees refused to rear brood in them. For years the United States Department of Agriculture, under the direction of Mr. Benton, has been using just such combs in little mating-hives. Three of them just fill out the inside of a standard frame. When taken out and put into a mating-box they are turned at right angles.—ED.]

#### THE WOODWARD SELF-SPACING FRAME; A CORRECTION.

Mr. Root:—You do not seem to have gotten my form of frame. I do not see how any one could have obtained a patent on such a frame as you described on page 1249. In fact, I would not take such a frame as a gift. In the first place, my frame has spacers one inch from the top-bar, the same as at the bottom, and no spacer whatever on the rabbet. Why I placed the space one inch from the top of the frame is because the bees do not glue frames very badly one inch below the top-bar. It is always the top of the frames that gets the glue.

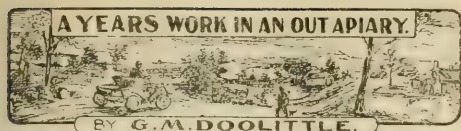
Matanzas, Cuba. C. E. WOODWARD.

[Thanks for the correction; but even using spacers as you now describe, one inch from the top-bar, do you not find that, when you crowd over three or four frames by pressing on one top-bar of the frame, this frame will be tipped, smashing bees both at top and bottom? We tried spacers one inch down as you describe, but abandoned them almost as soon as we saw how they worked.—ED.]

#### BENT WIRES FOR HOLDING TRANSFERRED COMB.

Here is a diagram of bent baling wire used by me for many years to hold transferred combs in the frames until fastened by the bees. I can use them and put all sizes of combs in the frames, and make almost perfect sheets of comb of them. I think the wires are better, and quicker put on or taken off, than strings or sticks or tin. The wires can be taken off the frames without taking the frames out of the hive; and when once made they are good for years. The wires hook over the top and bottom bar. They have probably been in use by bee-keepers for many years; but I do not remember having seen them mentioned anywhere, and do not know of any bee-men using them before I introduced them here. F. P. WHITE.

Lemon Grove, Cal., Dec. 14.



## CHAPTER 4.

## HOW TO CONTROL SWARMS WHEN RUNNING FOR COMB HONEY.

It is now the 16th of June, many heads on the white clover are fully in bloom, while the black locust, from which the bees obtained quite a little honey, has just gone, and two of my bee-keeping neighbors report "swarming commenced." Half-past three o'clock A.M. finds me in my auto, with the scythe done up in a blanket (to keep it from cutting and marring something it was not intended for), occupying the "other seat." Those who have never ridden in an auto at the "peep o' day" can not even imagine my delight that morning. Birds were singing from every branch, the barnyard fowls were out after the "early worm," while now and then the smoke from the chimney of an early, enterprising farmer was rising up in wavy circles as it ascended toward heaven. The eastern sky soon became all aglow with its "gold and carmine," telling of the advancing sun, while the cattle and sheep on a "thousand hills," were securing their morning repast from the grass made so pleasant and palatable from the "dew of the morning." When nearing the apiary, a jolly, fun-loving farmer, who had "just pulled out" for his cows,

yard mown before the bees got "waked up" by the rising sun.

Arriving, the scythe was hastily unwrapped, and, going to the front or south side of row No. 1 (hives face south, rows run east and west), I begin at the east end and mow a swath toward the west, allowing the "pointing in" to come as near each hive as is possible without hitting any of them. By thus mowing, the swath of grass is carried out and away from the entrances to the hives so the bees need not be disturbed when I come to the raking-up part, later on. Arriving at the west side of the yard, I quickly go back to the east or "beginning" end, and mow through again, immediately in front of row No. 2, but instead of coming back "empty," as before, I mow back at the rear of the hives on row No. 1, cutting as close to the backs of the hives as is possible without hitting them enough to disturb the bees materially. In this way the double swath of grass is left in the center, between the first and second rows of hives.

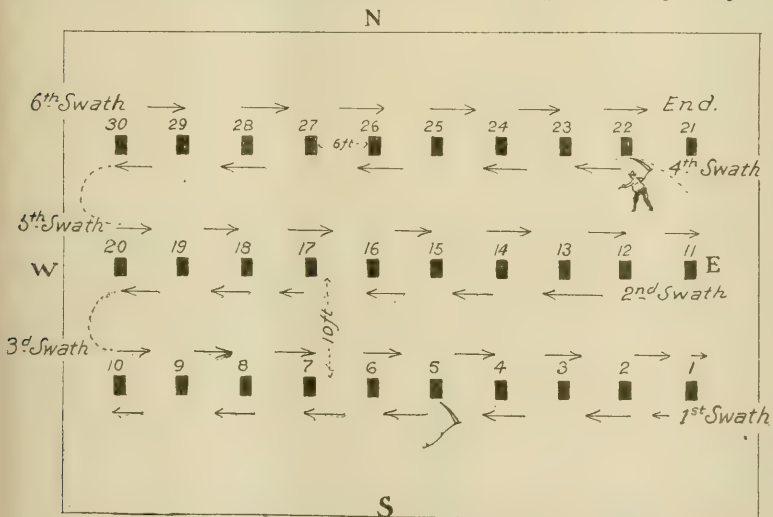
I now begin in front of row No. 3, coming back at the rear of No. 2. Next, I go to the west end of No. 3 and mow at its rear, turning the swath away from the rear of the hives against the fence at the rear of the apiary, the same as I turned the first swath away from the entrances, or fronts of the hives, against the fence in front of the apiary. I now go to row No. 1 and cut the grass between hive No. 1 and hive No. 2, and so on till the grass is cut between all the hives in each row.

After years of practice and experimenting, this is the best and quickest way to cut the grass in any bee-yard laid out in rows.

that I know of; and, after a little practice, very little grass will be left about any hive to cut with a knife, shears, or sickle. At half-past six the grass is cut, raked up, and put in a pile outside the bee-yard fence, for the farmer who owns the land to use, if he so desires, and I am ready for my breakfast lunch, which I eat sitting in the auto.

That the reader may better understand, I will say that the fence enclosure is calculated for 30 colonies, three rows with ten on each row.

The rows are ten feet apart from center to center, and the hives are six feet apart in the row, which distance I prefer to any thing else, after having tried distances both



DOOLITTLE'S METHOD OF MOWING THE GRASS IN A BEE-YARD.

accosted me, while pointing at the wrapped-up scythe, with, "Taking the sick one in your ambulance to the hospital?" "Yes," I replied, without stopping, as every moment was precious, if I was to get the bee-

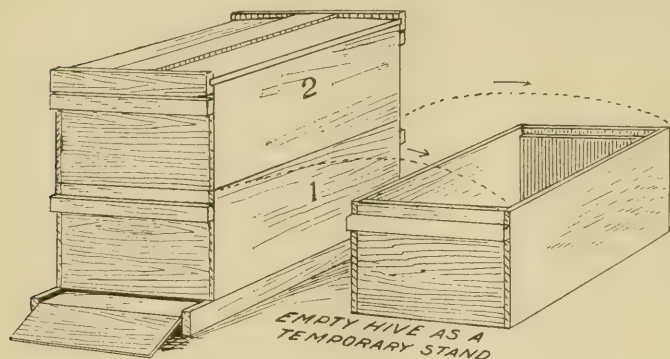


less and greater. When I bought this out-apiary it had only 22 colonies in it, and as I thought at that time that I did not care to increase the number to more than 30 col-

I consider it money well spent when paid for help to do this carrying part.

I always begin any work with bees, where I can work in rotation, at hive No. 1, row 1, for this reason: If any colony becomes unduly disturbed at any time during any manipulation or work about it, I am soon behind and away from their range of flight, so am less liable to be tormented by angry bees; for if the object of their anger is out of sight of the entrance of their hive, they soon forsake the following of that object. Any colony after being worked at, or after having work done about its hive, is much more liable to resent having a moving object in front of them, and in line with their flight, than they are be-

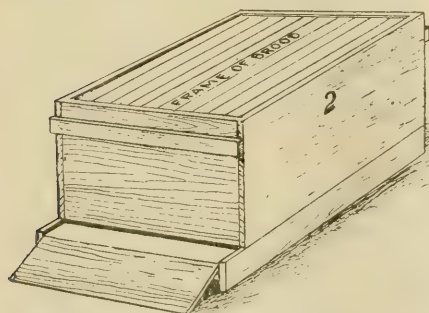
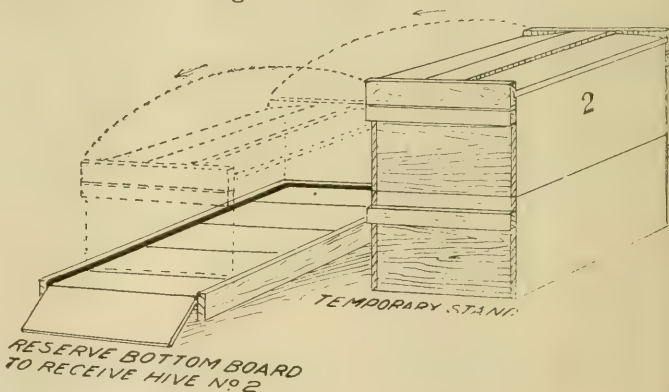
fore being disturbed. Here is also "another something" which is well worth "past-ing in the hat."



USE OF HIVE AS TEMPORARY STAND; HIVE 2 ABOUT TO BE TRANSFERRED THERETO.

onies, it was laid out and planned for that number. And as, later on, I was overworked to an extent that retrenchment was considered rather than enlarging it has remained the same as when first laid out. My first object when buying this apiary was, the forming of nuclei for queen-rearing at the home yard, as bees, no matter what their age, brought four or five miles from home, do not return so as nearly or quite to spoil a nucleus newly made, as do the bees taken from the same apiary.

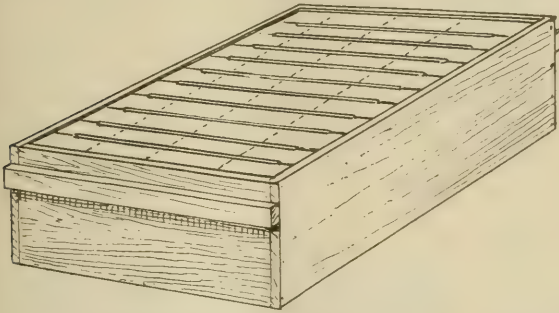
My experience, based upon the time taken to work this 30-colony apiary by the plan here given is, that from 60 to 75 colonies would be the right number for each out-apiary to be worked by one energetic man, in a fairly good locality, without any help from others, except in setting in and out from the cellar. One man can do this, but



CENTER FRAME IS TAKEN OUT AND A FRAME OF BROOD PUT IN ITS PLACE.

Lunch over, I take an empty hive and go to hive No. 1, this being one of the 13 having an upper story put on during the third visit. The empty hive is put down on the ground, close by the side of the colony, as a temporary stand, so that by a lifting, swinging motion, the upper story can be easily set on it with scarcely bending the back, which is now done, after prying it up at the back side and sending a few puffs of smoke under it to quiet the bees. From the strength it takes to "swing" this upper hive, I judge there is some 50 or more pounds of honey in it, which is more than I expected from the poor season we have had so far. The lower hive, bottom-board and all, is now set off the stand, and a reserved bottom-board placed thereon, when the upper story of 50 pounds or more of honey is set on this new bottom-board and a center frame of honey taken out, which is taken to one of the weaker colonies and exchanged for a frame one-fourth to two-thirds full of

brood, with the rest of the cells nearly empty, after the bees have been brushed from each into their respective hives. This one-fourth-full frame of brood is now set in the hive on the new bottom-board, to take the place of the frame of honey.



DOOLITTLE SUPER CONTAINING FORTY-FOUR  $3\frac{1}{2} \times 5\frac{5}{8} \times 1\frac{1}{8}$  SECTIONS.

Such a comb seems to be quite necessary, where the upper hive contains much honey, as it establishes the brood-nest in the center of the hive, where it should be, and also allows the queen to keep right on laying without interruption, the same as she has been doing. If the queen is checked in her laying at this point, as she would be in a hive thus filled with honey, if no frame having empty cells was given, it is quite apt to result in an effort being made at swarming, which is not consistent with the immediate moving of the honey in these combs to the supers above, and the success we wish to obtain, although, even in case of such swarming, better results are obtained than by any other plan of "shook" swarming which I have tried; for after a fruitless effort or two (the queen having her wing clipped so she can not go with the swarm), and a few days of sulking, they will go to work with a will, thus showing their acceptance of the situation. However, if treated as here given, not one colony in 50 will do aught but accept the situation, and go to work at once in the sections, especially if there is any honey coming in from the fields.

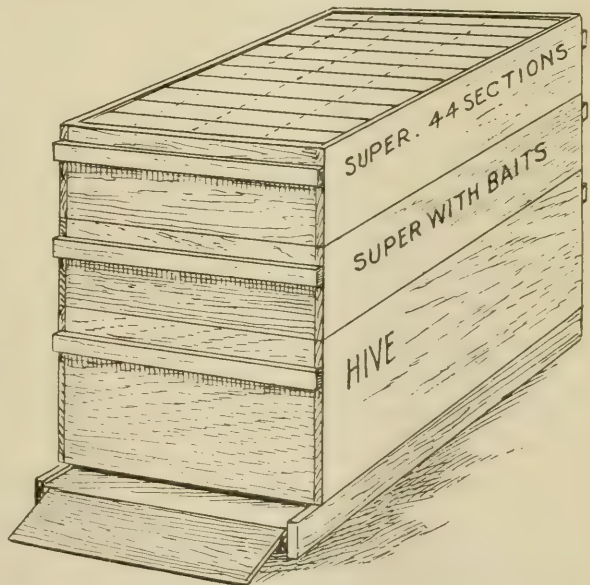
I now get two supers of sections, from the pile which has been brought, 8 to 12 supers at a time, each time I have come to the apiary, either with the horse or auto, each super containing 44 one-pound sections, as this is the number of  $3\frac{1}{2} \times 5\frac{5}{8} \times 1\frac{1}{8}$  sections my super covering a ten-frame Langstroth hive contains. The sections in one of these supers contain only full sheets of foundation, this foundation being of the extra thin kind for sections, as

manufactured by The A. I. Root Co., while the other super has 12 of the 44, full or nearly so of comb, left over from 1904, as "unfinished" sections, they having been put in the super when it was prepared for the season of 1905, with the 32 other sections (filled with extra thin foundation) as "baits."

The baits are very valuable with this plan, as these bait-combs give a chance for the bees to be storing the honey at once, or immediately after its removal from the combs below, to give the queen room for her eggs—this being done while other bees are drawing out the foundation in other sections, so that work along all lines progresses as one great whole, without any interruption.

This super with baits is put on first, top of this prepared hive, and the other with sections of foundation on top of this. This second or upper super is put on to give plenty of room for any overflow of bees or honey which may come before our next visit, so that the bees may not at any time feel crowded for room. I have sometimes put the super containing the baits at the top, but the bees do not so readily get to them there, and hence slower work all around on the start, which is against the greatest success. An immediate start in the sections is a great advantage at this stage of proceedings.

Some seem to think that the bees carry



very little if any honey from the brood-nest up into the sections, and for this reason feed the bees, between apple and clover bloom, sugar syrup or inferior honey till the combs and all cells not occupied with brood

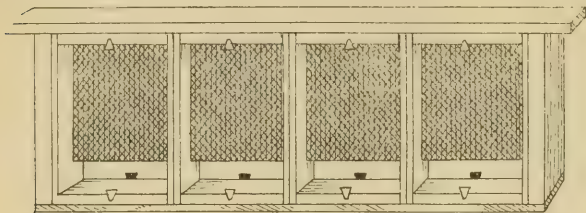


are solid full of sealed honey, claiming, for this plan, yields in excess of others who do not so feed, arguing that, by such a plan,

up and looking through them toward the light) are preferred to any of those which are filled with only clover or basswood honey, and coming off later, they often selling for a cent or two more a pound than the white, to those knowing about them.

Having every thing now in readiness, the hive is closed by putting on the cover, when the queen excluder is taken off the hive of brood, and I at once proceed to shake and brush the bees off their combs of brood in front of this prepared hive.

*To be continued.*



DOOLITTLE'S WIDE FRAME WITH SECTIONS.

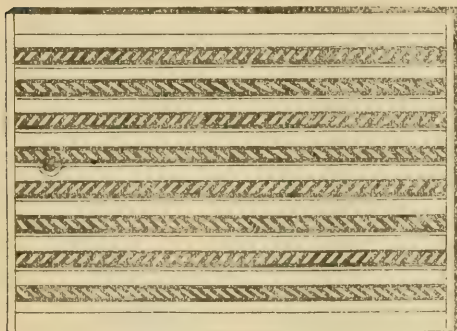
all of the clover honey is put into the sections. I believe they make a mistake. The greater yield comes from this fed honey or sugar going up into the sections, together with that gathered at this time from the clover bloom; for I have repeatedly seen such combs of sealed stores all emptied or nearly so, two weeks after the clover began to yield honey, eggs, larvæ, and sealed brood taking its place. And another thing which proves to me that very much if not all of the honey which is now in this prepared hive goes into the sections, is the color of that stored therein during the time the queen is filling the hive below with brood. Quite a little of the honey left over from the year before, which is given to the bees for stimulative purposes, so that they may think there are "millions of honey at our house," was gathered from buckwheat. Of course, the most of this goes into brood; but often there is enough left, so that, when mixed with the other honey which has been accumulating since these combs were put in the hives during the spring, together with



#### OUR TRIP HOME FROM THE ROBINSON CRUSOE ISLAND.

At seven o'clock on Monday morning, April 9, Mrs. Root and I stepped into a sailboat belonging to one of the Shumard boys, to start on our trip for the North. At Sarasota we checked our baggage home, and then took a trip among the bee-keepers and orange-growers in that vicinity.

Our first stop was at Reasoner Brothers', whom I have mentioned before. This celebrated tropical nursery had things in extra nice shape for the spring trade, and packages of rare and valuable trees and plants were being shipped, not only all over the United States, but to foreign countries. On my previous visit I mentioned the Reasoner Brothers' plan of shipping potted trees as well as potted plants. On this visit I got hold of another wrinkle that was new to me. There are some rare and valuable tropical fruits that are very hard to bud or graft. The avocado pear (generally called "alligator pear" for short) is one of these. Some of the new and rare varieties are valued so highly that fruits have sold in cities at half a dollar each. Well, in order to propagate these valuable varieties they practice a method that I think is called "in-arching." They sow the seeds of the avocado, of some good and thrifty variety, and grow little trees in pots. When they are a foot or two high these little pots are placed on a shelf up in the branches of a pear-tree. The little tree is put against a thrifty branch so the two cross, X fashion. Then they are tied firmly together and wet moss is kept over the junction. After they are united, the top of the little tree is cut off just above the juncture. A little later, the limb of the pear-tree is cut off just below where they



DOOLITTLE'S QUEEN-EXCLUDER WITH DRONE-HOLE.

that coming in from clover at this time, it will give the honey in the sections from the first super filled a very delicate pink hue, and a taste not quite like clover in its purity. I thought at first that this part would be against my worked-out plan, but I find that these pinkish-colored sections (the same being detected only by holding them

unite. This gives us a top of the valued variety. It amounts to the same thing as grafting, but it is possible where grafts could not be made to grow. The little tree is then removed, and treated like any grafted stock. We saw great numbers of little trees that had already been grafted by this process, or were in process of grafting or in-arching. A small potted plant can, by reversing the process, be put in the top of a big tree, so as to get fruit very much quicker than could be obtained by waiting for the young tree to grow full size. Mr. Reasoner was rather crowded for time that day because he had just got a new Cadillac automobile, and he was preparing to take some of his neighbors out to ride. By the way, there is not much trouble in running autos in Florida, because there are almost no horses to get frightened. The gasoline-launches and sail-boats I have told you about do not "scare" worth a cent.

Our next stop was at Mr. W. B. Collins', Oneca. While Mrs. Root was chatting with Mrs. Collins, and admiring the beautiful tropical flowers surrounding their southern home, Mr. Collins beckoned to me and said he had something I would be glad to see, in the back yard. Well, I *was* glad. On account of the excitement of getting ready for our long trip, or something else, I had kind o' lost my appetite, and was not feeling just right. When we got through the house into the back yard, there was a tree loaded with the biggest black mulberries I ever saw in my life. They were fully as large as my thumb, and two inches long, and the most luscious berries, it seems to me, I ever tasted—at least it looked that way just then. The trees were covered with berries dead ripe, and the ground was pretty well covered. When I picked some off the ground to see if they were just the same, he protested, and said there was a great plenty on the tree. While I ate I talked

"Why, my good friend, I have heard these were splendid for chickens. Why don't your nice-looking fowls turn in and utilize them?"

"Why, the chickens do eat all they want, every day; but there are more than enough for the chickens and our family besides."

I thought if that was the case I would have all I wanted. As I hustled the big ripe berries into my mouth it seemed as if they hit the "spot" to a dot. They filled the traditional "long-felt want;" at least it was the long-felt want on that particular hot day. Some sort of intuition told me they would not hurt me a bit, but that they were just the medicine I needed—God's medicine—and so it proved. They just made me well. I suppose this large luscious mulberry will not grow in the North, and it is really too bad. I inquired if I could get this kind of mulberry at Reasoners' nursery, almost next door. Mr. Collins replied, "I do not know the name of this particular mulberry; but Mr. Reasoner has not any like it, because I have bought trees of him and they are not nearly as large nor as early. But you do not need to buy any trees—you can have cuttings from this one—all you want."

Then I noticed that the long branches were loaded with fruit clear up in the air, twenty feet in every direction, some of them running away up above the house. Let me digress a little.

Not many days before, Mr. Shumard said he would like to have me go with him and show him how I would trim his two mulberry-trees. They had been growing just one year from the cuttings, and had sent out branches eight or ten feet long. After we had decided how much of the new growth would better be cut off, he took these limbs and cut them up, one bud to a piece. There were just 22 pieces, some as large as your finger, and some smaller. He put them in the garden in a row with so little care that I made up my mind he would not get a tree from one of them. Now, this was the decision when there was not very much rain; but in two or three weeks every mulberry-cutting had sent out a long green shoot; and just as I came away, several of these shoots had got fair-sized *berries* on them. Mr. Shumard remarked he would have to cut the berries off, as they would do better if not allowed to bear. I mention this as a sample of the way certain tropical fruits grow in Florida.\* We had such bad luck with corn and potatoes and some other things that will grow up here in the North Mrs. Root came pretty near deciding that *nothing* would grow in Florida. After she had been to visit the Reasoner Brothers and some other people, she changed her mind. It is true that some things do not seem to grow at all down there in the tropics. Then before you know it they will begin to shoot up and show such an astonishing growth that you get one of those "happy surprises."

After I had satisfied myself from that mulberry-tree, friend Collins showed me a raspberry-bush. Now, it has been pretty well established for years past that currants, raspberries, and many of our northern fruits would not grow at all in Florida; but just now they have got hold of a new raspberry that looks very much like the wine-berry offered for sale in the North a few years ago. This new raspberry grows and bears fruit in Florida all right. Yes, you would think so if you saw that raspberry-bush there at brother Collins' place. Some of the shoots were away up in the air ten or twelve feet, and pretty nearly the size of a hoe handle at that, and the fruit was strung along the old bearing wood like currants on a currant-bush. They were not ripe at that time, so I could not judge of the size or qual-

\*I have before mentioned the peculiar greed with which the Florida poultry take to all sorts of garden stuff, fruit, etc. Well, these mulberries, with their wonderfully luxuriant growth all over Florida, seem to supply this need of the poultry. In many places they said they grew them expressly for the chickens. The whole feathered tribe is fond of fruit. Some of us know this to our sorrow. Well, these mulberries in Florida are easily raised, but are so perishable as soon as they are dead ripe, that they are seldom found in the markets; but they are just the thing for the chickens, and I am sure they will be conducive to their health along with their grain feed. They help to make a balanced ration with fowls as well as with mankind.



ity of the fruit. This raspberry is advertised by Reasoner Brothers at Oneca, Manatee Co., Fla.

In the afternoon we visited friend Rood, and found him *still* picking strawberries. The mulberry-tree I mentioned on my former visit was bearing ripe fruit; but in size and quality it bore no comparison to the tree I have mentioned.

Next day Mr. S. C. Corwin, of Braidentown, took us over to Terra Ceia island on a visit. This island is celebrated for its high-pressure gardening. Oranges and other tropical fruits flourish here; but the principal crops are celery, cauliflower, tomatoes, and other garden stuff. I will describe a visit to only one farmer or gardener, whichever you may choose to call it, for illustration. The tomatoes in one field were two feet high or more, standing not more than three or four feet apart, and every tomato-plant was an exact duplicate of those all around it. The thrifty stalks were fully the size of a hoe-handle. They had not yet commenced bearing; but the picture was beyond any thing I ever saw in the way of a tomato-field. This wonderful growth and luxuriance were the result of sub-irrigation. There are artesian wells all over the island. They get the water by going down, if I am correct, from 75 to 200 or 300 feet. Mr. Clytt says this artesian water will not answer if run on top of the ground in furrows. The action of the chemicals under the scorching rays of the sun produces an incrustation that makes trouble. He runs the water in tiles laid a foot or two under ground. He can stop up these tiles so the water will soak through the ground from one line of tile to the other. I think they are two or three rods apart. It requires much care and experience to get the amount of water just right. All the soil on this island is so porous that an excess of water gets away very quickly. The tiles help to take away the surplus during heavy rains, providing, of course, the outlet is all open. To make a success of this kind of irrigation, the proprietor needs to be constantly on hand, you might almost say 24 hours out of 24. Any mistake in leaving the tiles open when they should be shut, or shut when they ought to be open, might ruin the crop. I saw a crop of onions ready to pull, that, from some figures we made on the spot, will yield over 2000 bushels to the acre. The ground had been heavily fertilized for cauliflower before the onions were planted; but there was no fertilizer put on the onions. The onions were all transplanted. Every thing is transplanted here on this ground that is so very valuable. I almost dislike to tell you how much land is worth an acre on this island; but I can give you an idea by mentioning the fact that a man paid \$200 per acre rent for fifteen or twenty acres; and he made money enough after renting the ground for two or three years to buy the land outright. This man I have mentioned, Mr. Clytt, grows three crops in a season right straight along on the same ground; and it is no un-

common thing to get from \$1000 to \$2000 per acre for his crop. He frequently uses a ton and a half of fertilizer that costs \$35.00 a ton for a single crop on one acre.

Now, please do not misunderstand me that Terra Ceia yields all over at this rate. I have never been in a locality in my life where there were not good farmers as well as poor ones, and I am afraid I saw more acres of poor farming on this island than I did of the high-pressure gardening. Where crops have been neglected, enormous weeds shot up almost like trees. Mistakes in irrigation ruined other fields; and various insect enemies required careful watching almost day and night to produce the great successes.

#### ORANGE-BLOSSOM HONEY.

There has been quite a little discussion in regard to this honey. It has been called of poor quality; and some have even gone so far as to say there is no such thing as orange-blossom honey. Now, I think I have got the truth of the matter, or pretty nearly so. The bees do not *always* get honey from orange-bloom; but some seasons they get a good deal. There was an unusual yield during this present spring. Friend Rood has secured something like 1000 lbs.; and while the quality is not, perhaps, equal to our best clover honey here in the North, in my judgment it comes very near it. If I remember correctly, friend Rood had as much as 8½ lbs. a day from a single colony on the scales. Mr. J. D. Forsyth, at Orlando, Fla., has had a wonderful flow of orange-blossom honey. No wonder, for there are something like 200 acres of orange-trees within three miles of his home. I saw a three-story hive on the scales, that had given 12 lbs. a day, of orange-blossom honey, for three days in succession; and the day I was there a 9-lb. swarm came off from that hive. Of course, this was extracted honey.

At dinner-time I saw on the table the prettiest display of honey that, I think, ever met my eye. He took some very nice orange-blossom sections and cut them up diagonally from one corner to the other. This plan has been mentioned before in GLEANINGS. Each strip of white basswood section contained a three-cornered piece of honey. It stuck out from the section something like a saw-tooth. These chunks of honey attached to the wooden section were skillfully arranged on a glass dish. As the dish was passed, each guest was expected to take hold of the wood and lift up one of the luscious three-cornered chunks. I wish I had a picture of that dish of honey on the dining-table. Well, when I came to taste it I uttered an exclamation of surprise. I suppose you know, friends, of course, I often do that. I do not always say it out loud, but I do often say it to myself. When these wonderful gifts of God are brought to my notice I can not help saying mentally, "May the Lord be praised for all this beauty." I would give a lot of money to have every reader of GLEANINGS taste some orange-blossom hon-

ey like that. He said he was getting 20 cts. a section at retail in consideration of the extra quality. But if he had such sections of honey in some big city, and could give the people a taste before purchasing, I should not wonder if they would bring half a dollar instead of 20 cts. Mr. Forsyth is a boy of only 19, and is comparatively new in the honey business; but in the neatness of his apiary and the quality of his honey I do not know but he is outstripping many of the veterans. May God bless the boys for what they are doing and for what they have done for the cause of improved bee culture.



#### TOMATO-GROWING ON THE FLORIDA KEYS.

When we came on our island in the fall, Mr. Shumard had, perhaps, a quarter of an acre of tomatoes. They were bearing a little. While there was no frost during the winter to injure them, the cold storms did have a depressing effect, and the tomatoes seemed much disposed to send out long shoots or vines, sometimes crawling on the ground ten feet or more instead of bearing fruit. Some time in April they commenced to do a little better, but nothing very satisfactory. Along in March he planted about an acre, of different ground, with plants from three to six inches high, grown in a seed-bed. I never saw tomato-plants take hold and grow, even here in the North, as did these plants, and in two or three weeks they were great handsome symmetrical tomatoes. It was hardly time for them to bear fruit when I left; but some of the same kind in my little garden made a tremendous growth but bore no fruit. I was so much pleased that I trained them on stakes and let them run up nearly as high as my head.

Well, during my visit to Mr. Clytt, at Terra Ceia island, I got a suggestion. After his tomatoes were two or three feet high, tied to stakes, he commenced a severe pruning. He told me there would be no fruit at all if the young shoots, starting out in different places, usually near the ground, were permitted to take the growth away from the old plant. You know how it is in an apple-orchard. If you let sprouts grow up around the base of the tree they will take all the growth, and the tree itself will die. This same thing has happened in our basswood orchard. Where a tree is not grafted it may be well, sometimes, to let one of the sprouts make a new and better-shaped tree. I have not had experience in this matter. But now to get back to the tomatoes.

Mr. Clytt said that, in order to get fruit, especially where the ground is so highly fertilized, these thrifty bright-green shoots must be constantly pruned off. There is something of this kind in our tomato-book, but it has not been emphasized as strongly as he gave it. He is probably one of the most successful tomato-growers in Florida, and perhaps in the country. While he gets three crops from his ground every year, no resting or letting up, each crop sells at a price per acre not only up into the hundreds but into the thousands, oftentimes. Celery is usually grown during the winter season in the coldest weather. After celery they put in tomatoes, egg-plant, cabbage, snap beans, cucumbers, or whatever seems to be in the greatest demand. Where it is possible, the second crop is started growing before the previous crop is harvested. In that way the ground is constantly "kept busy." I asked him if he could secure such crops without being constantly on the ground personally. He said he could not. At one time he ventured to take a vacation of about six weeks; but in spite of the best men he could get to put in charge during his absence, every thing went wrong until he got back on the ranch.

A stream of artesian water from a four-inch pipe is constantly pouring forth more than is ever needed to water his ground in the very driest time. But this very water that is such a splendid servant will work a world of mischief unless some one with long experience handles it *just right*.

He gave us a big bunch of onions to take along when we left—some of them almost the size of dinner-plates. His ground is kept absolutely clean, and it is also kept constantly stirred so as to let the air go down among the roots of the plants.

Perhaps I might mention right here that Mr. Rood, in his strawberry-growing, has never used irrigation at all. He has found that a constant stirring of the ground is easier for him than it would probably be to use the water, even if he had it. He showed me one patch of berries where he had tried to make a mulch take the place of constant cultivation. The ground that was stirred every day between the plants, and kept hoed up mellow, gave very much better results than the mulched part did. Of course, this constant cultivation during the bearing season gets sand and grit on the berries; but, as I have mentioned before, his berries are all washed, and taken right to his customers, to be used immediately. In this way the berries are just as fresh as if you picked them in your garden and took them direct to the table; and as Braidentown is rapidly growing, the prospects are that his local market will take all the berries he can raise for quite a spell, especially if he continues to care for *five apiaries* of bees. At the time of our visit he was getting that beautiful orange-blossom honey from all or nearly all his apiaries, and at the same time he was harvesting his strawberries daily. No wonder he is *busy*.



### STRAWBERRIES ON THE FLORIDA KEYS.

The soil on our island is peculiar, and not every thing succeeds on it. I was quite anxious to see strawberries tried, and sent to Hastings & Co., Atlanta, Ga., for 100 Excelsior plants by mail. The plants were good-sized roots, but they looked as if they had been some time out of the ground, and I did not expect very much of them. I planted 50 in my own garden, and let our neighbor, Mr. McAuley, have the other 50. I was surprised at the way the plants started to grow, and let a few of them bear berries; but mine were not of much account, and I did not expect they would be, so soon after planting. Well, you can imagine my surprise when the little girls this morning (April 6) brought me about as fine a strawberry as I ever saw, picked from the plants Mr. M. put out the last day of February. They had a few fair berries in just 30 days from planting, and quite a handful this forenoon, 36 days from planting. Although I had kept track of the plants pretty well I was so much astonished I made tracks at once for his place. I could hardly believe my eyes. There were 50 beautiful luxuriant plants full of bloom and green berries, and sending out runners in profusion. The great glossy-green leaves, without a trace of rust or blight, made my heart bound with the possibilities of "our island."

Mr. Shumard thinks, however, that this may be a spot of soil especially adapted to the strawberry, and that they may not do so well on much of our ground; but the matter is one easily tested. The only fertilizer used was a slight dressing of E. O. Painter's vegetable fertilizer, not over at the rate of 300 lbs to the acre. The ground is some of the first cleared up on the island, and I believe it is true that the old land is better for many things than the new. Had we planted one-fourth acre, instead of only 50 plants, on ground all like this, there would have been quite a picking of nice berries in only five or six weeks after the plants were set.

Things are so different here from the North, a new comer is often tempted to say this ground is "no good" for any thing; but one who is watching for "God's gifts" will often meet with "happy surprises" like the one I have mentioned.

### A STRAWBERRY ALMOST A FOOT IN CIRCUMFERENCE.

Now, friends, this is not a fish story, but it is an honest truth that comes from a man who has a national reputation in originating new varieties of strawberries. I have visited his place, and am personally acquainted with him. Read what he says:

It has been a long time, Bro. Root, since we have had a strawberry talk. I will fruit next June 900 seedling strawberries. As each has a label, and six runners taken off each, and separately described in a big book, you can imagine the work, and no one helps me. One of my seedlings took the first-medal award at St. Louis last year. The judge said they were *far* bigger than any others shown there, although the largest was not quite 2½ ounces. This year I had one within a fraction

of 5 ounces, breaking my own record of three years ago, and the world's record by ¾ of an ounce. A common quart box holds 18 ounces. Good Gandies and Brandywines run from 25 to 30 in a box. Four of my berries would have filled a box and almost two ounces to spare. The weighing was witnessed by three officials at the government pomological department, and the berry photographed, and modeled in wax for their show-case. It was 11 inches around, and 3¾ inches in diameter. I will mail you a photograph of it.

ARTHUR T. GOLDSBOROUGH.

Wesley Heights, Wash., D. C.

### SWEET CLOVER; WILL IT GROW IN FLORIDA? YELLOW SWEET CLOVER, ETC.

In reply to Dr. Miller's *Straw* I would say that I tried seeds of all of our honey-plants in my garden on the island. Rocky Mountain bee-plant and spider-plant came up promptly, and will probably do all right. Sunflower grew very well, but borage was the most luxuriant of the seeds in our catalog. Crimson clover seemed to start out nicely. Sweet clover was sown outside of my poultry-netting inclosure; but the little chicks I have mentioned nipped it off as soon as it came in sight. I tried some more, fencing off the chickens, but it was not up when I left. Globe thistle started out luxuriantly; and, by the way, there is a common thistle covering a great part of the island, that grows larger than I ever saw any thistle in the North, and the bees were all very busy on it, getting both pollen and honey, during February, March, and April. While we are talking about sweet clover, below is a letter giving one advantage that yellow sweet clover has over the white:

Please save me 50 lbs. of the yellow variety of sweet clover, and do not fail me. I see that the yellow variety comes up first in the spring, and I have about four acres of it. My cows and horses are crazy to get on it; but as I want to save it for seed and early-blooming I do not want them on it. I also have about nine acres of the white variety; but it is a little slower to start in the spring.

R. L. SNODGRASS.

Gordon, Kan., April 12.

The above letter reminds me that we are not only sold out entirely of yellow-sweet-clover seed, but the constant call for sweet-clover seed of every kind is coming in from every direction in a way we never knew it before. It seems that the world generally is beginning to discover that none of the clovers should ever be called noxious weeds. If there are horses or cattle anywhere that have not learned to eat tender sweet clover when it first comes up, they are certainly lacking in education.

### SWEET CLOVER AND NITROGEN BACTERIA.

The following from the *Rural New-Yorker* explains itself:

Mr. Jamison, of Southern Ohio, finds it hard to understand why farmers in other sections should go to such pains to get a stand of alfalfa. Inoculating, using lime and fertilizers, and all the petting and fussing which some writers advocate, seem useless to him, for in his locality all one has to do is to fit the land and sow the seed. In that section sweet clover grows in abundance, therefore inoculation is not necessary.

Where sweet clover grows, there is no use in sending off for inoculated soil or inoculating bacteria. Sweet clover does the business, works for nothing, and boards itself.

# Joseph Horne Co.

Pittsburgh, Penn.

## A Remarkable Watch Offer. A \$12.00 Watch for \$8.65.

That's what we say and what we mean—a \$12.00 watch for \$8.65.

We can give it to you in two sizes, known to jewelers as 12 and 16 size, the former being the fashionable size to-day for men, the latter the large watch which more conservative men like best.

You can choose either an Elgin or Waltham movement, stem wind and stem set.

The case is open face, gold filled, warranted for twenty years.

If a plain face is preferred you can have it, or you can have an engraved case.

Our general line includes:

Watches for men from \$5.00 up to \$275.00.

Watches for women from \$5.00 to \$40.00.

Watches for boys and girls, \$1.00 to \$10.00.

Jewelry is only one of our lines—we are a store of seventy-five departments—if you would form a good idea of our scope, send for our Spring Catalog, now ready.

It costs nothing.

## BANKING BY MAIL

4 Per Cent INTEREST

Compounded Twice a Year!

Assets of over one half million and the management of prudent men of solid financial standing give this bank every element of safety.

Send to-day for particulars, explaining how you can open an account safely and conveniently by mail.

Under ordinary circumstances all or any part of your deposit may be withdrawn at will.

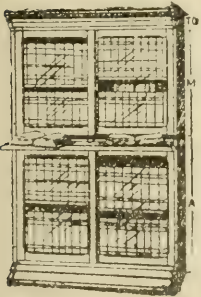
## THE SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres.

A. I. ROOT, Vice-pres.

E. B. SPITZER, Cashier



## SECTIONAL BOOKCASES

Sliding doors, adjustable shelves, in Quartered Oak and Mahogany. Send for illustrated free catalog.

The Cleveland Desk Co.,  
CLEVELAND, O.

Office and Library Furniture.

## Sad Death of Floral Lawn

Cause, Smothered by Dandelions

Save your LAWN. Send one DOLLAR and we will deliver free at your door a dandelion and weed puller that will pull any weed having a tap-root not over 14 inches in length at the rate of 1000 per hour; will leave not a drop of dirt nor any torn places in sod. No stooping, no bending, no grunting. Women and children can operate it. When you have pulled thousands of weeds and dandelions from the lawn there will be no broken sod nor a visible place where the pest was extracted.

Standard Incubator Co., Ponca, Neb.



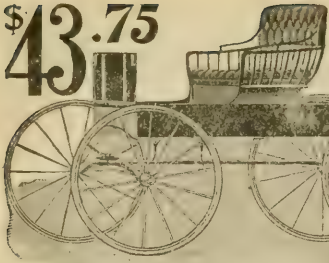
## THERE'S MONEY IN FARMING

If you understand modern methods and farm INTELLIGENTLY.

Every reader of GLEANINGS who is interested in farming or gardening, in the growing of fruit or of flowers, is invited to send for a free copy of our 80-page catalog and full information in regard to the Home Study Courses in Agriculture, Horticulture, Landscape Gardening, and Floriculture, which we offer under Prof. Brooks, of the Massachusetts Agricultural College, and Prof. Craig, of Cornell University. Home Correspon. School, Dept. 12, Springfield, Mass.



**\$43.75**



## Buys This Rubber-Tire Wagon

**Union Quality. Fully Guaranteed.** Best hickory wheels;  $\frac{3}{4}$ -in. Rubber Tire; long-distance, dust-proof, high-arched axles; oil-tempered springs. First-quality material and finish. Worth nearly double our **Factory Price**. We ship for your examination, without a cent in advance, if desired, and allow

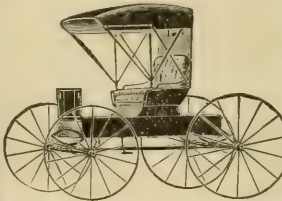
**30 DAYS FREE TRIAL**

Money refunded on all purchases not satisfactory. You save dealers' profits. We build 150 styles of Vehicles, from \$26.50 to \$150. 50 styles Harness, \$5 to \$60. Write to-day for our 200-page Illustrated Style Book. Free for asking.

**Union Buggy Co., 45 Saginaw St., Pontiac, Mich.**

### 33 Years Selling Direct.

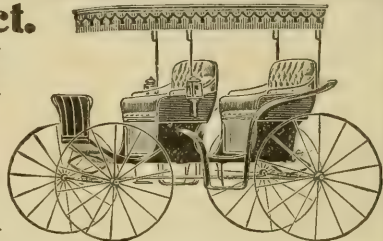
Our vehicles and harness have been sold direct from our factory to user for a third of a century. We ship for examination and approval and guarantee safe delivery. You are out nothing if not satisfied as to style, quality and price.



No. 647. Top Buggy. Price complete, \$40.00. As good as sells for \$25. more

**We are the  
Largest  
Manufacturers  
in the World**

selling to the consumer exclusively. We make 200 styles of Vehicles, 65 styles of Harness. Send for large free catalogue.



No. 331. Canopy Top Surrey. Price complete, \$65.50. As good as sells for \$25. more.

**ELKHART CARRIAGE & HARNESS MFG. CO.,  
ELKHART, INDIANA.**

**We Make  
We Sell  
We Guarantee**

We are not inviting you to buy a vehicle through a mail order house. We are manufacturers. "Direct" with us means **direct from factory. Three Years Guarantee and 30 Days Free Trial**

before you close the bargain. We make the price just about half of others, and even after you have bought, you get your money back without cavil if you find a flaw in three years time. That's the advantage offered Progressive vehicle buyers. A couple special bargains. Complete catalogue tells it all. Don't fail to send for it.

**THE PROGRESSIVE VEHICLE MFG. CO.,  
Dept O. Ft. Wayne, Indiana.**



**No Money in Advance**

Vehicles and harness, all sold direct from factory at lowest factory prices.

**Genuine  
Free Trial.**

No money, no note to sign, no deposit. "Anderton" Vehicles must sell themselves. Two years approval test, backed by \$25,000. bank deposit put up as a guarantee to make you sure of your money back. Write for our free 110-page illustrated catalogue No. 21. It fully explains our offer.

**THE ANDERTON MFG. CO.,  
41 Third Street, Cincinnati, Ohio.**



## YOU SPRAY

Make it as easy and effective as possible. Buy your outfit from a concern that has long made a specialty of spraying machinery. A

**DEMING SPRAYING  
OUTFIT**



always gives satisfaction. 20 styles. An outfit for every purpose including **Barrel, Knapsack, Bucket and Hand Sprayers and Power Outfits**. Get free catalog and study the Deming line before you buy.

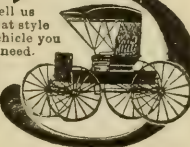
**THE DEMING CO.,  
230 Depot St. Salem, O.  
Henion & Hubbel, Western  
Agents, Chicago.**

Our Factory  
to you. A  
**Genuine Split \$35  
HICKORY**

Built to your  
order 30  
days free  
trial. 2 year  
guarantee. 1906  
catalog. 100 styles, free.  
**The Ohio Carriage Mfg. Co.,  
H. C. Phelps, Pres.  
Station 293  
Cincinnati, O.**

**SPLIT  
HICKORY**

Tell us  
what style  
vehicle you  
need.



# 85 BEST Farm Gates SOLD to ONE MAN

and are now in actual everyday use on his farm. This certainly is pretty strong evidence of the superiority of the BEST GATE. A good gate is necessary to complete the fences on a well kept farm. It will more than pay for its first cost in one season in the time and labor it saves the farmer in passing through it, or in driving from one field into another.

Shelbyville, Ind., March 3, '06.  
Best Gate Co., 67-69 E. Jackson St.

Shelbyville, Indiana.  
Dear Sirs:—Please deliver to bearer, Albert Luther, six 12 ft. BEST Gates for Fairland farm. This will make eighty-five BEST gates bought of you for our farms in this county, many of which have been in use several years. They are light, durable, and do not sag or warp, and have not cost one cent for repairs. In view of these facts, I will continue to buy BEST Gates, and no doubt will have one hundred or more in use before fall. Very truly yours,

J. B. HAMILTON.

## The BEST Gate

is certainly just what its name implies—it is the BEST for any purpose. It is light, strong and convenient to handle. The frame is made of select hard pine and strongly braced. There are TEN STRANDS OF HIGH CARBON COILED SPRING STEEL WIRE on this gate which are attached to the frame work with a PATENT RACHET so as to allow for tightening when needed. You cannot reproduce this gate for less than 50 PER CENT MORE THAN WE ASK. We sell the BEST GATE

### Direct from Factory to User

and PREPAY THE FREIGHT as far as 300 miles from Shelbyville. PRICE \$5 and upward according to the size of gate. The illustration below shows the strength of THE BEST GATE. It is not an exaggeration for this gate will hold a weight of more than 700 lbs. without buckling or sagging. Write for our booklet, it describes The Best Gate more thoroughly than we can in this advertisement.



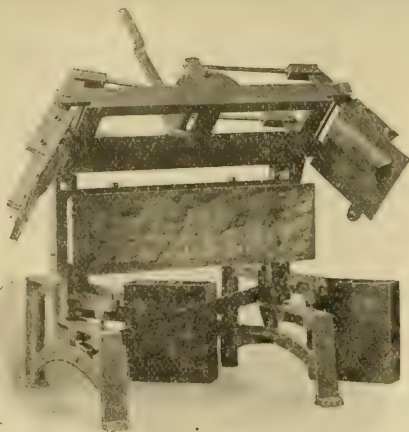
### THE BEST GATE CO.

Dept. L

Shelbyville, Indiana.







## This is One Style of Machine

on which hollow concrete blocks from which the attractive homes we have shown in the last few numbers of GLEANINGS are built.

We make several different styles of machines, having different capacities, and intended for different purposes.

All are built by the most careful workmen and from the best material obtainable. The designs we follow have been accepted after long and careful experimenting.

We would like to send our interesting booklet, showing machines, houses and blocks. Every man who builds needs a copy. It's free for the asking.

**Medina Concrete Company**  
22 Court St., Medina, Ohio

**PIONEER GUARANTEED  
NURSERY STOCK  
AT WHOLESALE PRICES**

All stock guaranteed disease free and true to name.  
Hart Pioneer Stock is pure bred and produces heavy crops.  
Value received for every dollar sent us. No Agent's Commission  
WRITE FOR COMPLETE PRICE LIST. WE WILL SAVE YOU MONEY  
**HART PIONEER NURSERIES, Est. 1867 Fort Scott, Kan.**

**Sold by Dealers in Seeds all over America.**



*My Grandfather used  
Mr. Hammond's Slug Shot  
for Potato Bugs so does my  
father use it. My Mother puts Slug Shot on  
roses.*

## "SLUG SHOT"

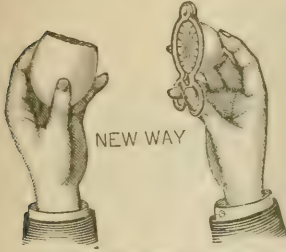
**Used from Ocean to Ocean**

A light, composite, fine powder, easily distributed either by duster, bellows, or in water by spraying. Thoroughly reliable in killing Currant Worms, Potato Bugs, Cabbage Worms, Lice, Slugs, Sow Bugs, etc., and it is also strongly impregnated with fungicides. Put up in Popular Packages at Popular Prices. **Sold by Seed Dealers and Merchants.**

HAMMOND'S SLUG SHOT WORKS, FISHKILL-ON-HUDSON, N. Y.

Write for pamphlets worth having on Bugs and Blight, and for bee-hive paint.

## Every Family Needs W. R. Hartigan's Improved Egg-opener



Prevents daubing, and pieces of shell in food. They are durable. Any person can open eggs with them. Nickel, 25c; silver, 50c. Sent to any address post-paid on receipt of above price in silver. W. R. Hartigan & Son Collinsville, Ct U. S. A. Liberal discount to agents



## LATHROP'S CHICK SERVER FOR FOOD OR WATER

Chicks cannot get in it or on it. Made without seams.

DEALERS HAVE THEM. EACH, 75c. POSTPAID, 35c. DOZEN, \$2.50

LATHROP MFG. CO.

80 Central Ave. Rochester, N. Y.



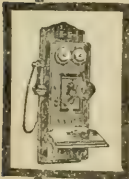
### THE "BEST" LIGHT

Portable 100-Candle Power light. Every lamp warranted. The most brilliant, economical light made. No grease, dirt, odor or smoke. AGENTS WANTED EVERYWHERE.

**THE BEST LIGHT COMPANY,**  
306 E. 5th St., Canton, O.

## How to Organize

A Farmers' Telephone Co.



We have published a very instructive telephone book especially for the man who wants to know ALL about telephone matters. It tells how to organize, how to build the lines; about different types of phones, construction; gives by-laws, and constitutions; in fact it is a telephone encyclopedia every farmer should have. We send it free if you mention this paper. Ask for book 36C. "How the Telephone Helps the Farmer." You will get it by return mail. Address nearest office.

**Stromborg-Carlson Tel. Mfg. Co.**  
Rochester, N. Y.—Chicago, Ill.



## SAVE POSTS!

Only from one-half to one-third the usual number are necessary with Page Fence—the greatest post saver known. Double-strength spring steel horizontal is the reason. This saving in posts is worth your while. Write today.

Page Woven Wire Fence Co., Box 5413 Adrian, Mich.



## LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address **COILED SPRING FENCE CO.** Box 1448 Winchester, Ind.

## SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

# MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.

Ashland, Ohio.



## WATER GLASS EGGS

Preserve them for many months just as fresh as the day they were laid with

### WILLETT'S WATER GLASS PRESERVER

The only sure way of preserving eggs to sell at high prices. Pure water glass. Cost, about 1c per dozen. Pint, 15c; quart, 25c; gal. \$1. Circulars free for postal. **Willett's Water Glass Egg Preserver Co.** Box 63, Anderson, Ind.

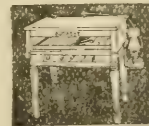
## BANTA

Incubators & Brooders

Backed by 14 Years of Successful Use by



poultrymen all over the world. No guesswork. They are automatic in regulation and ventilation. Fully guaranteed to give YOU satisfaction. Send for free book. **BANTA-BENDER MFG. CO., Dept. 23, Ligonier, Ind.**



## Take Your Choice.

Guaranteed Self Regulating Incubators **RENT** at \$1 and \$2 per month. Let rent pay for it. We pay freight. Buy on **40 Days Trial** or buy parts and plans and build one. Prices, ready to use, \$3.00 up. Free catalog—tells all.

**BUCKEYE INCUBATOR CO., Box 64, Springfield, O.**

## HOW TO BUILD INCUBATORS AND BROODERS

A 10-year-old boy can do it with Peerless plans. Anyone can build successful machines and make money making them for others. These illustrated plans complete, showing every step of construction, are free with every request for our new Incubator and Brooder Supply Catalog. It tells all about the New

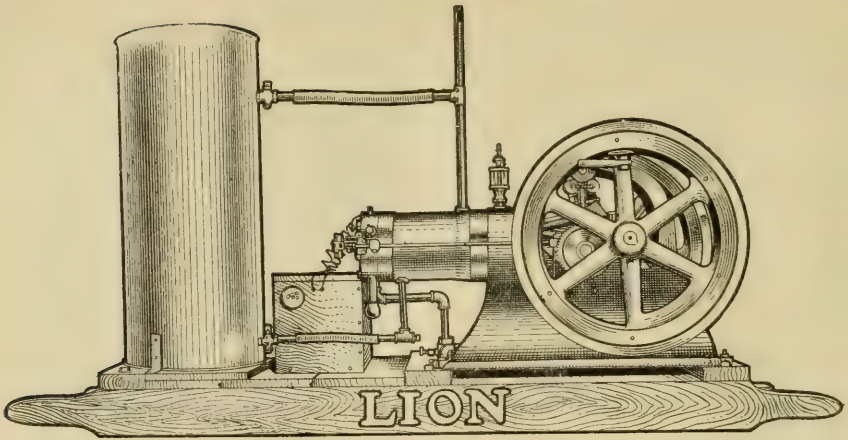
### ACME COMPOUND WAFER REGULATOR and AUTOMATIC LAMP



Combined damper regulation, saves 1/2 the oil will fit any machine. Write for catalog. **H. M. SHEER CO.** Dept. 38, Quincy, Ill.

**PLANS FREE**





## IT'S READY TO OPERATE

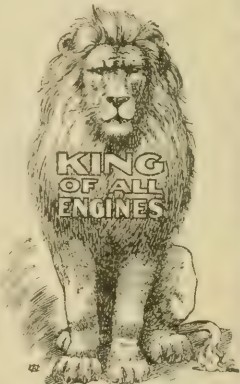
There's no firing-up—no waiting for steam with a **Lion Gasoline Engine**. It is **always ready to operate**. Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

## *The Lion Engine*

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

**We sell direct from factory to buyer**, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion engine** and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion engine**. It is free if you mention this paper when you write.

**Lyons Engine Company**  
**LYONS, MICHIGAN**





## "The Best Gift of All"

—Her Diamond Engagement Ring.

**Diamonds As An Investment.** Are a better and safer investment than real estate, banks, insurance, stocks, etc. Diamonds have advanced in value 20 per cent annually in recent years, and their scarcity indicates a still further increase in the near future. Diamonds are the universal currency and can be immediately converted into cash. It pays to look prosperous; to be successful, look successful—wear a Diamond.

## Loftis System DIAMONDS On Credit

**Our Prices** are 10 to 15 per cent lower than the ordinary spot cash retail jeweler. We are direct importers, buying our Diamonds in the rough, which we cleave, cut and polish in our own work shops. In buying from us you save the profit of broker, jobber, wholesaler and retailer.

**The Loftis System.** The credit of the honest employee is just as good as that of his more fortunate employer. Confidence in the honesty of the people is the key-note of our success. Let us send you our new illustrated Catalog, 66 pages, 1000 photographic reproductions of the latest and most fashionable in jewelry art; you can make selection in the privacy of your own home and the article selected will be sent on approval without expense to you. If you decide to purchase, you pay one-fifth of the amount and pay the balance in eight equal monthly payments.

**Our Guarantee.** We give you our written guarantee certificate as to value and quality of Diamond purchased, and the privilege of exchanging same at any time for any other article of Jewelry from our Million Dollar Stock, or for a larger stone, allowing you full credit for what you have already paid. Our Guarantee is backed by higher bank and commercial ratings than all our small imitators combined—consult your local Banker, have him refer to his Dun or Bradstreet book of commercial ratings.

**Strictly Confidential.** Every transaction with our customers is strictly confidential, for even your own family need not know that you are not paying spot cash—unless you tell them. The Diamond your friend is wearing was probably bought on the Loftis System.

**Your Credit** established with us is a valuable asset elsewhere. Other standards of value may rise or fall, but Diamonds, the universal currency, will continually increase in value.

**The Old Reliable, Original Diamonds on Credit House.** Established in 1858, with a continuous record of success, we are the oldest, the largest, and most reliable credit retailers of Diamonds, Watches and Jewelry in the world.

**"Save a Diamond."** Let us act as your bankers and help you make and save money. Send today for our latest Catalog and Diamond Souvenir, showing "How easily you can wear and own a Diamond by the Loftis System." Remember Diamonds win Hearts.

**DIAMOND CUTTERS  
WATCHMAKERS**

**Dept. E637 92-96 State St.**

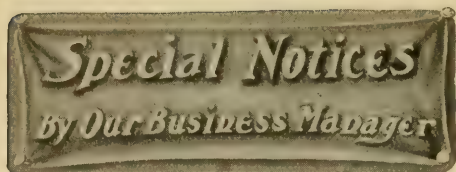
**LOFTIS**  
BROS & CO. 1858

**Diamond Importers  
JEWELERS**

**Chicago, Illinois, U. S. A.**

Illustration courtesy Chicago Record-Herald Sunday Magazine.





#### BEESWAX WANTED.

We are in the market for all the beeswax we can get, and will pay, till further notice, 29 cents cash, 31 in trade, delivered here. We hope the price will not have to go any higher, for if it does we shall have to increase the price of comb foundation as well, and we want to avoid changing the price of that during the season if we can.

#### ALEXANDER FEEDER.

We are prepared to furnish the Alexander feeder spoken of in an article in this issue. We make them 19 inches long, so they may be used with either an eight or ten frame hive. With a ten-frame hive they will project three inches beyond the hive for feeding, and the block may be laid crosswise of the feeder or be cut off as preferred. With the eight-frame hive the feeder projects five inches, and the block lies lengthwise. We soak the feeders in oil to preserve them, and fill the pores to prevent the feed from soaking in. Price finished, including block, 25 cents each. Ten for \$2.00; 50 for \$9.00.

#### GERMAN BEE-BRUSH.

Some months ago Mr. R. F. Holtermann called our attention to a bee-brush which he received from Germany, made of genuine bristle or horsehair. He had used one a whole season, washing it out often, and it appeared to be as good at the end of the season as at the beginning



He considered it so far ahead of any thing he had ever seen or used that he wanted no other. We concluded if it was so good for him it must be equally good for others. We are now provided with a stock which we offer at 25 cents each; by mail, 30 cents. The bristles are black, and about two inches long, extending eight inches on the handle. Made of white bristles it would cost 5 cents each more.

#### BIGELOW EDUCATIONAL HIVES.

We have arranged to supply the trade with these hives on short notice at the following prices:

|                                                                                                    |         |
|----------------------------------------------------------------------------------------------------|---------|
| Bigelow educational hive complete, as shown page 590, in pine, nailed and varnished.....           | \$20.00 |
| Same, in oak.....                                                                                  | 25.00   |
| Either of the above furnished, with glass only omitted, at a reduction of.....                     | 1.50    |
| The feeding-board and one and two frame hives may be omitted if desired, and price reduced by..... | 5.00    |
| Flying-cage in pine, no wire or glass.....                                                         | 3.00    |
| Same, in oak.....                                                                                  | 4.00    |
| Mahogany feeder, with lens, in pine.....                                                           | 4.00    |
| Same, in oak.....                                                                                  | 5.00    |

Samples of these hives may be seen in our New York and Chicago offices, at 44 Vesey St. and 144 Erie St., respectively. Fuller particulars on application.

#### HOTBED SASH.

Cypress lumber has been advancing in price as well as other kinds, and the 1½-inch shop grade used in making hotbed sash can not be had at all of any of the mills, so far as we can find. We were fortunate in finding some in the hands of a dealer, and have kept our orders up. We have had a car ordered since last De-

cember, which has not been shipped yet, and we can not tell how soon it will be. We have another car ordered from another dealer, so we may hope to be in shape to care for our orders as well as any one can. We have one car on hand which will make several hundred sash. Prices will be 5 cents each higher—i. e., 85 cts. each, \$4.00 for 5; \$7.50 for 10.

#### Special Notices by A. I. Root.

##### RUNNING WATER; ITS MEASUREMENT AND SERVICE.

The above is the title of a little book by one of our bee-keepers. The tables in it, I should think, might be exceedingly valuable to many of the friends in the arid regions where water is used for irrigation. Price 50 cts. By David S. Gray, Dolores, Col.

##### TOBACCO DUST.

We have furnished many tons of tobacco dust to those who grow lettuce, cucumbers, melons, etc. It is used as an insecticide and fertilizer. We are prepared to supply it in quantities large or small—10-lb. lots, 25 cts.; 100-lb. lots, 2 cts. per lb.; 150 lbs. for \$2.75. Cases of 300 to 400 lbs. each, at 1½ cts. per lb. Can ship from here or from Marquette, Mich.

##### BUCKWHEAT FOR BEE-KEEPERS—SILVERHULL, JAPANESE, ETC.

Once more buckwheat for seed is rather scarce. We are nearly sold out of Japanese. But we have quite a nice stock of silverhull. This has been grown by bee-keepers for twenty years past, and quite a few claim it yields more honey and more bushels of grain than the Japanese. The silverhull is also known as the "gray" buckwheat. In 1882 we sowed four acres of silverhull as late as the 15th of August, and got 92 bushels of nice seed in 65 days from the date of sowing. I do not mention this to encourage sowing as late as that, for that year the frost held off unusually. It is true, however, that the best yield of grain usually comes when the buckwheat is sown as late as it can be without being caught by the frost. Ordinarily, in our locality, it is considered unsafe when sown later than the latter part of July. At the present prices it seems as if it ought to be a good crop for bee-keepers, not only for the honey but for the grain, especially when the price is more than \$1.00 a bushel.

Just now the best price we can make is \$1.25 per bushel, bag included; half bushel, 65 cts.; peck, 35 cts.; pound, 8 cts.; by mail, 15 cts.

Be careful about ordering small quantities of buckwheat by express to be sent long distances. The express charges may be more than the value of the grain. Better order a bushel or more and have it sent by freight.

#### Convention Notices.

The semiannual meeting of the Western Illinois Beekeepers' Association will be held in the county court-room, in Galesburg, on Wednesday, May 16, beginning at 9 A.M., and lasting all day. C. P. Dadant and J. Q. Smith have promised to be present and contribute to the success of the meeting. Our meetings have been good, but we hope to make this one better. Galesburg has good train service, and all bee-keepers in this part of the State should avail themselves of the opportunity. Come, and bring your wives. E. D. WOODS, SEC.  
Galesburg, Ill.

## California Sage Queens

Old reliable Italian stock from well-known breeders. Bees that get the honey if it's in the field. Give them a trial. Send postal for circular.

J. W. GRIFFIN  
528 Gladys Av., Los Angeles, Cal.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

# BEE-KEEPERS' SUPPLIES

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

**EVERYTHING USED BY BEE-KEEPERS.**

Headquarters for the Danzenbaker Hive.



## New Metal-spaced Hoffman Frames are Here in Stock

### Conversation with Wilson

"Hallo, Mr. Wilson, how are you to day?"

"Quite well, thank you, but I am a little tired. It is very warm to day, and I mowed the lawn and all around the bees while it was cool. I thought I'd come over and chat with you while I rest a little. We were talking about Pouder's idea of doing all feeding in the fall. How does he feed?"

"Some time in September he removes the supers, examines each hive carefully, and marks on each hive the amount of feeding necessary. Then he places a Porter escape board on each hive, placing the bee-space down, which makes a double bee-space. This is to be left on all winter, and by placing it in position early it will be securely waxed, and he places an empty super on this. Now this makes an excellent place to set a Miller feeder, allowing the bees to come up through the opening for the escape. After removing the feeder he places a piece of section over the escape opening and fills the super with dry-sawdust or any dry packing."

"How about the Hill device and the burlap?"

"Pouder is awful bitter against the Hill device. Says that method was put in type twenty-five years ago and has just stood that way, and he thinks the method has caused the loss of many a good colony. Says that with a board, sealed air-tight and with no upward ventilation, every thing will remain perfectly dry; while with burlap instead of a board every bit of packing will become white with frost in zero weather, and then when it moderates every thing becomes wet. I have noticed that when looking in the upper story of such a hive I thought the snow had drifted in, but further investigation showed that it was the condensed moisture from the bees."

"I had the impression that Pouder wintered his bees in the cellar."

"For two years he has wintered in the cellar, but he says he would prefer outdoor wintering if the boys would not molest them. He is located down town, and investigative boys will pry into things. Says he places them in the cellar on his birthday, December second, and sets them out on St. Patrick's day, rain or shine."

### BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight; always be sure to attach name to package.

CATALOG FREE

## WALTER S. POUDER,

513--515 Massachusetts Ave.,

INDIANAPOLIS, IND.



# Bee = keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

## Good Goods, Low Prices and Prompt Shipments

are the **POINTS** in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

**Page & Lyon Mfg. Co., New London, Wis.**

### **Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!**

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

**BEES AND QUEENS**—Orders booked now for spring delivery.

**HONEY AND WAX**—We handle honey and wax. Write for particulars.

#### **The A. I. Root Co.**

Northwestern Branch,  
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

### Do you want **Results?**

The Best Results will  
be Obtained by Using

## **Dittmer's Foundation**

Now is the time to get your bee-supplies and make them up for the coming season. We make a specialty of working beeswax for cash.

Beeswax always wanted. A postal card will bring you our catalog, which also contains valuable information for beginners.

**Retail - Wholesale - Jobbing**

Our warehouse is well stocked with bee-supplies of all kinds.

**Gus Dittmer, Augusta, Wis.**

# BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

**Kretschmer Mfg. Co., Council Bluffs, Iowa.**

Muscatine Produce Co., Muscatine, Iowa.  
Trester Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.  
T. B. Vallette & Son, Salina, Kansas.



## Michigan Distributors

—FOR—

**G. B. Lewis Co.'s Beeware,  
Dadant's Foundation.**

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service.

**ADVANCED BEE-VEIL.** Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

A. G. Woodman Co., Grand Rapids, Mich.

Dear Sir:—Your Advanced bee-veil just arrived, and is, as advertised, the best on the market. Find enclosure for ten more veils. Platteville, Wis., April 14, 1906.

N. E. FRANCE.

**A. G. Woodman Co.,**

Beeswax Wanted.

Grand Rapids, Mich.

## Bee-keepers' Supplies!

Lewis' famous "Beeware." Root's Smokers and Extractors: Dadant's Comb Foundation, etc.: Queens and Nuclei in Season, Large and Complete Stock: Prompt Service. We will meet all competitors who handle first-class goods. Catalog with practical hints free.

### "Mandy Lee" Incubators and Brooders!

Whether you are experienced in artificial incubation or not, these incubators will give you gratifying results. The "Mandy Lee" brooder is the only brooder made which applies direct contact heat to the little chicks' backs. Our free incubator catalog describes them. Prompt shipments.

**C. M. Scott & Co., Indianapolis, Indiana**

1004 East Washington Street

### Bees, Queens, and Bee Supplies.

We manufacture standard dovetailed bee-hives and supplies cheaper than you ever bought before. Our queens and bees stand at the head in quality. Untested, 75c each; \$4.25 for 6, or \$8.00 per dozen. Tested, \$1.25 each; \$12.00 per dozen. Select tested, \$1.50 each. Special prices to dealers in large lots on application. State agents for Dittmer's foundation. Catalog free.

THE BEE AND HONEY CO.,

Will Atchley, Prop., Beeville, Bee Co., Texas,

**If You  
Want  
Root's  
Goods**

I have them at Root's prices. Also A B C of Bee Culture—one of the best books printed on bees. Catalog free. Address as below.

D. Cooley, Kendall, Michigan



## Increased Business Compels Larger Space!

So we have just doubled our capacity in the building at 141 Ontario Street, where we carry a full line of

### Poultry-supplies and Lewis' Popular Beeware

Catalogs on application. ORDERS FILLED PROMPTLY AT FACTORY PRICES.  
SPECIAL OFFER ON BEE-SUPPLY ORDERS.—Until June 1, 1906, we will GIVE FREE on each order for bee-supplies amounting to \$10.00 or over, a choice of ONE of the following: A Bingham Doctor Smoker, a Bingham Honey-knife, or a year's subscription to the Weekly American Bee Journal.  
BEESWAX WANTED.—28c cash or 30c in trade.  
ITALIAN BEES in modern hives with select queens for sale; also pure Italian queens.

## York Honey and Bee Supply Company Not Inc.

H. M. Arnd, Mgr. 141 Ontario Street, Chicago, Ill.

Phone North 1559

BINGHAM  
Original  
Direct Draft  
CLEAN  
Bee Smokers



Pat'd 1878, '82, '92 & 1903

### Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and last; don't spit fire; don't go out; don't *daub* themselves all over. We are the most extensive *exclusively* bee-smoker makers in the world.

T. F. Bingham - Farwell, Mich.

Chico, California, October 28th, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.  
J. M. RANKIN.

## A Prosperous

Season is yours.....

if you take time by the forelock, and be prepared for the season when it comes. DON'T put off ordering your supplies until you need them. Order now, and get the discounts.

I have a full line of Root's Goods, and sell them at factory prices and discounts. Send me a bill of what you want and let me tell you what I will deliver them at your depot for. Send for my 36-page catalog—it will be sent free—also a full description of the Hilton Chaff Hive and Supers, with a comparison made by the Michigan State Agricultural College between the single and double walled hives. All free for the asking. Cash or goods in exchange for wax.

Geo. E. Hilton, Fremont, Mich.

## WISCONSIN BASSWOOD FOR SECTIONS

We make them and the very best of Dovetailed Hives, Shipping-cases, and a full line of Bee-keepers' Supplies always on hand. We make very prompt shipments. Let us hear from you.

Marshfield Mfg. Company  
Marshfield, Wisconsin

## Ask Lathrop

for Root's Goods  
at Root's Prices

All kinds of Bee and Poultry Supplies.  
Catalog, etc., on request. . . . .

Lathrop Mfg. Co., Rochester, New York  
27 East Avenue

## If You Want the Bee-book

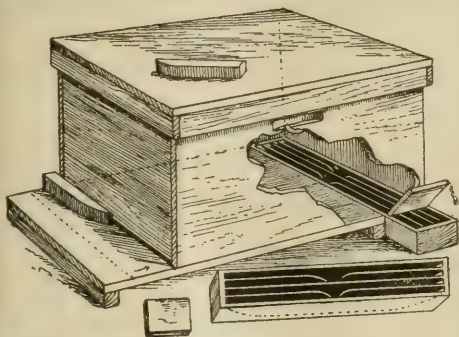
that "covers the whole apicultural  
field more completely than any other  
published," send \$1.20 to :: ::

Prof. A. J. Cook, Claremont, Calif.

— FOR HIS —

## "Bee-keepers' Guide"

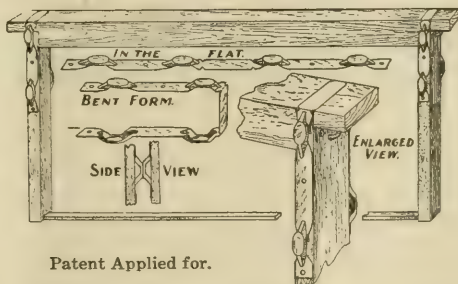
Liberal Discount to the Trade.



## Alexander's Bee-feeders

are now manufactured by The A. I. Root Co., Medina, Ohio, and by Charles Quackenbush, Barnevill, Schoharie Co., N. Y. These are the most practical bee-feeders that have ever been used in feeding bees, and why? Simply because you can feed a colony in less than 20 seconds, either in the winter or summer; and although the colony may be very weak and the weather cold the bees will empty the feeder at once. There is no danger of robbing, neither will there be any heat lost from the colony, nor a bee killed nor a drop of syrup wasted. The above advantages can not be said of any other bee-feeder. Try them this spring and build up the working force of your colonies so you can have twice the surplus honey in the fall that you would have if you lost the best of your clover harvest in rearing bees that mature only when the harvest is over. See article on Spring Feeding in this number.  
E. W. ALEXANDER, Inventor, DELANSON, NEW YORK

## Metal-spaced Hoffman Frame IN GREAT DEMAND.



Patent Applied for.

*Has come to stay. Can be used interchangeably with regular Hoffman frames. Has all the advantages of the regular Hoffman. Is not affected by propolis. Can be handled without pry or screwdriver. Has no rights or lefts, and, therefore, can not be put up wrong. See full description in 1906 GLEANINGS, page 16.*

**PRICES.**—Metal-spaced Hoffman frames—100, put up, \$4.50. In flat—10, 35c; 100, \$3.00; 500, \$14.00. Metal spacers only—30c per 100; \$2.50 per 1000. Hives with metal-spaced frames, 5c extra each body, 8 or 10 frame, put up or in the flat.

The A. I. Root, Company, Medina, Ohio.



# A Good Bee-hive!

is made of the best grade of white pine, accurately cut, so it will go together without the use of tools, except a hammer. Such is the kind of hives we make, and such is the kind you get when you buy from us. It is a cinch that we can make lower prices than you can get from any dealer, as you can save the middleman's profits when you buy direct from the manufacturer. We are manufacturers, and sell direct to the consumer. Send us a list of your wants, and let us make you prices. We guarantee every thing we sell to be satisfactory, or refund the money. We have large stocks of Dovetailed Hives, Sections, Shipping-cases, Foundation, Veils, Smokers, etc., on hand, and can ship promptly.

## Minnesota Bee-supply Company

John Doll & Son, Proprietor

Power Building No. 20, Minneapolis, Minnesota



### Everything for the Bee Keeper

will be found in our Illustrated Catalogue No. 40. It contains a full line of Hives, Supers, Followers, Sections, Section Holders, Frames, Extractors, Smokers, etc. All these and many other essentials are manufactured by us. Everything is guaranteed to be right and of best quality. Our prices are so reasonable that any bee keeper may afford the best supplies. We cannot tell you here of all the good things in this book.

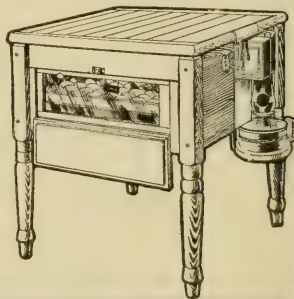
Better send for a copy today. We mail it free, together with a copy of the **Progressive Bee Keeper**, a splendid monthly publication devoted to bee interests. It will help you start right and keep you right after you are started. It is invaluable as an aid to every bee keeper. Ask for the paper and the book.

#### We Sell the Best Incubators and Brooders.

Delivered at your station, prices the lowest. Write us at once and save money. Address

**LEAHY MFG. CO., 15 Talmage St., Higginsville, Mo.**

Branches at Omaha, Neb. and East St. Louis, Ill.



## BEST'S MORTGAGE-LIFTER BEES

are the gentlest, the strongest honey-gatherers, and by far the most rapid breeders, and beautiful, of any bees you will find. I have been among bees for 35 years, and have never found their equal. All tests show them to be better than any other strain. Price for the opening of the season: One warranted queen, \$1.50; tested, \$2.00; select tested, \$3.00; breeding queen, \$5.00; select breeder, \$8.00.

Please send orders at once for delivery in 30 days.

**BEST-THE-BEE-MAN, : : : : Slatington, Pennsylvania**

## QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them."

MALAN BROTHERS, Luserna, San Giovanni, Italy.

**3** GOOD L. FRAMES of brood, with queen and plenty of bees, in May, \$2.50 each.  
G. W. GATES, - BARTLETT, - TENNESSEE

A. H. Reeves, Perch River, Jefferson Co., N. Y.

DISTRIBUTOR OF ROOT'S GOODS FOR

**NORTHERN NEW YORK**  
**BEE SWAX WANTED**

**65c** for 25 NAMES—For names and P.O. of 25 farmers and 15c (stamps taken) we will send for 2 years the Farmer's Call—regular subscription price, 40c a year. F. C. is a weekly, 25 years old; 1300 pages a year; sample free. Farmer's Call, Quincy, Ill.



# DESCRIPTIVE PRICE LIST —OF— QUEENS



## None Better Very Few Equal.

The stock of Queens which I offer, are all bred from selected mothers, proven by their workers to be far superior to common stock in gathering and storing honey. The young Queens are bred in extra strong colonies. To make it certain to produce only vigorous ones, same are reared and bred on my Roof Apiary, when hatched, and the young queen has made her appearance, taken out to the out apiaries of each variety, to become mated. These out apiaries of each variety are so far apart, to make it most certain, that the young Queens become purely mated. The good qualities owned by each variety, I shall describe in the following

**THE GOLDEN ITALIANS** are certainly beauties, besides being very good workers, they have proven in the past, that they will take care of the nectar of Red Clover blossoms as well as the white, if same only yields.

**THE LONG-TONGED RED CLOVERS** have become the last few years, rapidly to the front, they have broken all records in gathering and storing honey, they are not so easily excited, are very easily handled and stick to the combs, do not fall off.

**THE CARNIOLANS** are undoubtedly the most prolific breeders, winter well and breed up very rapidly in the Spring. They are very gentle in handling, make very little propolis, and are exceptionally good comb builders. They finish and cap their combs very white, and as their good qualities are more known, they are becoming one of the most favorite varieties.

**THE CAUCASIANS** are noted for their extreme gentleness. The stock I will breed from, will be furnished by the United States Government, so that, they will be as fine and pure as can be obtained. Think I will be able to furnish young Queens bred from this stock by June 1.

## PRICE LIST.

Beginning middle of April to June 15.

|                   | Golden<br>Yellow<br>Italians | Red<br>Clovers | Carniolans | Caucasians |
|-------------------|------------------------------|----------------|------------|------------|
| Untested          | 1.00                         | 1 00           | 1 00       | 1.00       |
| Select untested   | 1 10                         | 1.10           | 1.10       | 1.10       |
| Tested            | 1.25                         | 1.25           | 1.25       | 1.25       |
| Select tested     | 1 50                         | 1.50           | 1.50       | 1.50       |
| Untested per doz. | 10.00                        | 10.00          | 10.00      | 10.00      |

After June 15th to October 1st.

|                   | Golden<br>Yellow<br>Italians | Red<br>Clovers | Carniolans | Caucasians |
|-------------------|------------------------------|----------------|------------|------------|
| Untested          | 75                           | 75             | 75         | 75         |
| Select untested   | 85                           | 85             | 85         | 85         |
| Tested            | 1.00                         | 1.00           | 1 00       | 1.00       |
| Select tested     | 1.25                         | 1 25           | 1 25       | 1.25       |
| Untested per doz. | 8.50                         | 8.50           | 8.50       | 8.50       |

## Price List of Nuclei Furnished from June 1 and Later.

One frame nucleus without Queen ..... \$1.00  
Two frame nucleus without Queen..... \$1.50  
Three frame nucleus without Queen ..... \$2 25

Queens will be charged extra, according to quality.

## C. H. W. WEBER, Cincinnati, Ohio.

Office & Salesrooms

No. 2146-2148 Central Ave.

Warehouses.

Central & Freeman Aves.



# Queens.

## Quirin-the-Queen-Breeder

is, as usual, again on hand with his SUPERIOR IMPROVED strain of ITALIAN BEES and queens. The editor of GLEANINGS, in observing the handling of our bees last fall, remarked that "such stock is in great demand." Years ago we used to be obliged to buy bees each spring to keep us agoing; but now we sell perhaps a carload each season; get tons of honey, and raise thousands of queens. We have bred our bees for business; they have no superior either side of the ocean. For a dozen testimonials see our full-page adv't in the Dec. 15th number of GLEANINGS, or ask for circulars.

| Prices of Queens before July 1     | 1      | 6      | 12      |
|------------------------------------|--------|--------|---------|
| Select queens.....                 | \$1 00 | \$5 00 | \$ 9 00 |
| Tested queens.....                 | 1 50   | 8 00   | 15 00   |
| Select tested queens.....          | 2 00   | 10 00  | 18 00   |
| Breeders.....                      | 4 00   |        |         |
| Golden five-band breeders.....     | 6 00   |        |         |
| Two-comb nuclei, no queen.....     | 2 50   | 14 00  | 25 00   |
| Full colonies on eight frames..... | 6 00   | 30 00  |         |

Add the price of whatever grade of queen is wanted, with nuclei or colonies, queens ready in April, nuclei about May 10; can furnish bees on Danzenbaker or L. frames; pure mating and safe arrival guaranteed. We employ 400 to 500 swarms in queen-rearing, and expect to keep 500 to 1000 queens on hand ready to mail. Our North-ern-bred bees are hardy, yet gentle; they will give you results. Address all orders to

## Quirin-the-Queen-Breeder, Bellevue, Ohio

## The Deciding Factor

of your season's success almost always depends on the quality of your queens.

## Extra Honey Queens

are stock that has been selected from all others as being the stock that gives the best results.

### Prices

One.....\$1.00      Six .....\$5.00      Twelve ..\$9.00

**Francis J. Colahan**  
Bernardo, San Diego Co., Calif.

## COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.

## Yellow from Tip to Tip!!!

My Adel bees and queens are yellow all over. Every queen a breeder, and guaranteed to produce all golden queens and bees; non-swarmers, gentle, great hustlers; \$1 each. Catalog ready. H. Alley, Wenham, Mass.

## Tennessee-bred Queens

### From Extra Select Mothers

Three-band from dark leather imported; Moore's long tongue or my own; Golden from Laws, Doolittle's, or my own; Caucasians and Carniolans from direct imported. No disease. Contracts with dealers a specialty. Apiaries from 3¼ to 7 miles apart. Write name on postal, and get circular and what others say.

**JOHN M. DAVIS**  
Spring Hill, Tennessee, U. S. A.

## TAYLOR'S ITALIAN QUEENS FOR 1906

Leather-colored and golden Italians. I have made it a specialty for 18 years to breed for the best honey-gatherers of these races, and I have not been able to get any other stock that will store as much honey as my strains, gentle and beauties. Untested, 75 cts. each; \$3.00 per dozen. Tested, \$1.00, or \$11.00 a dozen. Select tested, \$1.50. Breeders, \$3.00 to \$5.00 each. I guarantee safe arrival on all queens. Untested Caucasians, queens, \$1.00 each. Send your orders to

❖ ❖ **J. W. Taylor, Beeville, Texas**

## VIRGINIA QUEENS

Ready to ship by May 15. Untested, \$1; tested, \$1.25. Safe arrival guaranteed.

Samuel Chick. - Route 2, - Mt. Jackson, Va.

**Queens!** Three and five band queens; perfect satisfaction and safe arrival. Untested, 60c; select, 75c, or \$8.00 per doz.; tested, \$1.00, or \$10.00 per doz. R. O. COX, Route 4, Greenville, Ala.

# CARNIOLANS our SPECIALTY

WE HAVE bred this race of bees for twenty years, and find they are among the gentlest bees known. Very hardy and prolific, and the best of honey-gatherers, and their combs are of snowy whiteness. We are wintering 50 select imported and 200 best select tested Carniolan queens for early orders. Also breeders of Golden and Leather Italians. One untested queen, \$1.00; six for \$5.00; twelve for \$9.00. Tested, \$1.50. Best breeder, \$3.00. Best imported, \$5.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in U. S. or Canada. Descriptive list free.

F. A. Lockhart & Co.,

Lake George, New York

## Finest Italian Queens

ALL SEASON I will offer choice Clover Queens and Nuclei, bred from a strictly three-band strain of bees, unsurpassed as honey-gatherers and for prolificness, etc. As to hardiness, my strain of bees is simply wonderful. My entire apiary passed this winter on their summer stands, without the loss of a single colony.

|                                                                      |     |                      |     |                       |     |                    |        |
|----------------------------------------------------------------------|-----|----------------------|-----|-----------------------|-----|--------------------|--------|
| Untested queens.....                                                 | 50c | Select untested..... | 75c | Tested queens.....    | 75c | Select tested..... | \$1.00 |
| Two-frame nucleus, \$2.00. If with queen, add price of queen wanted. |     |                      |     | Ask for my circulars. |     |                    |        |

James W. Bain,

Marion, Ohio

## DOOLITTLE & CLARK

are booking orders for their famous Italian queens. Now is the time to order breeders. Send for circular.

|                            |        |        |        |
|----------------------------|--------|--------|--------|
| Grade.....                 | One    | Three  | Twelve |
| Untested.....              | \$1.00 | \$2.50 | \$9.00 |
| Select Tested.....         | 1.50   | 4.00   | 14.00  |
| Tested (1905 rearing)..... | 2.50   |        |        |
| Select Breeding.....       | 5.00   |        |        |
| Extra Select Breeding..... | 10.00  |        |        |
| Two-frame Nuclei.....      | 2.50   | 7.00   | 25.00  |

DOOLITTLE & CLARK  
Borodino, Onondaga Co., New York

## Quality Queens

Are the Best Italians yet.

Send for circular.

H. H. JEPSON,  
182 Friend St., - Boston, Mass.

## Every Bee - Keeper Knows the Worth of a Good Queen

Knows the worth of a good strain of bees, and also knows how worthless is a poor queen and inferior bees. Try our strain of three-banded Italians. They are bred for business, and will not disappoint you. Home-bred and imported mothers. Tested, \$1.00 each; untested, 75 cts. each; \$3.00 per dozen. Send for price list.

J. W. K. SHAW & CO.  
Loreauville, : : : Louisiana

F. A. Lockhart & Co.:—Mr. T. C. Stanton won first premium at the New York State Fair with the Carniolans you sent him, and I will add that your strain of Carniolans has won all the first premiums at the New York State Fair for many years. Where I showed your strain of Carniolans I won, and where I showed some other strains of Carniolans I lost.

Camillus, N. Y., Sept. 22, 1905.

S. D. HOUSE.

Lake George, New York

Italian and

Caucasian Queens

ITALIANS.—Golden or leather-colored or honey queens. Before July 1st: Untested, \$1.00 each; 6 for \$5.00; 12 for \$9.00. Warranted, \$1.25 each; 6 for \$7.00; 12 for \$13.00. Tested, \$1.50 each.

CAUCASIANS.—Untested, \$1.20 each; 6 for \$7.00; 12 for \$11.00. Warranted tested, \$1.50 each.

TWO-FRAME NUCLEI.—No queens, \$2.50; 6 for \$14.00; 12 for \$27.00. Add price of any queen wanted. Nuclei ready by June 1st. Queens ready in May. Breeders from \$5.00 to \$10.00. Book your order now. Safe arrival of all stock guaranteed.

D. J. Blocher, Pearl City, Illinois

Do You Want to Improve Your Stock?

Are your bees cross? Do they make a good surplus? Do you want a nice queen—one that will please? If so, write for circular

A. W. Yates 3 Chapman St., Hartford, Connecticut



RED-CLOVER QUEENS AND ITALIANS BETTER THAN EVER.

Average queen, 75 cts. Untested, \$1.00; tested, \$1.25. Guaranteed to work red clover.

"Our red-clover fields are swarming with your bees," says G. W. Slaybaugh, York Springs, Pa.

Laying queens ready by return mail. Guaranteed to work red clover as well as white.

Send for my new circular; it's free. Root's Bee Supplies for sale.

G. ROUTZAHN, Biglerville, Pa.

Queens - Italian - Queens

and bees from Root's Red-clover stock and Golden Italian queens. Better than ever.

|                                            |                       |
|--------------------------------------------|-----------------------|
| Untested.....                              | 60c each; six, \$3.50 |
| Selected untested.....                     | 75c                   |
| Tested.....                                | \$1.00 " " 5.00       |
| Selected tested.....                       | 1.25 " "              |
| Two-frame nuclei with untested queen..2.00 |                       |
| Orders filled in rotation. Send returns.   |                       |

E. A. Simmons, Greenville, Ala.



## Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws apiaries, and double your crop of honey.

### I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season. I also offer another car of bees the coming season.

**PRICES:** Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

**W. H. LAWS, BEEVILLE, BEE CO., TEXAS.**

## Caucasian - and - Italian - Queens

from California

Prices: CAUCASIAN—One tested, \$3.00; one best breeding, \$6.00; one imported from Caucasus, \$7.00. ITALIAN—One untested, \$1.00, six for \$5.50, 12 for \$10.00; one tested, \$1.50; one best breeding, \$5.00. Caucasians bred from the best imported breeding queens. Italians bred from breeding queens we procure from principal breeders of this country who have the best honey-gatherers. Nuclei and full colonies of bees. Send for particulars, and see our adv. in GLEANINGS, February 1st.

**A. E. Titoff, Ioamosa, San Bernardino Co., California**

## CAUCASIAN QUEENS!

For beginners, the timid, and the city bee-keeper. Not stingless, but gentle. With this race many will master the art of handling bees. I breed HIGH-GRADE ITALIAN QUEENS also. The demand for these queens is great; the supply is limited. Write for particulars today. Address

**Robert B. McCain, Yorkville, Ills. R. F. D.**

## Rose Lawn Queens

**Italians Caucasians Carniolans**

Bred in the purple. No finer on earth. Try one of our pure Gold strain, line bred for color and gentleness. Three banders of the "pat-em-on-the-back" kind that will eat out of your hand. Caucasians from imported breeders direct from the Caucasus. Separate mating yards. A strictly modern plant. Standard prices and honest treatment. . . . Ask for our catalog.

**Rose Lawn Apiary, Lincoln, Nebraska**

Frank G. Odell, Proprietor

## Superior Stock

I make a specialty of long-tongue  
Italian, Carniolan, and Caucasian,

Rearing only from best stock obtainable. My Italian queens are unexcelled; my Carniolans and Caucasians from best imported queens. All races bred in separate yards to insure purity. A postal will bring my price list for 1906.

**CHARLES KOEPPEN**

Fredericksburg, Va.

## It won't Pay You

to keep those poor colonies when young vigorous queens given to them now will increase your honey crop many times. Italian queens only. I rear my queens carefully, guarantee them good and purely mated, or replaced free on notice. You will find my queens will give you satisfaction. No bee disease here. Prices: Untested, \$1.00; six, \$4.50; dozen, \$8.00; tested, \$1.50; six, \$8.00; dozen \$14.50; breeders, \$5.00. For larger quantities write for prices.

**M. D. WHICHER, Los Olivos, Cal.**

## GOLDEN ITALIAN QUEENS.

Untested, ready to mail. Select, \$1.00; six for \$4.50. Same old pair, same treatment. Write for circular.

**J. B. Case, Port Orange, Fla.**

## Italian and Caucasian Queens and Bees



Choice homebred and imported stock. All queens reared in full colonies.

**PRICES FOR APRIL  
ITALIANS**

|                               |        |
|-------------------------------|--------|
| One untested queen .....      | \$1.10 |
| One tested queen .....        | 1.50   |
| One select tested .....       | 1.65   |
| One breeder queen .....       | 2.75   |
| One comb nucleus, no queen... | 1.15   |

Untested queens in May. Safe arrival guaranteed. For prices on quantities, and description of each grade, send for free catalog.

**J. L. Strong, Clarinda, Iowa, U. S. A.**  
204 East Logan Street

1906 Italian and Caucasian Queens Price list now ready. Write **E. E. LAWRENCE, Doniphan, Mo.**

# BEES and QUEENS

The Three-banded  
Long-tongued Strain  
of Italians.

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

## Superior Qualities.

Honey-gathering, size of bees, non-swarmling, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price.

## Quality Our Motto.

1300 colonies to select from.

|                                    |                             |
|------------------------------------|-----------------------------|
| Untested queens.....               | \$1.00; 6, \$5.00; 12, 9.00 |
| Select untested queens.....        | 1.25; 6, 6.00; 12, 11.00    |
| Tested queens.....                 | 1.50; 6, 8.00; 12, 15.00    |
| Select tested queens.....          | 2.00; 6, 11.00              |
| Breeding queens, \$3.00 to \$5.00. |                             |

Yours for best service,

**The Victor-Knolle Apiary Co.,**  
Hondo, Texas.

## Red-clover Queens from Westwood Apiary

will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.

Henry Shaffer Westwood, Ohio

## MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, \$1.00; six, \$5.00; twelve, \$9.00. Tested, \$1.50; six, \$3.00. Best breeders, \$3.50. Safe arrival guaranteed.

W. H. Rails, - - - Orange, Calif.

## H. C. Simpson, Catawba, S. C.

Dealer in

## BEE - KEEPERS' SUPPLIES!

Breeder of Italian bees and queens.  
Root's Goods a specialty.

## ITALIAN QUEENS and GLEANINGS.

For \$1.10 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

W. T. CRAWFORD, Hinston, La.

"BAUMGAERTNER'S PRIDE" QUEENS stand on their merits. Give them a chance. Red-clover Italians, Carniolans, Carnio-Italians. Selected queens, 85c; six, \$5.00; 12, \$9.00; warranted queens, \$1.00; tested, \$1.50. Also Caucasians. Prompt delivery. Satisfaction guaranteed.  
J. G. Baumgaertner, New Memphis, Ill.

## CARNIOLAN and ITALIAN QUEENS!

Ready to mail by April 15th. Quality of the highest, prices the lowest. Write me.

Grant Anderson - Sabinal, Texas

## Boston Headquarters Bees-Queens-Supplies

H. H. Jepson - 182 Friend St.

## Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:

Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

**H. M. PARKER, Jr.**

James Island, South Carolina

## From Long-tongued Imported Italians.

Trial queen, 60c; only one at this price. Untested, 75c; \$7.50 per doz. Tested, \$1.25; \$12.00 per doz. Breeders, \$2.00 to \$3.00. Send for particulars.

**E. E. MOTT, Glenwood, Mich.**

## Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,

Box 18, Beeville, Bee Co., Tex.

**Queens!** Select three or five banded, \$1.00; tested three or five banded, \$1.25. Ready for delivery April 1st. Write for circular. Daniel Wurth, 1111 No. Smith Street, San Antonio, Texas

## GEORGIA QUEENS.

Standard breed, from our superior golden leather-colored Italians, gray Carniolans. Untested, \$1.00; 6, \$5.00; 12, \$9.00; tested, \$1.50; select, \$2.50; best, \$5.00. For bees, see free circular.

T. S. HALL, Jasper, Pickins Co., Ga.

## QUEENS.

Italian, Carniolan, and Carni-Italian Cross.

Can supply select untested queens at 75c each; three for \$2.00; six for \$3.50. I am now booking orders for early delivery.

**George W. Barnes,**

138N. Pleasant St. Norwalk, Ohio.

## TRY ONE OF MY \$100 RED CLOVER BREEDER'S DAUGHTERS.

After May 1st, untested, 50c; 13 for \$6.00. Select untested, 75c; 13 for \$9.00; tested, \$1.00; 13 for \$12.00; select tested, \$1.50 each. Breeders, \$2.50 each. Extra select breeders, \$3.00 each. Nuclei, \$1.75 per frame without queen.

H. A. ROSS,

1709 UPPER 2D ST., EVANSVILLE, IND.

## QUEENS FOR SALE.

Golden and three banded Italians. untested, 75c; tested, \$1.50. Hardy and healthy. Orders booked now. Write for circular. Mennie & Fenton, Pine Island, Minn.



## Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—Hives of bees. Write us full particulars. We pay cash.  
Vinemont Apiary, Marshfield Hills, Mass.

**WANTED.**—Second hand typewriter, Oliver preferred, for bees or supplies.  
Bee Man," Williamsport, Pa.

**WANTED.**—Good colonies of bees for cash. State price and quantity.  
F. H. FARMER, 15 Chardon St., Boston, Mass.

**WANTED.**—To exchange 200-egg Reliable incubator, cost \$40.00, for Remington 12-gauge, 32-inch, double gun.  
LORENZO CLARK, Winona, Minn.

**WANTED.**—Refuse from the wax-extractor, or slum-gum. State quantity and price.  
OREL L. HERSHISER,  
301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—For delivery by May 1st six five-banded golden breeding queens, for a special customer. These must be extra-fine breeding stock, golden to the tip. Mention price and full particulars.  
THE A. I. ROOT CO., Medina, Ohio.

**WANTED.**—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.  
H. F. HAGEN, 1632 Blake St., Denver, Col.

**WANTED.**—To exchange 500 chaff hives, also Carniolan queens, for honey (hives in flat). Both are as good as can be produced. I have a good market for best quality of white-clover honey and a little buckwheat, but can not raise profitably. Will allow Chicago price for honey. No poor grades of honey wanted.  
W. W. CRIM, Pekin, Ind.

## Help Wanted.

**WANTED.**—An experienced bee-keeper. Give references and state wages wanted.  
W. J. STAHHMAN, Bruce, Wis.

**WANTED.**—A young man farm-raised, temperate, willing to work at bees on farm. Address  
W. L. COGGSHALL, Groton, N. Y.

**WANTED.**—Nurses. The Western Pennsylvania Hospital and Eye and Ear Hospital offer exceptional advantages for training. References required. Apply Superintendent's Office, 1945 Fifth Av., Pittsburg, Pa.

**WANTED.**—Man to work with bees. State age, experience, and wages desired. An opportunity for the right man to secure a steady situation.  
W. HICKOX, Berthoud, Colo.

## For Sale.

**FOR SALE.**—Pedigreed red Belgian hares. Write  
A. ZIEGLER, Bippus, Ind.

**FOR SALE.**—About 60 colonies of bees and all my fixtures cheap.  
H. C. GILSON, Burr Oak, Mich.

**FOR SALE.**—Forty colonies bees in eight-frame Dove-tailed hives at \$4.  
CLYDE CADY, Grass Lake, Mich.

**FOR SALE.**—Forty colonies of bees in eight-frame hives cheap.  
ALBERT TIEN, Falmouth, Mich.

**FOR SALE.**—Three-frame nuclei, with Italian queen, at \$2.25.  
WM. H. STANLEY, Dixon, Ill.

**FOR SALE.**—Full colonies of bees at \$4.00 a stand in lots of 10.  
J. GOBELL, Glenwood, St. Croix Co., Wis.

**FOR SALE.**—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog.  
F. R. DANIELS,  
117 Florence St., Springfield, Mass.

**FOR SALE.**—Leather-colored Italian queens, fine honey-gatherers, reared with great care, untested, 75c.  
D. C. GULLEY, Rt. 8, San Antonio, Texas.

**FOR SALE.**—My apiary complete in the great irrigated alfalfa belt; no failure yet. See GLEANINGS of Dec. 15, 1903, page 1051.  
C. K. C., Lovelock, Nev.

**FOR SALE.**—Best land for bee-keepers, farmers, dairymen. Cheap. Write us.  
WRIGHT-ROBINSON, Cumberland, Wis.

**FOR SALE.**—The Alexander wire bee-veil. The best face-protector on the market. Try one and be convinced. At 75c each postpaid.  
FRANK C. ALEXANDER, Delanson, N. Y.

**FOR SALE.**—Root's bee-supplies at factory prices: full colonies Italian bees; queens in season (catalog free); Plymouth Rock chickens and eggs; incubators, brooders, poultry food, etc.  
H. S. DUBY, St. Anne, Ill.

**FOR SALE.**—About 300 sixty-pound cans; mostly new, good condition, new cases, two cans to a case; 40 cts. per case, f. o. b. Preston.  
M. V. FACEY, Preston, Fillmore Co, Minn.

**FOR SALE.**—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to  
FRANK S. STEPHENS,  
(Root's Goods.) Paden City, W. Va.

**FOR SALE.**—Thoroughbred Italian bees and queens; no better in existence. Full colony bees, \$5.00; queens, untested, 65c; tested, \$1.00. Please write.  
F. M. MAYBERRY, Obelisk, Pa.

**FOR SALE.**—Bees; the right kind, right prices. Safe arrival and satisfaction guaranteed. Ask for illustrated Outfits for Beginners, price list, and our hints on buying bees.  
MASON SUPPLY CO., Mechanic Fs., Me.

**FOR SALE.**—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season.  
W. N. CANNON, Greenville, Ala.

**FOR SALE.**—A 40-acre tract of land in the Grand Traverse country, the raspberry region of Michigan, about 25 acres of which are cleared and fenced; a house, barn, bee-cellar, root-cellar, poultry-house, etc. About 350 fruit-trees, 60 of which are bearing; about 75 colonies of bees, and hives for 75 colonies more; also many supers and fixtures, making a complete apiary, in a choice location.  
CLINTON F. PULSIFER,  
1022 S. Main, Mount Pleasant, Mich.

**FOR SALE.**—My home and apiary, ten miles from Dubuque City, Iowa, just across the Wisconsin line; 25 acres good land, nearly all fenced; two springs good water, one close to house; located on main road. House is a two-story frame dwelling; good cellar in which bees have been wintered successfully for the last 16 years; an orchard of about 40 apple-trees. Most of land good meadow, balance for plow and pasture. Nice hard maple, basswood, walnut, and cedar timber growing in the pasture. R. F. D. to house. Apiary consisting of 100 ten-frame Simplicity hives; 65 colonies Italian bees—bees now working on combs. Good honey-house; almost new Cowan extractor; variety of supply and bee tools too numerous to mention. Undeveloped lead-mine on land. Reason for selling, old age and failing health. Price \$1650.00, or will sell bees and apiary alone. Write for prices, or come and see me at once, as this ad. probably will not appear again. Address  
JOS. M. WOODHOUSE, Route 35, Durango, Iowa.

## Poultry Offers.

B. P. ROCKS.—Eggs, \$1.00 per setting; 14 chicks guaranteed. MRS. EDITH CHELTON, Landonville, Md.

FOR SALE.—24 Wh. or Br. Leghorn eggs for \$1.00; also other varieties. J. A. RUBRECHT, Telford, Pa.

FOR SALE.—S. C. W. Leghorns, 15 eggs, 75c; 100, \$3. Cockrels, \$1. Meadow Poultry Farm, Coulterville, Ill.

FOR SALE.—Choice White P. Rock eggs from farm-range stock, \$1.00 per 20; \$2.00 per 45; \$4.00 per 100. F. E. SCHRIVER, Rt. 2, Forest, O.

FOR SALE.—W. P. Rocks exclusively; eggs from choice matings, \$1.00 per 15; \$3.50 per 100. A few trios at \$5.00. MRS. J. H. HAUGHEY, Berrien Springs, Mich.

FOR SALE.—Fifteen Silver laced Wyandotte eggs for Good layers, excellent broilers. J. G. BAUMGAERTNER, New Memphis, Ills.

FOR SALE.—Egg machines. S. C. Leghorns, \$1.00 per setting (15); \$3.50 per 100. Thoroughbred Blatchard stock. G. RUTZAHN, Biglerville, Pa.

FOR SALE.—When you can get M. B. turkey eggs at 25c each, and get \$2.00 to \$3.00 for turkeys at Thanksgiving, it is time to go into the turkey business. Women here are getting from \$100 to \$200 per year for their turkeys. A. P. YOUNG, Cave City, Ky.

FOR SALE.—Rhode Island Reds, White and Barred Rocks, White Wyandottes and Leghorns, Light Brahmas. Farm bred, pure stock. For birds, (moderate prices), or eggs to hatch, at 8c each, write WALTER SHERMAN, No. 100 Boulevard, Newport R. I.

FOR SALE.—15 White Wyandotte eggs, \$1.00; nice cockerels, \$1.00 each, Duston strain; seed corn. Circular. J. F. MICHAEL, Winchester, Ind.

FOR SALE.—S. C. White Leghorns, choice stock, winter-laying strain. Chicks mature early large birds. Eggs from carefully selected matings at \$1.50 for 15; \$5.00 per 100. F. H. PARDEE, New Berlin, N. Y.

FOR SALE.—Fifteen Buff Plymouth Rock eggs for \$1.00. Stock for sale. Burdick strain; prize winners. Circular free. Queens taken in exchange. F. A. BECKETT, Penfield, Mich.

## Blacks and Hybrids.

Notices in this column are inserted free, and the publishers assume no responsibility for sales made. We believe, however, that every advertiser will do just as he promises.

FOR SALE.—About eight hybrid and mismated queens at 25c each; also a few Italians at 40c; all last year's raising. Delivery between May 20th and June 10th. A. A. HUMMEL, Kratzerville, Snyder Co., Pa.

FOR SALE.—A limited number of hybrid queens—most of them from red-clover stock—one queen, 30c. YOUNG'S BEE-SUPPLY HOUSE Boonville, Mo.

FOR SALE.—Black and hybrid queens, 30c each; six for \$1.75; 12 for \$3.00. Safe arrival at your postoffice guaranteed. GEO. BUTLER, Florida, Ala.

FOR SALE.—Thirty black queens—high bred blacks—at 30c each by return mail, owing to dequeening my bees of this stock for Caucasians. ROY GAYDEN, Lewisburg, Miss.



## HAVE YOU HEARD ABOUT CROFTS & REED'S CLUB of 10 PLAN

Here is an easy way to get beautiful home furnishings without cost. We call it our "Club of Ten" Plan which means that by getting nine of your neighbors to join you in forming a Club to buy tea, coffee, soaps, soda, baking powders, extracts, spices, in fact, nearly all your groceries, direct from us—each member can get Beautiful Premiums without cost. Our prices are no more than you are now paying your storekeeper, and in many instances less, while the quality of our products we absolutely guarantee. In fact we will send them (also the premium) and let you use what you wish for 30 days on trial. If they are not perfectly satisfactory you can return them at our expense and get your money. If you do not care to form a club you can get a \$10 premium with \$10 worth of goods, or if you want groceries only, here's a way

### YOU CAN EASILY SAVE \$10

every few weeks. That is, buy your groceries on our "Factory to Family" Plan, which saves you half regular dealer's prices. For example, we give a Pure Cream Tartar Baking Powder for 12¢ which dealers charge 25¢ for. Soap which you pay 5¢ a cake for we furnish at 2¢, and so all through our list of about 150 different articles.



Given with  
\$10 order

Send for our 2 free books, "How the Housewife Can Furnish Her Home Without Cost" and "How the Housewife Can Save \$10.00," or our large free Furniture Catalog and Style Book. Do it today.



Given with  
\$10 order

## SPECIAL

**INTRODUCTORY OFFER** To remove any doubt you might have as to whether our goods are right—whether they will be satisfactory to you in every respect, we will send any supplies you may select from our catalog to the amount of \$2.00 for only \$1.00—and prepay the charges to your address provided it is east of the Rocky Mountains. Do not send us any money. Simply order the goods and we will ship them subject to approval. If they are satisfactory send us the dollar; if not send them back at our expense. Is not this the best guarantee we could offer as to the quality of our goods? Send your order today.

**CROFTS & REED,**

**841 W. Kinzie St.,**

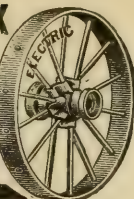
**Chicago, Ill.**



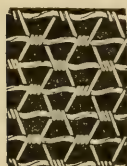
## SAVE YOUR BACK

Save time, horses, work  
and money by using an  
**Electric Handy Wagon**

Low wheels, broad tires. No  
living man can build a better.  
Book on "Wheel Sense" free.  
Electric Wheel Co. Bx 95, Quincy, Ill.



**EXTENSION NUTS CURE AXLE WABBLERS.**  
Make old buggies run like new. Quick sellers.  
Very profitable for agents. Exclusive Territory.  
Hardware Specialty Co., Box 535, Pontiac, Mich.



## FENCE Strongest Made

Made of High Carbon coiled wire. We  
have no agents. Sell direct to user at  
factory prices on 30 days free trial.  
We pay all freight. Catalog shows 37  
styles and heights of farm and poultry  
fence. It's free. Buy direct. Write today  
**COILED SPRING FENCE CO.**  
Box 101 WINCHESTER, INDIANA.

## BUFF ORPINGTONS!

I offer 12 eggs from purebred imported stock for \$3.00;  
12 eggs from birds not especially mated, \$1.00. Thir-  
teen early hatched chicks (cockerel and 12 pullets) if  
ordered before June 1, \$12.00; from first-class laying  
strains.

M. H. WINEBRENER,  
Importer and Breeder, Walkersville, Md.

# GOLDEN Opportunities!

**E**XIST in the South, and the Seaboard  
Air Line's monthly magazine will  
point them out to you. If you are  
thinking of changing your loca-  
tion, engaging in other business, want a  
winter home, a summer home, or a place  
for all-the-year-round residence, want an  
orange grove, a banana plantation, a  
pineapple grove—in fact, anything, and  
want it in Virginia, the Carolinas, Geor-  
gia, Alabama, or Florida, the magazine  
will assist you.

Sent free on request, together with  
other handsomely illustrated literature  
descriptive of the South and its wonder-  
ful resources and progress.

## J. W. WHITE

Gen. Indus. Agt., Portsmouth, Va.

## Seaboard Air Line Railway

Are you interested in the great and  
growing South? If so, send 25 cents in stamps  
or silver and receive the Alabama Times one year.

## THE ALABAMA TIMES

is a large eight-page paper, and is published week-  
ly. It will tell you all about the South. Send in  
your subscription to-day. Address—

THE ALABAMA TIMES, Montgomery, Ala.

## You Need It. . . . .

If you have only a few chickens;  
If you are at all interested in poultry;  
If you are breeding for fancy points;  
If you cater to the market trade;  
If you are in the business on large scale, you need

## Ohio Poultry Journal

the paper published in the interest of the farmer, begin-  
ner, and small breeder, with plenty of pointers for the  
experienced fancier. Each month is especially edited  
for the needs of that special season of the year. Reg-  
ular price is 50 cts. a year, but we offer it **AT HALF PRICE**  
for a short time to introduce it to readers of Gleanings.  
Send only 25 cts. and get it a year; or, if you send us \$1  
for a year's subscription to Gleanings in Bee Culture,  
we will send you Ohio Poultry Journal for a year free.  
Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.

## Poultry Magazine,



Monthly, 50 to 100 pages, its writers  
are the most successful Poultiymen  
and women in the United States. It is

## The POULTRY TRIBUNE,

nicely illustrated, brimful each month  
of information on How to Care for  
Fowls and Make the Most Money with  
them. In fact so good you can't afford  
to be without it. Price, 50 cents per year. Send at once  
for free sample and **SPECIAL OFFER TO YOU.**

R. R. FISHER, Pub., Box 85, Freeport, Ill.



## Greider's Fine Catalog

of Prize-Winning Poultry for  
1906. This book is printed  
in several Beautiful  
Colors and is larger than  
ever. Contains a Fine  
Chromo of lifelike  
fowls. It illustrates and  
describes 60 varieties of  
poultry, ducks, geese,  
pigeons, etc. It shows best  
equipped poultry yards and houses—how to build  
houses; cure for diseases; **Best Lice Destroyer**  
how to make hens lay; poultry supplies and all  
kinds of information indispensable to poultry-  
keepers. Prices of eggs and stock within reach  
of all. Send 10 cents for this noted book.

B. H. GREIDER, RHEEMS, PA.

## \$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size  
8x11 1/4 inches) of valuable poultry, pigeon, and  
pet-stock reading, costing us thousands of dol-  
lars to procure. Also your name and address in  
the "Poultry breeders' Directory" for 10 years;  
revised yearly. Send \$1.00 to-day, and address

Poultry Item : : Fricks, Pa.

## DO YOU RAISE CHICKENS?

If so, you will find The Poultry Gazette a  
welcome monthly visitor to your home. A  
down-to-date, practical poultry magazine  
that is the acknowledged leader of all West-  
ern poultry papers; ably edited; profusely  
illustrated. Subscribe now, while the price  
is only 25 cts. a year. If you have poultry to  
sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

TO THE  
**BEE-KEEPERS**  
OF CANADA

**WE** ARE pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we are not able to offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers. Moreover, what we do list we propose to keep in large quantities, and will be able to ship promptly.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the **QUALITY**. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

**E. GRAINGER & COMPANY**

Deer Park

**Toronto - Ontario - Canada**

CANADIAN AGENTS FOR  
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

Root's     
**Bee - supplies**

You know what this means.

**Four carloads of new goods on hand.** Our business increased last year 100 per cent over 1904. This is proof that we are saving our customers money. Why not let us do the same for you? **Low freight rates from Toledo. Large discounts.** It tells the story. Two per cent discount this month on bee-supplies. . .

**Model Incubators. . . . . and Brooders**

Made by Charles A. Cynphers. Poultry-supplies of all kinds. Eggs for setting and stock for sale. Our new eighty-page illustrated catalog describes all of these well-known goods. Sent free. Don't be without it. Don't delay. Send to day.

**Griggs Brothers**

523 Monroe St. : Toledo, Ohio

**CENTRAL AND NORTHERN**  
**PENNSYLVANIA**

**Distributor of Root's Goods from the**  
**Best Shipping - point in this State.**  
**WHOLESALE - AND - RETAIL**

I sell at catalog prices, and, with the low low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also **rear** Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

**E. E. PRESSLER, WILLIAMSPORT, PENN.**



# SUPREME EXCELLENCE

is only another name for OUR Make of

## BEE-KEEPERS' SUPPLIES

---

Have you ever used them? If not, give us a trial order this spring. We will do our best to please you. Our prices are as low as any; and if our goods aren't as we claim you'll not have to pay for them.

We have published the AMERICAN BEE-KEEPER for nearly sixteen years. It is the largest and best illustrated magazine of its kind for the price. Edited by two of the most experienced bee-keepers in America; monthly; 50c a year. Sample copy and our large illustrated price list of supplies free on application.

**The W. T. Falconer Manufacturing Co.**  
Jamestown, New York

### Dadant's

# Foundation

### It Excels

**Every Inch Equal to Sample**

---

Beauty! Purity! Firmness!  
No sagging; no loss.  
Twenty-eighth Year.  
We Guarantee Satisfaction.  
Wax Worked into Foundation.

~~~~~  
Bee-supplies of All Kinds

~~~~~  
Beeswax wanted at all times.  
Send for Our 1906 Catalog.

~~~~~  
Dadant & Sons, Hamilton, Ill.

New Goods-Big Stock

New Warehouse, Root's Goods,
Prompt Shipment, Low Freight.

Everything for the Bee-keeper at Savannah, Ga.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory.

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog sent free. Correspondence solicited. .

HOWKINS & RUSH

124 West Liberty Street

SAVANNAH - - GEORGIA

GLEANINGS

IN BEE CULTURE



DR. C.C. MILLER

THE A.I. ROOT CO.
MEDINA, OHIO.

Eastern Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

Our New Manager at Washington, D. C.

Mr. H. G. LaRue is now the manager of our branch at 1100 Maryland Ave., S. W. Mr. La Rue is a bee-keeper of considerable experience. He is also a graduate of one of the best business colleges in Ohio. Our customers are assured of prompt and satisfactory treatment. Freight and boat rates from Washington to the South are very low.

The A. I. Root Company
1100 Maryland Av., S. W.
Washington, D. C.

MISSISSIPPI

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders.



Bees and Queens

from Select Stock

Correspondence Solicited.

GEO. A. HUMMER,
BRAZELIA, - MISSISSIPPI
Shipping-point, Macon

Bee-Supplies

For Southern Bee-Keepers

I have been over 20 years in the bee-supply business, manufacturing hives and fixtures, and raising bees and queens. With all this experience and the excellent facilities I have, I am able to fill your orders promptly, and give absolute satisfaction. Though I make my own hives I carry a complete stock of The A. I. Root Company's manufacture. Just specify "Root's Goods" and you will get them.

Bees and Queens

I breed with scientific, intelligent methods, from the best imported and Long-tongued stock. Cheap queens may be had elsewhere. My stock is worth every cent of the price. You will be pleased with it. I GUARANTEE IT.

64-page Catalog

of Supplies and Bees sent free. Tell me you saw my ad. in GLEANINGS.

J. M. JENKINS
WETUMPKA : ALABAMA

Now Ready

To book your orders for bees for May and June shipment.

Our New Stock of Goods

has arrived, and we can fill orders for eight and ten frame Dovetailed or Danz hives and supers, also the new **METAL-SPACED HOFFMAN FRAME** on short notice.

Send for price list of Bees, Queens, and Hives.

W. W. Cary & Son,
Lyonsville, Mass.

NORTHEASTERN & NEW ENGLAND

BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine
MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusive-
ly, at Root's Factory Prices.

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional well, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

TOLEDO.—The market on honey at this writing is very quiet on account of heavy shipments of strawberries from the South. Strawberries are retailing at 10 cents per quart, and this has a tendency to drive honey out of the market. We do make some sales—fancy white, 15 to 16; No. 1 at about 14, with a little or no demand for dark. Extracted, in barrels, fair demand as follows: White clover, 6 to 6½; amber, 5 to 5½. Beeswax is more plentiful, and we are still paying 28c cash, 30c in trade.

GRIGGS BROS.,

521 Monroe St., Toledo, Ohio.

May 8.

TORONTO.—Never saw honey so well cleaned up as this season; there is little or none to get; some comb honey about yet, but extracted of No. 1 quality is about all gone.

E. GRAINGER & Co.,

Toronto, Can.

May 10.

KANSAS CITY.—The market here is almost cleaned up on last year's honey. We doubt if any honey will be carried over this season. Best white is selling here today at \$3.25 per case; other grades from 25c to 50c per case less. We have received some letters that seem to indicate that new honey will begin to arrive within the next thirty days. Extracted is moving at 5½ to 6c.

May 20.

C. C. CLEMONS & Co., Kansas City, Mo.

NEW YORK.—There is still some demand for comb honey, mostly for fancy stock, which is selling at 14 to 15; off grades in no demand, and prices are irregular—ranging from 8 to 12c, according to quality; sufficient supply to meet the demand. Extracted is in fair demand, mostly for California, of which there seems to be abundant supply of all grades. We quote white 6½ to 7c; light amber, 6; dark, 5 to 5½, according to quality and quantity. Beeswax scarce and firm at 29 to 31.

HILDRETH & SEGELKEN,

82 Murray St., New York.

May 8.

CINCINNATI.—The conditions of the market at the present time are not encouraging. Honey is offered from all sides at prices utterly regardless of the value of the article. At the same time, all indications point to an unusually good honey crop, which adds in making it a drag on the market. Offer amber extracted honey in barrels at 5 to 6½; fancy white, in crates of two 60-lb. cans at 6½ to 8½. We are paying 30c per lb., delivered here, for choice yellow beeswax.

THE FRED W. MUTH CO.,

51 Walnut St., Cincinnati, O.

May 8.

CHICAGO.—The supply of comb honey is small, and only choice is being asked for, which brings 15c per lb. No. 1, 14; off grades, about 10. White extracted, 6½ to 7; amber, 5½ to 6. Beeswax, 30.

R. A. BURNETT & Co.,

199 South Water St., Chicago, Ill.

May 8.

BUFFALO.—Our market is in about the same condition as it has been for some time. There is very little honey here, and a very good demand both for comb and extracted. This an excellent opportunity to close out all of the crop of 1905. We quote: No. 1 to fancy white comb, 15 to 16; No. 2, white comb, 12 to 13; No. 1 buckwheat, comb, 12 to 13; No. 2 buckwheat, comb, 11 to 12. White extracted, 8 to 9; amber extracted, 7 to 8; dark extracted, 6 to 7. Beeswax, 30 to 32.

W. C. TOWNSEND,

Buffalo, N. Y.

April 24.

PHILADELPHIA.—The season is so far advanced that there is not enough call for comb honey to fix a price. Some few lots are being sold at the best offers. We quote as follows: Extracted, fancy white, 7; amber, 5½ to 6. Beeswax, 29. We are producers of honey, and do not handle on commission.

WM. A. SELSER,

10 Vine St., Philadelphia, Pa.

May 9.

ST. LOUIS.—Since our last there is better demand for comb honey; especially the better grades are scarce. We quote fancy white at 14; No. 1, 12½ to 13; amber, 11 to 12. Extracted honey is still dragging, and quotable as follows: California light amber, 6 to 6½, according to condition and quantity; Spanish needle, 6½ to 7; Southern, in barrels, 4¼ to 4½—in cans, 5 to 5½. Beeswax is lower, prime quotable at 29, and all impure and inferior at less.

R. HARTMANN & Co.,

14 So. Second St., St. Louis, Mo.

May 11.

DENVER.—Market on choice white comb honey is active; off grades and partly candied not wanted. We quote the following prices: Strictly No. 1 white, per case of 24 sections, \$3.30; off grades No. 1, \$3.00; No. 2 and partly candied, \$2.40 per case. Extracted, 6¼ to 7 per lb. We are in the market for beeswax at 24c, delivered here, for average yellow wax.

THE COLORADO HONEY-PRODUCERS' ASS'N.,

Denver, Colo.

May 10.

BEE-SUPPLIES.

We handle the finest bee-supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders. Let us figure with you on your wants.

MUTH SPECIAL DOVETAIL HIVES have a honey-board, warp-proof cover and bottom-board. Think of it. Same price as regular styles. Send for catalog.

The Fred W. Muth Company, Cincinnati, Ohio
51 Walnut Street

ATLANTA.—New honey beginning to move. Demand good at following prices. Fancy, 14 to 15c; A No. 1, 12 to 13. Extracted, white, in barrels, 6½ to 7; amber, 5½ to 6. Beeswax, 28 to 30. JUDSON HEARD & Co., May 10. Atlanta, Ga.

FOR SALE.—Fancy California light amber, in new 60-lb. cans, 6c; fancy water-white alfalfa, 7c; Wisconsin basswood in 250-lb. barrels, 7½c; sample, 8c.

E. R. FAHL & Co.,
Broadway and Detroit St., Milwaukee, Wis.

FOR SALE.—Thirty 5 gallon cans of clover honey. Single can, 7½ cts. per lb.; two or more at 7 cts.

C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.

O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

FOR SALE.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.

HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT, 199 South Water St., Chicago, Ill.

WANTED.—Fancy, white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. GRIGGS BROS., Toledo, Ohio.

WANTED.—Comb and extracted honey. State quality, quantity, and price.

JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.

EVANS & TURNER, Columbus, Ohio.

WANTED.—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.

THE A. I. ROOT CO., Medina, Ohio.

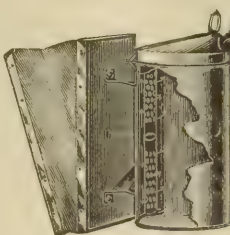
JELLY TUMBLERS AT REDUCED PRICES.

You can double your money from your honey crop by using Jelly Tumblers of correct style, as containers and keeping your market supplied. No other glass so economical. Write for quotations.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair,
St. Louis, 1904.



**UP-TO-DATE,
STRONGEST,
COOLEST,
CLEANEST.**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

Every Thing Guaranteed, "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Platteville, Wis.

SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker." Grant Stanley, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

F. DANZENBAKER, MIAMI, FLORIDA

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.

POULTRY DOLLARS COME EASY.

Our large 52 to 112 page beautifully illustrated magazine, best printed and edited poultry journal, makes it easy to add dollars to your income by keeping a few hens on a town lot or make a success on a large scale, covers every thing. Contains information that will put you in comfortable circumstances if followed. **POULTRY SUCCESS** one year, 50 cts. Large illustrated poultry book free to annual subscribers. Three months' trial, 10 cts. **POULTRY SUCCESS CO., Springfield, Ohio.**

KEEP YOUR EGGS

all summer while prices are low, and sell next winter at a good profit. Egg-preserving formula, 25 cts.

T. T. POULTRY CO., Springfield, Ohio.

GET RID OF LICE.

For 25 cts. we send formula that never fails to exterminate lice. Costs less than 8c per lb. to make. Guaranteed. Used by many leading poultrymen.

T. T. POULTRY CO., Springfield, Ohio.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

E. R. ROOT
Editor

A. I. ROOT
Editor Home Departments

H. H. ROOT
Asst. Editor

Department Editors:
DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE,
LOUIS H. SCHOLL, G. M. DOOLITTLE, W. P. ROOT.

J. T. CALVERT, Business Manager

A. L. BOYDEN, Advertising Manager

Circulation 30,000. Reaches every State and 60 foreign countries.
Established in 1873. Sixty-four pages. Semi-monthly.
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

Terms—\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.

Postage is Prepaid by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. *A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS., 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 6/.*

Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publisher.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY.....STATE.....

DATE.....If you want Gleanings discontinued at expiration, check here ()

At last! At last! At last!

Some of the readers of GLEANINGS may remember that, a year or two ago, a New York bee-keeper reported he had a method whereby he could foretell swarming without opening the hive; then nothing more was heard from him, and many wondered why; and it now transpires that sickness and a desire for further experimenting were the cause of his silence. Now he is ready to publish the result of his years of work in this direction, and the REVIEW is fortunate in securing the report for publication.

The April issue contains an illustration of his hive, and the arrangement whereby he can detect the build-

ing of cells. Not only does the inventor, Mr. Olmstead, show how he can detect the building of cells, but he explains how he has carried his plans still further, and is now able to rear a queen, have her fertilized, and take the place of the old queen, thereby preventing swarming, all without removing the supers, or opening or disturbing the brood-nest.

Send ten cents for this issue of the REVIEW, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, Flint, Mich.

HERE'S YOUR CHANCE

to win a prize by doing a little work in
obtaining subscriptions for Gleanings
in our Second Subscription Contest.

Last contest EVERY contestant that sent in more than ONE subscription obtained a prize. It will doubtless be so in this contest, so that besides the regular commission you will receive a prize that will more than pay any effort made.

Twenty-five Prizes!

(Variety of queen to be winner's selection)
First Prize \$10.00 queen
Second Prize 7.50 queen
Third Prize 5.00 queen

Fourth Prize 3.00 queen
Fifth Prize 2.00 queen
6th to 15th Prize One cloth-bound A B C
16th to 25th Prizes One Junior Corneil smoke,

Conditions!

FIRST.—That subscriptions to be entered in this contest are to be obtained as results of work between February 15 and July 1, 1906.

SECOND.—To be eligible to any one of the first fifteen prizes, contestant must have at least five yearly subscriptions, or their equivalents, to his credit.

THIRD.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

FOURTH.—That subscriptions can be sent in any time, but must be plainly marked "For Second Subscription Contest."

CUT HERE

Gleanings in Bee Culture

Subscription Contest Department.

Date

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Please send agents' terms and enter my name as contestant in Second Subscription Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions and agree to them.

Name

P. O.

I can use sample copies of Gleanings. State

CONTENTS OF THIS NUMBER.

MARKET QUOTATIONS.....	630	Appliances to Adopt if I were to Start Anew.....	655
STRAY STRAWS.....	639	Proper Color for Hives.....	655
EDITORIAL.....	641	Swarming not a Calamity but a Blessing.....	657
New Caucasian Bees.....	641	Uniting Weak Colonies by Alexander Method.....	658
What to Do in Bad Days in the Spring.....	641	Brief Notes on Current Topics.....	659
Queer Weather at Medina.....	641	Hoffman Frames.....	660
Right and Wrong Way of Shaking Bees.....	641	Visit to Sam Ling's Bee-ranch.....	661
Three Methods of Swarm Control.....	641	Bee-keeping in Idaho.....	663
Foul-brood Law of Ontario Amended.....	641	The Pearl Agnes Bee-hive.....	665
Dr. C. C. Miller.....	642	Mailing and Introducing Cages for Queens.....	667
New System of Comb-honey Production.....	642	A YEAR'S WORK IN AN OUT-APIARY.....	652
Division-boards for "Springing" Bees.....	643	HEADS OF GRAIN.....	970
National Convention to be held at San Antonio.....	643	The Three-compartment Mating-box.....	670
Spraying while in Bloom.....	644	Good Combs Containing Sour Honey.....	670
Raw Nectar Wanted.....	644	Bees without a Hive for Years.....	670
GLEANINGS FROM THE PACIFIC COAST.....	645	Marbach Metal-spaced Frame.....	670
CONVERSATIONS WITH DOOLITTLE.....	646	Report on Hiving Swarms with a Mirror.....	671
BEE-KEEPING IN THE SOUTHWEST.....	647	Introducing Queens by the Simmons Plan.....	671
GENERAL CORRESPONDENCE.....	649	Hive-tool Made from a Saw blade.....	671
Producing Comb Honey.....	648	Bottom-board Having Adjustable Entrance.....	671
Foul Brood.....	650	OUR HOMES.....	672
Intensive Bee-keeping.....	651	NOTES OF TRAVEL.....	676
Over-weight Sections as an Advertising Scheme.....	654	TEMPERANCE.....	678
		SPECIAL NOTICES.....	699

INDEX TO ADVERTISEMENTS.

Banking by Mail.....		Henry Shaffer.....	697	Household Specialties.....	
Savings Dep. Bank Co.....	679	H. G. Quirin.....	694	Best Light Co.....	679
Bee Smokers.....		H. C. Simpson.....	691	Cleveland Desk Co.....	679
T. F. Bingham.....	690	H. M. Parker, Jr.....	697	O. L. Chase.....	685
F. Dauzenbaker.....	681	H. A. Ross.....	621	Joseph Horne Co.....	686
Bee Supplies.....		H. H. Jepson.....	695-697	Stromberg-Carlson Tel Mfg Co.....	686
A. H. Reeves.....	691	J. W. Griffin.....	695	Incubators.....	
A. G. Woodman Co.....	689	J. L. Strong.....	696	Banta-Bender Mfg. Co.....	685
C. H. W. Weber.....	629	J. W. Taylor.....	694	H. M. Sheer Co.....	700
C. M. Scott & Co.....	689	J. W. K. Shaw & Co.....	695	Machinery.....	
D. Cooley.....	689	Jas. W. Bain.....	695	J. H. Barnes.....	686
F. C. Morrow.....	691	J. B. Case.....	691	Electric Wheel Co.....	700
Fred W. Muth Co.....	680	J. E. Chambers.....	691	Lyons Engine Co.....	684
Frank W. Prothero.....	692	J. R. Rambo.....	694	Medina Concrete Co.....	683
Geo. E. Hilton.....	690	John M. Davis.....	694	F. E. Myers & Bros.....	686
G. B. Lewis Co.....	698	Mennie & Fenton.....	693	Smith Premier Typewriter Co.....	685
I. J. Stringham.....	697	Malan Brothers.....	693	Miscellaneous.....	
J. H. M. Cook.....	637	M. D. Whicher.....	696	Alabama Times.....	700
Kretschmer Mfg Co.....	689	Robert B. McCain.....	618	Best Gate Co.....	681
Lathrop Mfg. Co.....	690	R. O. Cox.....	696	Compendium Subscription Ag'y.....	585
Leahy Mfg. Co.....	693	Roselawn Apiary.....	693	David B. Clarkson.....	679
Marshfield Mfg. Co.....	637	S. Valentine.....	693	Hammond's Slug-shot.....	683
Minnesota Bee Supply Co.....	693	The Jennie Atchley Co.....	697	Hardware Specialty Co.....	700
M. H. Hunt & Son.....	636	Victor-Knolle Apiary Co.....	597	Home Correspondence School.....	679
Page & Lyon.....	688	W. H. Lewis.....	690	Lathrop Mfg. Co.....	685
The Root Co.....	691	W. T. Laws.....	693	Lofts.....	680
The Root Co., Syracuse, N. Y.....	636	W. T. Crawford.....	695	Seaboard Air Line R. R.....	700
The Root Co., St. Paul, Minn.....	683	Bee-books.....		Standard Incubator Co.....	693
W. T. Falconer Mfg. Co., Back Cover.....	687	A. J. Cook.....	690	The Deming Co.....	682
Walter S. Poudier.....	637	George W. York.....	637	W. R. Hartigen Son.....	686
W. D. Soper.....	637	Buggies.....		Publishers, Agricultural-paper.....	
York Honey & Bee Supply Co.....	690	Anderton Mfg. Co.....	652	Farmer's Call.....	637
Bees and Queens.....		Elkhart Carriage Co.....	682	Southern Fruit Grower.....	681
A. E. Tioff.....	696	Ohio Carriage Mfg. Co.....	682	Publishers, Bee-journal.....	
Bee & Honey Co.....	689	Progressive Vehicle Mfg. Co.....	682	A. I. Root Co.....	632-633
Best-the-bee man.....	691	Union Buggy Co.....	682	Geo. W. York & Co.....	637
B. C. Terry Co.....	697	Comb Foundation.....		W. T. Falconer Mfg. Co., Back Cover.....	633
Chas. Koepen.....	696	Dadant & Son.....	Back Cover	W. Z. Hutchinson.....	633
D. J. Blocher.....	695	Gus Dittmer.....	688	Publishers, Poultry-paper.....	
Daniel Wurth.....	697	Fences.....		R. R. Fisher.....	700
Doolittle & Clark.....	695	Brown Fence and Wire Co.....	700	B. H. Greider.....	700
E. A. Simmons.....	694	Coiled Spring Fence Co.....	697-700	The Poultry Gazette.....	700
E. C. Terry Co.....	697	Page Woven-wire Fence Co.....	682	Poultry Item.....	700
E. L. Pratt.....	697	Honey-buyers.....		Ohio Poultry Journal.....	700
E. E. Lawrence.....	696	See page.....	680	Poultry Success.....	700
F. J. Colahan.....	694			Seeds and Trees.....	
F. A. Lockhart & Co.....	695			Hart Poultry Nurseries.....	683
George W. Barnes.....	697			Wants and Exchanges.....	698-699
G. Routzahn.....	693				
Grant Anderson.....	691				
Henry Alley.....	694				

ADVERTISING TALKS

BY THE AD. MAN.

Along about this time some advertisers—even the largest national advertisers—begin to talk about the coming dull season—the warm months in which people can not use their goods or will not buy them.

From the way most of these people receive an advertising proposition at this time of the year one would think that they sold only overcoats, fur gloves, or furnaces. Of course, there is such a thing as seasonable advertising. People will not buy seeds in mid-summer, nor will they buy heavy clothing; but they will buy household articles and many other things, perhaps more liberally than at any other season of the year. Do you not find that you spend just as much money in summer as in winter?

Now to get right down to business—GLEANINGS does not have a circulation in one State or in one clime. When our subscribers here in Ohio are busy harvesting, our readers on the other side are getting ready to plant. In fact, we offer spring, summer, fall, and winter circulation the year around. Remember—GLEANINGS goes around the world, and GLEANINGS ad's pay.

We do not know that any of our readers are contemplating the purchase of diamonds or jewelry; but should any thing in this line be needed it will be well worth your time to send for a copy of the catalog sent out by the Loftis Bros. & Co., 92-98 State Street, Chicago, Ill. These people issue one of the finest catalogs of jewelry we have ever seen. Every article is illustrated in a clear and careful way, and the catalog is a true testimonial of the character of this company. They offer any prospective purchaser an excellent opportunity to buy on the monthly-payment plan. The Loftis Company has been established since 1858; has a very high commercial rating, and was awarded the gold medal for their display of jewelry and diamonds at the World's Fair. They are recognized everywhere as honorable merchants who sell goods of quality.

We are glad to announce that the series of articles on "Control of Swarming for Comb-honey Production" which are just now running in GLEANINGS are proving exceedingly interesting to our readers. Our advertisers will appreciate our securing such interesting contributions. Any thing which we can do to make GLEANINGS a more instructive journal—a more valuable journal to the bee-keeper—will increase its value as an advertising medium. We have some of the best articles ever printed on bee matters, which will appear in our journal this year, and the outlook for a steady growth in our paid subscription-list is extremely favorable.

The Page Woven-Wire Fence Company, Adrian, Michigan, send out very interesting literature about their fences. Any one who buys fence should learn to what severe tests the Page fence has been subjected, and yet stood up as strongly as the manufacturers claim. Two

large factories are required to manufacture enough Page fence to supply the demand of fence-builders throughout the country. This in itself is a good reason why you should buy the Page.

New additions to the Poultry Offers column in the classified pages each issue. Here is a good place to be represented if you have poultry or eggs for sale. Hardly a bee-keeper who does not keep chickens; and because of their desire to make poultry pay as well as bees our poultry-men are the kind you want to do business with.

Put your poultry ad. in GLEANINGS. It will show up better here than in some paper with 1200 other poultry ads. Our special rate, three lines for 50 cents for one insertion, will hold good for a few more issues.

On page 679 of this issue we carry an ad. for the David B. Clarkson Company, 323-325 Dearborn Street, Chicago, Ill. This is one of the most remarkable companies we know of. The line of goods which they handle is books. Mr. Clarkson is at the head of the company, and has risen from the rank of a book-agent to the head of one of the leading book-selling establishments in the country. It would be almost impossible to tell you some of the great book bargains which are listed in the 65-page catalog which his company sends out. Just a few items which come to our notice are some of the leading copyright works, mostly fiction, at 38 to 50 cts., and a ten-volume encyclopedia, one of the most complete and comprehensive we have ever seen. We have already ordered two sets for our office, at \$7.75. This set of books is not a cheaply bound set, but put up in a very nice shape. It would be a prized addition to any library.

MARKETING TALKS.

Every bee-keeper who offers honey for sale in town or city should have some marketing name, some distinguishing feature for the honey he markets. If a certain brand of honey is tried and found to be good, a customer will be pretty sure to ask for the same kind when making the next purchase. This putting a name on your honey—a mark which will distinguish yours from the other kind—is an advertising plan, and a good one. It would also pay a honey-producer to have a small folder—just a slip of paper large enough to go into an envelope—prepared, telling about his apiary and facilities for making the pure kind of honey. People are being educated to a point where they want to know where the products they buy come from. A folder which would be very complete and educational would not be expensive. Put your name on each package of your honey. Give the dealer or store-keeper whom you sell your crop to a quantity of your pamphlets to give to his customers, and you will gradually feel a growing demand for your honey if it is the right quality; and the best honey is the only kind you can afford to market.

Root's Goods in Michigan!!

Our prices are identical with those of The Root Co. We carry several carloads their goods in stock—hives, sections, foundation, smokers. Every thing for bees.

We can save you time and freight expense in getting your supplies—and they are Root's goods, too.

The Danz. hive—the comb-honey hive, is one of our specialties. We would like to tell you more about it if you are interested.

If you are just beginning with bees, we would like to mail you our booklet, "Outfits for beginners." Our catalog goes with it.

The goods you want now, you want "in a hurry." For Root's Goods "in a hurry" send to

M. H. HUNT & SON, BELL BRANCH, MICH.

DANZENBAKER HIVES



In this connection wish to say that my ten colonies (in Danzenbaker hives) wintered perfectly on summer stands with no other protection than a super of dry sawdust over them, and are building up nicely, although some of them covered only about three frames in the fall. *Score one for Danzenbaker hives.* (Signed)

JAMES M. SOWARDS, Pikeville, Ky.
May 10, 1906.

The Best
Comb-honey Hive
Made or Used

The Best
for Wintering
in Our Locality

THE A. I. ROOT CO., SYRACUSE, NEW YORK

Just Out!!!!**Dr. Miller's****New Edition!****"Forty Years Among the Bees"****What Some Say of "Forty Years"**

The more I read the more I am convinced it is one of the most practical books ever written. There are 101—yes, 1001—little kinks, little tricks of the trade, little ideas, and big ones too, which, while they may be old to some of the veterans, I am of the opinion will prove to be new and useful to the majority of them. The doctor has crowded into it his ripest experience; and not only that, he has drawn from the ideas of others so that we have the very latest and best in the way of practical information from one who has actually spent over "forty years among the bees."—*Gleanings in Bee Culture*.

In this the author goes briefly, but concisely, over his forty years of bee-keeping, for he has really kept bees for over forty years. Not only this, but he gives us a very delightfully written biographical sketch of his boyhood in Pennsylvania; his heroic struggles in securing an education, in which he boarded himself, cutting his weekly expense for board down to only thirty-five cents a week, which so affected his health that he has never fully recovered from it. I found this account of his early life so interesting that I read it aloud to the whole family. Most vividly did it recall my own boyhood days, in which I roamed the forest as free as the wild things in whose lives I became so interested. . . . I feel warranted in saying that it is the masterpiece of the author's over forty years among the bees.—*Bee-keepers' Review*.

AN APPENDIX added to this latest edition brings it right down to date; 344 pages; bound in beautiful cloth, gold lettered.

Price, postpaid, \$1.00; appendix alone, only 10c. (The appendix alone is specially for those who have the former edition, but any one can have it for the 10c, or *free* with the Weekly AMERICAN BEE JOURNAL for one year at \$1.00.)

We mail the complete book with the Weekly AMERICAN BEE JOURNAL one year—BOTH FOR ONLY \$1.80. Every reader of GLEANINGS should have both Dr. Miller's book and the Weekly Bee Journal. Sample copy of the latter sent free, or a "Trial Trip" of three months (13 copies) for 20c. But you'd better send \$1.80 NOW for the book, and the Bee Journal a whole year. It will pay you to do so.

George W. York & Co.

334 Dearborn St., Chicago, Illinois

Great Sale of Hives Sections, etc.

To reduce my stock I will sell No. 1 white polished sections at \$3.90; No. 2, \$3.40 (all sizes). Plain, 25c less per 1000. Best white-pine Dovetail hives, 8-frame, 1½ story, \$1.30; 10-frame, \$1.45. Great reduction in smokers, foundation, and all apianian supplies. 24-lb. shipping-cases, very nice, 13c; quart berry-baskets, \$2.75 per 1000. Send for free 24-page illustrated price list

W. D. Soper, Jackson, Mich. RD3.

65c for 25 NAMES—For names and P.O. of 25 farmers and 15c (stamps taken) we will send for 2 years the Farmer's Call—regular subscription price, 40c a year. F. C. is a weekly, 25 years old; 1300 pages a year; sample free. Farmer's Call, Quincy, Ill.

WISCONSIN - BASSWOOD**FOR SECTIONS**

We make them and the very best of **Dove-tailed Hives, Shipping-cases**, and a full line of Bee-keepers' Supplies always on hand. We make very prompt shipments. Let us hear from you.

Marshfield Manufacturing Company
Marshfield, Wisconsin

Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

I. J. STRINGHAM

OF 105 PARK PLACE

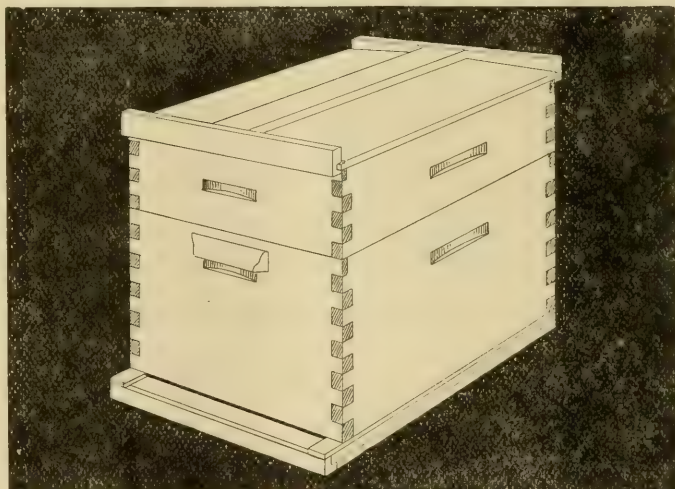
New York

furnishes every thing a bee-keeper uses. Strong colony of bees, with tested Italian queen, in Dev'd hive complete, \$8.75; in a chaff hive, \$9.50. Three-frame nucleus, with Italian queen, \$4.25. Silk-faced bee-veil, 40 cts. postpaid. Italian queens, \$1.00. Catalog of bee-supplies free.

Apiaries, Glen Cove, Long Island.

IN THESE later days hive-making has become a science. It no longer means the nailing together of strips of wood. A hive is not a mere box. It is just as hard to make a perfect hive as it is to turn out a good piano, a wash-machine, a churn, or a practical incubator. The Lewis hive is the outcome of thirty years of hive study. It is so carefully and accurately made that you wonder that it **COSTS NO MORE THAN ANY OTHER STANDARD HIVE.**

There are thousands of these the best hives in the world—Lewis hives all ready for you at factory prices. By sending to your nearest dealer named below you can get them almost freight prepaid.



One-and-one-half-story Dovetailed Hive.

ENGLAND—E. H. Taylor, Welwyn, Herts.
 CUBA—C. B. Stevens & Co., Havana.
 C. B. Stevens & Co., Manzanillo.
 CALIFORNIA—Chas. H. Lilly Co., San Francisco.
 SOUTHERN CALIFORNIA—
 Fletcher-Doyle Co., San Diego.
 Fallbrook Co-operative Association, Fallbrook.
 Paul Bachert, Lancaster.
 COLORADO—R. C. Aikin, Loveland.
 Arkansas Valley Honey-producers' Ass'n, Rocky
 Ford.
 Colorado Honey-producers' Association, Denver.
 Fruit Growers' Association, Grand Junction.
 Robert Halley, Montrose.
 IOWA—Adam A. Clark, LeMars.
 Louis Hanssen's Son, Davenport.

ILLINOIS—York Honey & Bee Supply Co., 141-143
 Ontario St., Chicago.
 Dadant & Son, Hamilton.
 INDIANA—C. M. Scott & Co., Indianapolis.
 MICHIGAN—A. G. Woodman Co., Grand Rapids.
 MINNESOTA—Wisconsin Lumber Co., 432 Lumber
 Exchange, Minneapolis.
 MISSOURI—E. T. Abbott, St. Joseph.
 OHIO—Norris & Anspach, Kenton.
 OREGON—The Chas. H. Lilly Co., Portland.
 PENNSYLVANIA—Cleaver & Green, Troy.
 TEXAS—Southwestern Bee Co., San Antonio.
 UTAH—Fred Foulger & Sons, Ogden.
 WASHINGTON—The Chas. H. Lilly Co., Seattle.

G. B. LEWIS CO.

Manufacturers Bee-keepers' Supplies
WATERTOWN, WIS., U. S. A.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

MAY 15, 1906.

No 10



NAUGHTY G. M. Doolittle, to keep me in suspense two whole weeks without knowing what he is going to do with those frames of brood from which he has brushed the bees, page 597.

SOME GOOD POINTS are made by E. D. Townsend, page 580; but isn't it putting it rather strong to say that, when a hive is not full of bees, "that portion which is without bees is one of the dampest places one can imagine?"

J. G. BAUMGAERTNER asks, p. 581, whether spores of *Bacillus alvei* would not die in honey without brood to grow in. No, spores may live years in honey just as grains of wheat will live years without the proper soil in which to grow. [You are correct, doctor, and I am glad you drew attention to it, as I overlooked the point.—Ed.]

FOUNDATION SPLINTS are spoken of as *sawed*, page 564. The first you made were sawed, but I was under the impression that all since then were *sliced*. [No. We talked about slicing the splints, but never made a success of it; the knife was too much inclined to follow the grain of the wood, making an irregular splint.—Ed.]

W. R. GILBERT, p. 575, advises, when a swarm issues from a colony that is storing, to put the swarm on old stand, and the stump, or mother colony, on a new place. An improvement would be to place the stump close beside the swarm, and move to a new place a week later. That would make an

increase of 14,000 bees in the swarm, supposing the queen had previously been laying 2000 eggs a day.

YE EDITOR asks, p. 579, "Did you not tell me once that your unpainted hives would last as long as you lived?" I hardly think I said so, for I didn't think so; but even if I had said so, would there be any less truth in saying, "One of the reasons I don't paint hives is because of the possibility that at any time I may want to change to something better"?

BASSWOOD SEEDLINGS by the thousand have again come up this spring under my basswood-trees, as every spring, only to disappear the following spring. I do wonder why. No, they are not grazed down, they just disappear. [I think you will find that those seedlings are usually choked by the grass; but if you cut them out with a case-knife and reset them in soft rich mellow earth shaded by themselves you will find that they will grow all right. We do that here, and are fairly successful.—Ed.]

COMPARING plain and beeway sections. Mr. Editor, page 579, you say I overlook the important consideration that the naughty corners "lessen the actual beeway by almost 1½ inches." No, I give that its full weight, and now emphasize it by saying that the passageway is $\frac{3}{8}$ closed. But I don't quite see that *that* has any thing to do with the case in question. As I said, "Keep in mind that Mr. Crane accounts for a difference in results by the fact that the bees can more readily get at all the edges of the comb in plain sections." No matter how much harm those naughty corners may do in any other direction, the fact remains that they hinder the bees from getting at only $\frac{3}{4}$ of the edges of the comb, and that was the only point under consideration. [But this $\frac{3}{4}$ is at a point where it will do considerable harm. It is not so much the *difference* in the relative amount as *where* that relative

difference is located. As I tried to explain, half an inch added to your ample girth would not make so much difference as half an inch added to the end of your nose.—ED.]

I DON'T KNOW why a side entrance should be more unfavorable for wintering than a central entrance, p. 568; but here's a guess at a thing that might make quite a little difference. The central entrance is likely to be nearer the brood-nest, and so there is likely to be a little more change of air than with the side entrance. [Your suggestion is pretty nearly the correct solution. In a private letter received from Allen Latham, who has given this matter considerable study, he inclines to the same opinion. In this issue you will see what Mr. A. K. Ferris has to say on the subject of bees clustering over entrances; and this general tendency shows that they do it for a purpose; and this purpose is, doubtless, to get better air and to allow the moisture to escape more directly.—ED.]

M. E. TRIBBLE is accused of being afraid of bees because he has his veil on while the other veils are lifted, p. 585. Not the right reason. Mr. Tribble can see all right without taking off his veil, because it is black. The others can not see well through their light-colored veils. [M. E. Tribble being accused of being afraid of bees? Read the text again, p. 585, and you will see that that was just the very thing he was *not* accused of doing. But you are correct when you surmise that those with *white* veils were compelled to raise them for the simple reason they could not see with them on. Quite by accident last summer I happened to try a white veil in comparison with a black one. The only merit of the former is cheapness, and it is a question with me whether we ought not to take it out of the catalog.—ED.]

IT WAS A PUZZLE to me to understand why Mr. Doolittle should put an empty hive over his colonies, May 20, p. 522. It would seem much warmer to put the empty hive under. Possibly the key to the puzzle may be found in the views expressed by him in *American Bee Journal*, p. 364, that the crust of bees is almost a complete protection against the escape of heat. He says, "The bees are almost independent of the hive, only so far as it gives them protection from their enemies and the winds and storms." That sounds like heresy; but he gives some good proof for it, and I suspect that he is nearer the truth than the rest of us. But I am not quite prepared to go as far as he does when he says "the heat from the cluster is not allowed to pass up into an upper hive, at any time when that heat is needed for the brood within the cluster of bees."

YE EDITOR uses the word "shooking," p. 568. That's an improvement. Better coin a new verb, *shook*, *shooking*, *shooked*, than to have bee-keepers appear such a set of ignoramuses that they don't know the correct form of the past participle of *shake*. [The word "shook," as an adjective derived from a verb describing a certain kind of ar-

tificial swarm, has become so thoroughly engrafted into the nomenclature of bee-keepers that it seems utterly impossible to choke it out of literature; so GLEANINGS has decided to allow the use of the descriptive word when applied to swarms either shaken or brushed. But, on my word, I did not think you would sanction the term "shooked" swarming. Seriously, doctor, I am not worrying that bee-keepers will appear as a set of "ignoramuses" who do not know the English language. It is the editor and publisher that would have to suffer if any. I am willing to take my chances.—ED.]

INTERESTING to learn from Dr. Boelte, p. 590, that the *same* bees make repeated trips to the water. I don't believe he will find that they are nurse bees, but a special detail of field bees. I wonder if pollen-carriers are not divided off the same way. Wait a minute. . . . Just been out watching at a hive. About one bee in three is carrying pollen. Each bee has a big load or it hasn't any. Of course, the proportion of pollen-gatherers varies greatly; but there is always the sharp distinction between carriers and non-carriers. [To-day, May 5, I noticed there was not one in 500 that carried pollen, and this is accounted for by the fact that the other bees were gathering nectar from fruit-bloom. Bees are provident. They will gather pollen when they can not get any thing else. It seems to be their nature to store a little ahead; and when nectar comes in they will spend all their energies in the storage of honey. When that is not to be had and pollen is available they will lay by a store of it.—ED.]

"IS IT NOT A FACT that, the older we grow, the less inclined we are to adopt new devices?" So ye editor, p. 579. Y—e—es, as a general rule. As years advance, interest gradually fades in all directions. The cooking of to day is not up to what mother's cooking used to be. Old ways are better, and any deviation from the old way is looked upon with suspicion. But are not bee-keepers an exception to the general rule? To-day I was out looking at the bees busy on the dandelions and plum-blossoms. I think I watched them with just as keen interest as I did 45 years ago. I think I take just as keen interest now in studying up something new as I did then. My assistant complains bitterly at my wanting to try so many new things that may interfere with the honey crop. A queen-cage that a certain old foggyish editor still retains I have cast aside for something new, and many a half-hour is spent studying over some new plan. No, it is hardly a fact that, the older he grows, the less inclined the genuine bee-keeper is to adopt new devices. [I began active bee-keeping in our yards, and to study bee-journals, when I was 14. I am now nearly 44. During these 30 years I have had an opportunity to study bee-keepers both at Medina and those in various parts of the country, coming into face-to-face contact with them, and if I am any judge your last sentence is hardly in harmony with the facts. Bee-

keeping is not so much different from any other profession or business that it will change the natural tendency in human nature to grow conservative with years. This is a proposition that we can hardly gainsay. I am not an old man by considerable; but I find myself becoming more and more skeptical in regard to the value of new things. You may not think it; but if you could see the number of things I turn down, and the way some of my friends complain of how I pour cold water on some of their inventions that never see the printed page, you would begin to think that, from their standpoint at least, I was getting to be an old fogey. The time was, perhaps, when I was ready to nibble at nearly every bait that came along; but I hope I am not quite so easy as that now. So you see I can't help judging you by myself; and, honest, now, don't you find yourself clinging to the old true and tried more than you once did? Peer again into the archives of memory. —Ed.]



THE conditions in Texas thus far have not been reassuring for bees, there having been so much rain. How this will affect the attendance at the National convention to be held in San Antonio I can not say. It is to be hoped that conditions will soon change for the better.

THE NEW CAUCASIAN BEES.

THE reader will, no doubt, be interested in knowing what our senior editor has to say in regard to this new race of bees in this issue, p. 676, as he tested them on an island off the west coast of Florida. Let it be understood that we have no Caucasians for sale, and probably shall not have this season. We are testing them carefully on the island, and may test a few queens in an isolated locality near Medina. There are comparatively few bees of this race in the country, and those we may be able to raise we prefer to keep only for testing.

WHAT TO DO ON BAD DAYS IN THE SPRING.

THERE will be bad days during this month when bee-keepers will not be able to do very much work with their bees. It will be a good time to scrape off bottom-boards, clean propolis out of hive-rabbets, scrape and clean all brood-frames containing good sound combs. From a sanitary point of view this may pay a big dividend—especially if foul or black brood should be lurking in the vicinity. In addition to the scraping and general

housecleaning of the hive it would be well to wash them out with a strong solution of carbolic acid. Buy a bottle of carbolic-acid crystals at the drugstore, and make a solution of one in fifty. This should be strong enough to take the skin off the hands. But be careful to apply the liquid with a broom, paint-brush, or swab.

QUEER WEATHER AT MEDINA.

THE beautiful month of April was followed by a cold spell. The same is now on at this writing, and great flakes of snow are falling. The atmosphere is chilly, notwithstanding there is a profusion of fruit-bloom. This is our luck. Whenever fruit-trees are in bloom it usually happens that it turns cold. Our proximity to Lake Erie probably accounts in a large measure for this, for local conditions if not general.

Later.—The sun is shining out of a clear sky, and we are happy again. No knowing what the next hour will bring.

RIGHT AND WRONG WAY OF SHAKING BEES IN SHOOK SWARMING.

ATTENTION is drawn to Doolittle's method of shaking the bees. Observe that he stands *in the rear*, not in the front, of the hive as perhaps a majority of bee-keepers do. He thus avoids bees crawling all over the shoes, up the stockings, and under the pants legs, and at the same time avoids stepping on the bees. Also note his plan of holding the frame just prior to the sharp jar to dislodge the bees.

Doolittle's series of articles on managing an out-apiary contains a lot of other valuable hints; and I especially recommend our readers to go over very carefully every paragraph of the series. Unless you do you may miss something valuable that will mean dollars to you before the season is up.

Mr. Doolittle has been gathering together a lot of ideas and practices which he has now incorporated in one continuous series of articles that may ultimately be put in book form. Like Mr. Alexander, he has been a constant worker with bees for a period of thirty years, and has now given us the fruit of his ripe experience.

THE THREE METHODS OF SWARM CONTROL ALREADY GIVEN AND TO BE GIVEN IN GLEANINGS.

IT is somewhat remarkable, but three men for a few years back, each independently of the other, and without any knowledge of what the others were doing, have been working on non-swarming systems—systems whereby comb honey can be produced without the bother and worry of swarms. Both Mr. Doolittle and Mr. A. K. Ferris have been working on a *system*, while Mr. Aspinwall has devoted all his energies to a *hive*. All three of the men feel that they have solved the problem, and it only remains to be seen if others can solve it by following their directions. The Doolittle system does not require any change in

hives, for it is specially well adapted to use with any Langstroth eight or ten frame hive. The Ferris is based on the combination of a hive and system.

THE dandelion is unusually profuse in our locality. While it is in a sense a bee-plant, it is a real pest on our lawns. We never saw so much yellow on our lawns as now.

THIS promises to be an exceptionally favorable fruit-blooming season. The peculiar spring held back the trees until warm balmy weather, and the bees are reveling on honey and pollen in a way they have not done before for years.

MR. W. K. MORRISON, well known to our readers, formerly of Bermuda, then of Barbados, Trinidad, South America, Porto Rico, and now of New York city, is visiting us at the present time. No man among modern bee-keepers knows more about bee-keepers in the tropics than does he.

THE remains of Mrs. Lucinda Harrison, who used to write for the columns of GLEANINGS, have been brought back to her home in Peoria, Ill. They have been laid to rest by the side of her husband. Mrs. Harrison had a bright and sparkling way of writing that interested as well as instructed.

FOR a number of years bee-yards in the neighborhood of the big smelting-works in and about Denver have suffered considerable damage by reason of the sulphurous smoke killing the vegetation for miles around. I have just seen by the papers that three of the big smelting companies have paid to the local bee-keepers the sum of \$1500 apiece. Perhaps some of our subscribers in the vicinity can give us the actual facts.

LANGSTROTH.

WE have received a poem from the poet laureate of beedom, Eugene Secor, of Forest City, Ia., entitled "Langstroth." This we hope to place before our readers soon. Perhaps no man in all beedom was more reviled, and suffered more from mud-flinging, than that great and good man at a time when he was giving to bee keeping an impetus forward, the like of which no other man ever gave.

FERTILIZING QUEENS IN A MAMMOTH TENT
CONSTRUCTED AFTER THE DESIGNS OF
MR. J. S. DAVITT, OF ARAGON, GA.

MR. C. M. CHURCH, of Arnold, Pa., is already constructing a mammoth mating-tent for mating queens in confinement on the plan laid down by Mr. J. S. Davitt, which he described in the *Bee-keepers' Review* for 1901, and which was given later in these columns. Mr. Church feels very enthusiastic about the success of the experiment. So sure is he that it will work he is willing to stand the investment. This will be tested during the coming season, and it is need-

less to say that we have made arrangements with Mr. Church to give the results of his experiment in these columns, whether it is a success or failure.

If the thing works out well, Mr. Church will deserve the thanks of the bee-keeping fraternity at large, because it will then be possible to mate queens to hand picked drones, and inbreed—something that is impracticable at the present time.

DENATURED ALCOHOL.

IT begins to look now as if the bill to permit the manufacture of denatured alcohol free of government tax would go through. Write to your United States Senator, urging his support.

[] This is one of the most important measures ever brought before our national Senate. If it passes, it will mean a cheap light and cheap fuel, and a most powerful competitor to gasoline and kerosene.

A good deal of the cheap unsalable honey, such as honey-dew, could be converted into this new product, denatured alcohol.

THE FOUL-BROOD LAW OF ONTARIO, CANADA, AMENDED.

VERY meager information comes, to the effect that the foul-brood law of Ontario, Canada—the first legislation that was ever enacted against the disease known as foul brood—has been amended, removing the appointment of the inspector from the Ontario Bee-keepers' Association to the Minister of Agriculture. It is now provided that he may appoint more than one inspector if it appears that one man will not be able to compass the entire province.

Conflicting reports have come from time to time from Canada, one side alleging that it is simply impossible for one man to go over the entire territory, and the other alleging that one inspector could do all the work at a considerable saving in expense.

I know very little about the merits of the controversy; but somehow it rather seems that the Ontario Bee-keepers' Association will know better who is fitted to make inspections of bees than the Minister of Agriculture, who probably would know very little about the bee business. But if the Minister will accept the recommendations made by the Ontario Association, or any other accredited body of bee-keepers, then there need be no fears entertained that an incompetent man or men will be appointed to this responsible work.

DR. C. C. MILLER.

IT is with more than ordinary pleasure that I introduce to our readers Dr. C. C. Miller—see outside cover page. Although we have shown his portrait in our columns before, Mrs. A. I. Root particularly requested that we place him in our gallery of celebrities.

It is scarcely necessary to tell who the doctor is, and what he has done for bee cul-

ture, for hardly any reader of a bee-paper can fail to know him. Perhaps no man who has ever written on bees has scanned more pages of bee literature in the English and foreign languages than the man from Marengo. In his regular department of Stray Straws he gives us the benefit of his wide reading, and his over forty years of actual experience in the bee-yard.

His style of writing is as instructive as it is pleasing; and after you have read him you begin to know him as a near and dear friend; and although he has passed his three-score and ten by just five years, he seems to have a young heart, and an enthusiasm for his chosen pursuit that almost equals that of a beginner in bee-keeping.

Dr. Miller is the author of the book "Forty Years Among the Bees," one of the best treatises that has ever been published. It is filled with illustrations—in fact, is full of good things told in such an entertaining way that the book reads more like a racy novel than a mere text-book.

I am sure I am voicing the wish of thousands of our readers who will say with one accord, "Long live the man who gathers up the Stray Straws!"

DIVISION-BOARDS FOR "SPRINGING" BEES.

THE ordinary single-thickness boards or followers have the same outside dimensions as the brood-frames—that is, there is a bee-space all around them—top, bottom, and ends. When I visited Mr. Julius Hoffman, fifteen years ago this summer, he was using a division-board that had rubber strips nailed on the bottom and end edges. This rubber was about $\frac{1}{8}$ inch thick, and wide enough to reach across the gap of the bee-space when nailed on the sides of the board. When the board was shoved down into the hive the rubber edges came in contact with the ends and bottom of the hive, making a close *tight* fit. If the bees glued the rubber to the hive it was so yielding it would readily let go.

I remember that Mr. Hoffman emphasized the importance of having a brood-nest in the spring just large enough to accommodate the cluster of bees; and this brood-nest, he said, should be completely shut off from the rest of the hive, so there could be no place for air currents to circulate from the unused part of the hive into the warm part occupied by bees and brood.

Nearly thirty years ago A. I. Root made what he called his chaff division-board. This was two inches thick, double-walled, having the ends and bottoms cushioned with a padding of chaff and canvas, the inner walls being filled with chaff. These answered the same purpose as the division-board by Julius Hoffman, but were better in that they were thicker. They also answered the purpose of dummies. A couple of them would fill up the space completely, usually occupied by four frames.

We have been selling these boards all these years; but I suspect bee-keepers generally have never quite attached all the im-

portance they should to the value of a contracted brood-nest *completely* shut off from the rest of the hive in spring brood-rearing; and I do not know but it would be a good idea for us to go back to some of the original principles. While we can not use artificial heat in the spring, we can do a great deal to conserve the natural heat that would otherwise go to waste.

The ordinary followers or division-boards commonly sent out with hive combinations can be made close-fitting in the same manner that the Julius Hoffman boards were made. But as rubber is getting to be quite expensive, some good strong roofing material like rubberoid, magnesia, or asbestos roofing cut up into strips, would answer as excellent substitutes. These should be tacked on the edges of the board, sticking out just far enough to little more than fill up the bee-space gap. I would go further and nail the strip on the top edge also, and thus completely shut off the brood-compartment of the hive from the empty unused space through which a great deal of the warm air will escape.

In some localities this suggestion may not be too late, even this season; and even if it is, "paste it in your hat" ready for use this fall, winter, or next spring.

The value of such a board would be that one could have two colonies or nuclei in one brood-nest. A tight-fitting division-board all around would make this perfectly feasible. Mr. A. K. Ferris has already shown the importance of this in two of his introductory articles explaining his system of comb-honey production and swarm control.

THE NATIONAL CONVENTION TO BE HELD AT SAN ANTONIO, TEXAS, NOV. 8, 9, 10.

THE Executive Committee have finally decided on holding the next meeting of the National at San Antonio, Texas, Nov. 8, 9, 10. San Antonio, as is probably well known, is in the heart of some of the finest bee country in the world. There are extensive bee-keepers in the vicinity, whose crops run up into the many thousands of pounds; and, strategically, this will be a place where, I imagine, the local attendance will be as large as if not larger than any previous meeting ever held in the history of the Association. Low railroad rates will be offered for several hundred miles out of San Antonio, and at the same time there will be home-seekers' rates available from all parts of the country. These rates will be exceptionally low—almost as low as the cent-a-mile trip to the G. A. R. place of meeting, which will be this year at Minneapolis.

I have understood that the Executive Committee have been considering the two points. For a time they thought they would go to Minneapolis on account of the low railroad rates; but Director Udo Toepperwein exerted himself to a point whereby San Antonio practically meets all competition and now secures the convention. This will give bee-keepers in the North, who desire it, an op-

portunity to see this great country for bees, of which they have heard so much. Further announcements will doubtless be given.

SPRAYING IN BLOOM; IS THE PRACTICE HARMFUL TO THE BLOSSOMS AS WELL AS TO THE BEES?

QUITE a number of our subscribers, as, indeed, they do every spring, have been sending in circulars from a manufacturer of spraying outfits in which it is strongly urged to spray the trees while in bloom, or, perhaps, more exactly, just as the petals begin to shed. Protests have been made by bee-keepers from all over the country, because it is understood this concern is doing a large business, and the literature that it has been sending out broadcast, it has been alleged, has been doing considerable damage to the bee-keeping interests. In this circular matter testimonials are given, going to show that it is an advantage to spray while in bloom; but these come mainly from men, I judge, who are not discriminating, and who are in no sense prepared to pass an impartial judgment as would the carefully trained scientific men who have charge of the work at the experiment stations scattered all over the country.

At the present time I do not know of a single station that recommends spraying trees while in bloom. If I am not mistaken they universally agree that it is a damage to the bee-keeping industry, and, if not actually hurtful to the blossoms themselves, it is a waste of time and material and a positive damage to the bee-keeping interests. The stations say that just as good results can be obtained *after* the blossoms have fallen, and that, too, without injury to the bees. In spite of this, this concern has been putting out this advice year after year.

It is but fair to state that they claim the bees will not be killed *if their directions are followed*. They recommend reducing the strength of the mixture while the trees are in bloom, and applying it only just when the bloom begins to fall. We have no desire to do this company any injustice, and should be pleased to receive reports from those bee-keepers who are located in the vicinity of fruit-orchards sprayed according to these directions.

New York, as well as some other States, has rigid laws against spraying trees while in bloom; and these laws, as I happen to know, are based on information furnished by two of the best experiment stations in the United States, one of them being located at Ithaca, N. Y. It is no doubt true that other States will now follow suit very soon.

I would respectfully suggest to all bee-keepers' associations that they take this matter under consideration, and appoint committees who will not only see members of the legislature, but see to it that a bill is framed, and finally enacted into law. We know that thousands of colonies have been injured by this practice of spraying in bloom. Every year our queen-rearing yards are made to suffer on account of the ignorance

of the local farmers. As we have no law in Ohio against spraying while in bloom we have to stand and take it. As it was, our \$200 queen — a queen that we would to-day give a thousand dollars for three months old, was killed during fruit-bloom. The brood died in her hive at the time, and the good queen herself finally was found dead out in front of the entrance, as were other queens. As soon as the spraying season was over, all trouble stopped.

RAW NECTAR WANTED; A HERESY CORRECTED.

MR. W. A. SELSER, of No. 10 Vine St., Philadelphia, Pa., who has devoted not a little of his time to analytical chemistry, especially that phase which relates to the composition of honey, desires me to say that he will pay \$5.00 or \$10.00 or even more, if necessary, for a sample three-ounce bottle of pure raw nectar — that is, the nectar from any blossoms before it has been gathered by the bees. If only a single ounce can be procured he will pay liberally for that, as he might be able to obtain a like amount from others.

There is a possibility that some bee-keepers are located in a vicinity where nectar from flowers is secreted so abundantly that it can be gathered by hand. Something over 25 years ago I remember my father gathering one morning from the spider-plant quite a quantity of nectar with a teaspoon. Great drops of the sweetness would collect where the plants were covered, and finally drop down on to the ground. Those who may be in position to obtain the raw nectar in this way would do well to correspond with Mr. Selser direct.

He has been analyzing sugar syrup fed to bees, of different degrees of density, and feels satisfied that he can now detect any sweet substance fed by man to bees in honey.

The impression has gone abroad that sugar syrup fed thin, and slowly ripened by bees, and sealed, is, to all intents and purposes, honey, because it has been argued that the nectar of flowers, and sugar from the beet or cane, when greatly diluted with water, are one and the same thing chemically; that when either one of them is subjected to the same treatment of ripening by the bees that either one will be honey, one just as much as the other.

Mr. Selser is prepared to prove that this is not true. He is satisfied that he or any good chemist can prove unerringly the difference between sugar-fed honey and that produced entirely from the flowers; yet he wishes to secure additional evidence by getting a sample of raw nectar that he *knows* to be the simon-pure article. It is, perhaps, unnecessary to state that Mr. Selser could not be fooled by sending him a sample of thin sugar syrup with the representation that it was nectar.

We will shortly publish an article from Mr. Selser that will go into this matter more fully.



ORDERS OF INSECTS.

We study animals with more interest than we do plants, and man with decidedly more avidity than any of the lower animals; and so of all insects none awaken the same enthusiasm from the student of zoology as do the highest, the order of the ants, wasps, and bees. These, from their wondrous habits, their equally exceptional anatomy and physiology, and their marvelous instincts, have always awakened the profound admiration of all students of this department of natural history. This order is known to science as

HYMENOPTERA.

These insects, except those like the worker ants, which are wingless, possess four membranous wings, and hence the name *Hymenoptera*, which means membranous wings. We have seen that the *Diptera* have membranous wings, but only two. The mouth-parts of the *Hymenoptera* are of the biting or mandibulate type, though in some the under lip, or labium, is modified into a most perfect tongue or sucking organ, as exemplified in the higher bees; yet all have the well developed normal mandibles, or jaws. We who have studied bees or wasps or ants are well aware of the strong jaws which move sidewise, and, upon occasion, as seen in the ants, can do good execution. The *Xylocopa*, or "carpenter bees," use these strong jaws to bore the large smooth holes in wood, as do some species of ants, which serve for nests or the home.

The transformations of the *Hymenoptera*, as we should expect, are very complete. In almost all the higher forms, the larvæ are footless and often absolutely helpless, and so are nursed and cared for as carefully and tenderly as are the equally dependent infants of our own kind. This is obviously a high development; for the time of adolescence is a most trying one, and so to be shut away from danger and cared for by the mature and stronger ones is a signal advantage. No bee, wasp, or ant is exposed to the rough usage of the world until full maturity, and thus have a unique history, an early good fortune, not possessed by even our own kind. No law against the "employment of children" is ever called for in the ant, wasp, or bee world. "'Tis a lesson we should heed."

POLLINATOR.

The insects of this order do a tremendous good to man in pollinating our plants. No plant can bear seed unless pollinated. Many, most, will not fruit at all unless seeds are produced. A large number will not seed

with their own pollen. They must be cross-pollinated. To these many of our most valued fruits and vegetables belong. We say these are sterile to their own pollen. Bees are pre-eminently the agents of this cross-pollination. We may announce, then, that these insects are chief among the world's philanthropists, if, as we believe, philanthropy means working for the good of others. Even our clover, the most important single plant, I believe, is absolutely dependent on bees for its seed, and so for its perpetuity. So must we not all say, God be praised for the bees?

PARASITES.

It is in this order also that we find the greatest number and most important insect parasites. True, as we have seen, the tachina flies do great food in this role; yet here we have four large families that are almost exclusively parasitic. Many of these are very minute, and of metallic colors, so that, when viewed with the microscope, they are of exceeding brilliancy and beauty. Of such are the myriad chalcid flies, which do incomparable good in destroying our worst insect foes. Their interesting work is as follows: The mature chalcid, or ichneumon fly, lays its one or more (usually more) sometimes even scores of eggs, in some luckless grub or caterpillar, or other insect larva. These soon hatch, when the little larvæ find in their victim both home and food. They find in their home a veritable banquet of tender insect steak, and are not slow to feast on it, unmindful of the agony of the fated victim. Thus our crops are often generally saved by these other benefactors of our human kind. It is certain that, without these hymenopterous parasites, agriculture would be impossible. In California these parasites have been introduced from foreign countries to the immense profit of the fruit-growers.

MIMICRY.

By mimicry we mean the development of resemblances that serve, may be save, their possessor. Bees and wasps are armed, as we all know, with a very powerful and venomous sting which they are not slow to use upon occasion. This saves them from the onslaught of birds or other predatory insects. Many other insects, like flies and moths, mimic these bees and wasps in a wondrous fashion. In such cases the mimicking and the mimicked usually fly at the same time of day and year, and are lured to the same locations. This mimicry doubtless serves to protect the mimicking forms. The bird, hungry and eager, mistakes the fly or moth for a wasp or bee, and hastens by, when otherwise it would halt for a fly or moth banquet.

GALLS.

All have seen the oak-apples, or galls, which, though not confined to oak-trees, are very numerous on many species of oak. While some maggots, some plant-lice or aphids, etc., form galls, yet most galls are caused by the *Cynips*, a family of *Hymenop-*

tera. These short, usually black, wasp-like hymenopterons, lay an egg on leaf or twig, and at the same time poison the tissue, so that an extra flow of sap and extra growth occurs, and thus we have the galls. These galls serve the larvæ that hatch from the eggs both as home and food. The galls are excessively bitter, so that they are usually unmolested by other animals. The inchoate gall-insect, like the beer-guzzler, is fond of bitter, and thrives on the juice of the gall. One gall-fly attacks the rose. Often the galls are very beautiful. The spines on some galls are simply the magnified hairs of the old leaves or twigs. An extract from galls is used in commerce, and forms a valuable part of most indelible inks.

ECONOMICALLY IMPORTANT.

Next to silk, no product from insects compares with that from our honey-bees in value to man. I need not say to the readers of *GLEANINGS* that honey and wax are very valuable in commerce. While bees are far more valuable as pollinators, yet the carloads of honey and this carbohydrate food, par excellence, should make us repeat our "God be praised for the bees."

PREDACEOUS INSECTS.

These rank in importance with parasites. They pounce on their victim as the cat does on the mouse, and he is no more. The many families of wasps are all predaceous, and, like the lady-bird beetles, the predaceous bugs, the lace-wings, and the robber-flies, they do incalculable good. We may say, then, without question, that all wasps are our good friends. If undisturbed they rarely sting, and they are ever doing us immeasurable good.



EARLY QUEENS.

"Hello, Doolittle! Started to raise any queens yet?"

"No, Mr. Howell, I have not. Have you?"

"No; but I thought perhaps you had."

"How should you thus think, when you, living in Orange Co., much further south than this cold part of Onondaga Co., have made no attempt in the matter as yet. We had a big freeze last night, and it has been cold all the last half of April—so cold that the bees could get out but very little. I hope with day after to-morrow, the first of May, it may warm up so that the bees may have a better chance to prosper."

"Your weather has been a little colder than it has been with us, evidently; but I did not know but you had some means of

rearing early queens in a cold spring, so I came up to talk the matter over with you."

"I shall be glad to talk the matter over with you, and to begin I will say that no good generally comes in trying to rear too early queens. In the first place, the queens reared so early that there are few young bees in the hives are not much good themselves. Next, there has been many a good colony brought to the condition of 'no good' by trying to raise queens with the old bees which came out of winter quarters, though strong in numbers, and the labor performed with these colonies was no good, because it was worse than thrown away by heading colonies with these no good queens, only to result in the loss of honey, time, and patience, later on."

"That is a dark picture you are presenting, I am sure. I do not want poor queens; but I do want to know the very earliest date on which I can raise queens and have them good."

"My first commencing every year is at about the time the apple-trees commence to blossom, and I always go slow even then, for some years the bees do not get as well advanced as at others. Some years I can get as good queens reared in apple-bloom as at any other time of year. In other years a cold spell strikes us when apple is in bloom; and where this is so, it is uphill business trying to raise queens, no matter how much you lavish on them by way of feed, extra care, etc."

"How long before white clover blooms does the apple-blossom open in your locality?"

"Usually from 20 to 25 days. Apple-bloom opens from the 20th to the 30th of May, and the clover opens from the 15th to the 20th of June; but it is generally the last-named date before the bees secure any honey from the clover bloom."

"Can it be possible that you are so much later than we are? Clover begins to open with us by the last week in May; and by the end of the first week in June it is in full bloom."

"It would seem that you are nearly if not quite three weeks earlier than we are; and if that is so, you should be able to commence to rear queens from the 5th to the 10th of May."

"Will that be early enough to give me queens for use in making colonies by the Alexander plan the first week in June?"

"Yes, I think so—that is, if you use your queens as soon as they begin to lay. Would you wish to do this?"

"As soon as they are laying well they would answer my purpose as well as any thing, for I am working my bees wholly for honey. How long from the time of starting the cells to the time the queen begins to lay?"

"I generally figure from 20 to 22 days. By using larger larvæ this could be shortened a little; but it is not advisable to do this, as queens from larvæ two or three days old are not so long-lived as those from younger larvæ."

"How old should the larvæ be when using in transferring them to prepared queen-cups?"

"I generally use those not more than 24 hours old, and more often not over 18 hours."

"I should think it would be hard to see and handle such small things."

"In doing this I use quite strong glasses, so that what appears to the naked eye as almost too small to see looks quite large through the glasses, so that I am enabled to do fully as good work with these 18-hour-old larvæ as I can with two-day-old larvæ with the naked eye."

"That is a new thought, and something which I think will be a help to me. But in using these 18-hour-old larvæ, about what time will the queens emerge?"

"A little later than just 11 days of 24 hours each from the date you transferred them, if every thing is right for the most perfect development of queens. If I should say 11 days and from 6 to 10 hours, I should be pretty near the truth; but I generally remove the cells from the cell-building colony near evening of the tenth day; for if I wait till the eleventh day something is quite sure to transpire by way of bad weather, or some unforeseen thing, to prevent my doing as I would, so the matter is put off till a young queen or two will emerge, when I am caused the trouble of hunting those queens out from a mass of bees, or run the chance of losing them, or a 'botheration' which may arise later, through these young queens having their liberty."

"How long after the queen emerges before she begins to lay?"

"This is quite variable, in accord to the time of the year, the state of the weather, and the condition of the colonies or nuclei in which they are at the time of their usual mating-flight. During June, July, and August, most young queens will be laying ten days after they emerge from their cells; but in May and September it is often 12 to 18 days before I find them laying. I usually figure that it is safe to say that a young queen will be laying 22 days after we have placed the little larva in the queen-cell cup, unless the weather is very unpropitious, or it is very early or late in the season."

"Then if I want queens for use the 5th of June I would need to start them from the 10th to the 15th of May, would I not?"

"Yes."

"Well, I believe I can do this usual years, but it hardly looks that way for this year, unless it warms up at once. To rear queens thus early in the season, how would you proceed?"

"I would take the very strongest colony I had in young bees, from which I would select out three combs having the youngest brood in them, after which I would partition off enough of one side of the hive to hold these three combs so they could be easily handled in this space, using queen-excluding metal for the partition. I would now stop the entrance to the hive in front of these three combs so that all bees which had ac-

cess to them would have to go through the perforated metal, when I would shake all the bees off these combs unless I was sure that the queen was not on them, when they are to be set in this space that has the queen excluded from it."

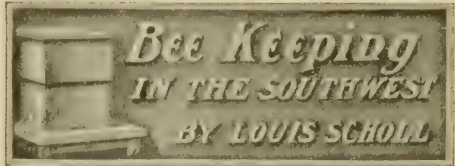
"Would you start the cells the same day that you prepared the hive thus?"

"I generally wait one day after thus fixing the hive before I put in the prepared cell-cups, as, in the trials I have made, I do not meet with as good success where I start the cells the same day I prepare the hive for them."

"How many sticks of cell cups do you usually give them thus early?"

"Unless the colony is unusually strong thus early, I do not give any stick of cells. I prepare from 12 to 20 cells in a warm room, then cover them up warm and take to the hive, when I press them into the comb all along the comb on both sides just above the brood in the central frame, and the bees will build them out just as well as when on the stick; and, as a rule, more will be accepted thus early in the season than would be the case where a stick is used."

"Thank you. I will not bother you longer. Good by."



HOFFMAN FRAMES "FOOL-PROOF" IN NAILING.

Many times have objections to nailing Hoffman frames with V edges been set forth. To get the V edges of the end-bars all the right way seems to cause much trouble, especially in the hands of inexperienced help. Hence this was proclaimed as a serious objection against such frames by some, at least, if they could be condemned for no other reason. 'Tis true that the annoyance and trouble caused by frames that are not nailed right is quite unbearable, and almost all who have handled such frames have experienced this. There is hardly an apiary where the frames are all nailed up alike, and "misfits" are found in nearly every hive. Where two V edges come face to face, the frames come too close together and there is danger of mashing brood, especially when moving the colony.

The trouble does not in all cases come from not knowing how to nail them, and through carelessness or oversight; but beekeepers differ in opinions, hence the frames are nailed in a certain way by one and quite differently by another. The greater majority, however, are nailed in a wrong way out of sheer carelessness or without any thought

about how they *should* be nailed, or following any direction for nailing them whatever. Consequently many bee-keepers have all the V edges on the same side, and use the frames in this way. Such frames, of course, can not be reversed singly, end for end, without being thrown out of gear with their

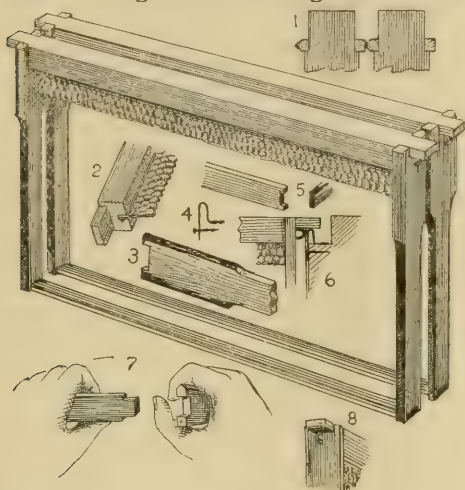


FIG. 1.

neighbors. Others, while they have the V edges at the opposite sides, have them just the reverse from the right way. While these work all right in the same apiary they will not in others. It is just through this interchanging from one apiary to another, resulting most largely through the buying of bees, that a "variety" of these frames results. Such trouble should not accrue. There should be a standard, and all frames should be nailed after that standard. It is true that such a standard exists; but it has

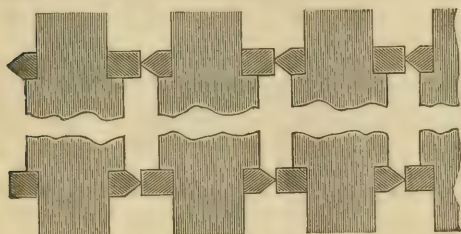


FIG. 2.

not been brought to the attention of the bee-keeping public sufficiently. And even if this standard of having the V edges all a certain way were known, is there an absolutely sure and safe way of getting them all so in nailing the frames? Forms for nailing them might be resorted to, into which the pieces can be placed in none but the *right* way; but these are not much used, and I have never fancied them. All such things are "too much fuss" for the extensive bee-men who do things in a hurry and on a large scale.

The most satisfactory device that has ever come within my knowledge, and which I have

put into practice for a number of years, is that shown in Fig. 1 at 7. Thousands of V-edge Hoffman frames that have been nailed by following these directions have been nailed up *right*. In nailing the frames, all the end-bars should be handled by the right hand, holding each one so that the V edge conforms to the V made in the hand by closing the fore finger, as in the cut. With the top-bar in the left hand the end-bar is put in the proper position and nailed. The top-bar, still in the left hand, is reversed, and the other end-bar nailed on just as the first. The V edges in this way always point away from the nailer. If every end-bar is handled in this way I will guarantee that the frames will all be nailed right. When the frames are put into place in a hive they should all look as in Fig. 2.

The above method of nailing has been put to a test many times; and out of several thousand frames not a single one was nailed wrong. It is really impossible to do so.

With students at the Texas Agricultural and Mechanical College, special pains were taken to teach them the convenience and the importance of adhering to this rule; and of 18 students in one class who helped nailing frames at the experiment apiary not one made a mistake. It works equally well with younger helpers, who are always so anxious to help, but who can yet hardly "make the grip" around the V edges with their little fingers. This "grip," however, is a valuable one, or it has been to me at least. Besides, it is a *very* cheap "device," which I hope will be given a trial, and henceforth put a quietus to such talk as V-edge Hoffman frames not being "fool-proof" in nailing.



PRODUCING COMB HONEY.

How to Raise a Greater Proportion of Fancy Honey; a Plan to Hold Back Swarming and at the Same Time Keep Work Going in the Super during a Lull in the Honey-flow; a Valuable Article.

BY E. W. ALEXANDER.

Although it is now about 20 years since I gave up this part of the bee business I often think I should like to call the attention of comb-honey producers to some important points connected with this branch of bee-keeping. The natural desire to swarm has always been a serious trouble in producing comb honey. Then the frequent changes in our atmosphere, causing the flowers to stop

secreting nectar sometimes for several days at a time during our otherwise best harvest is another serious trouble in producing comb honey of the finest quality; and with many the trouble of getting their sections all well filled at the close of the season is a hard problem to solve.

Now, in order to show you how these three most serious troubles can be almost wholly overcome I have written this, my first article on the production of comb honey. We will first consider the natural desire to swarm. This is the honey-bees' natural way to perpetuate their race, and is the most strongly imbedded law, not only of the whole animal world, but the vegetable world also, except the desire for food, of any law connected with our existence. This is why we have made *no progress* in changing the *nature* of our bees since man first tried to domesticate them. It is true that certain strains, or, more properly speaking, certain families, have far less desire to swarm than others. This same law can also be said to apply to other animals, including man. Now let us see what we can do to prevent the desire on the part of our bees to carry out this main object of their creation. First we will keep only bees that have but little natural desire to swarm; then we will raise their hives from their bottom boards all around about $\frac{1}{2}$ inch as soon as the weather begins to get warm. In this way we shall give them two or three entrances in the shade at all hours of the day. This, I know from experience, goes a long way to prevent the desire to swarm. Then we will supersede every queen at the commencement of our harvest, with one just fertilized, which, we all know, of itself will to quite an extent prevent the desire to swarm. Then we will see that their hives, including their clamps of sections, contain but a small amount of capped honey for any length of time.

Here is one thing that I used to be very particular about during my thirty years of producing comb honey. As fast as I could find four or five nicely finished sections in a clamp they were taken out and empty ones put in their place, never using more than two clamps at one time on a hive. I don't wonder that your bees swarm when two or three clamps of mostly capped sections are on a hive and a lot of capped honey in the hive below, and then only one entrance where the sun can shine down on the bees through the hottest hours of the day. This will make almost any colony restless, and frequently start a desire to swarm.

The honey-producer, until recently, has been justified in keeping his queens longer than one year, for it is only since Pratt gave us his method of rearing queens that we can have all we want early in the season with only a little trouble. If you will do as I have suggested in the above you will almost wholly prevent the desire to swarm.

Next we will consider the matter of a steady harvest, with no lost days, even if the flowers do fail to secrete nectar for several days at a time. This can easily be ac-

quired in this way: First divide your apiary into two equal parts as to number of colonies, but have all your strongest colonies in one part and your weakest ones in another. Then run the weak colonies wholly for extracted honey and the stronger colonies for comb honey; and attach a good practicable feeder under every hive that is producing comb honey, and extract all you can from your weak colonies and feed it to those that are working in sections. Be sure to give them some *every night*. If the weather is fine, and they are getting considerable from the flowers, it will not be necessary to give them much; but if from any cause they fail to gather from the flowers, then feed enough to keep them busy in their sections night and day, with no stop until the harvest is over and every section is finished in fine shape.

Now don't say this can not be done, for I know it can. I used to produce comb honey in this way twenty-five years ago, and I am sure fifty colonies managed like this, with fifty more to furnish them with honey during bad weather, to work over into comb honey, will produce more first-class section honey than you could possibly obtain from the 100 colonies if they were all run for comb honey at the same time, as nearly all comb-honey producers do. The point is right here: In this way your comb-honey-producing colonies can have a *good steady harvest* from the day you put on your first clamp of sections until the last section is finished, and that is what counts, both in quantity and quality.

Nor, don't get this method mixed up with that of feeding back at the close of the harvest, but do the feeding when the harvest *is on* and every thing is in proper condition to produce comb honey. Make your extracted honey quite thin and give them one *grand big harvest*, and you will see your sections finished as if by magic. With two clamps of sections on, and a good young queen in the hive below, you need not be afraid of their storing too much in their breeding-combs. Then examine them often; and as fast as you can find five or six full sections in a clamp take them out; don't leave them to become soiled and travel-stained by the bees, in order that you may save yourself a little work, and take off a whole clamp at a time; for, as sure as you do, your bees are liable to sulk away their time and possibly fix for swarming.

It looks nice to go into your storehouse at the close of the season and see several tons of choice comb honey with hardly a section that is not of the finest quality; and to see the clamps all empty, with no partly filled sections lying around is another thing which shows there has been some skill used in producing that crop of honey.

Some of you may think that this implies lots of work, which I will admit, and so does every thing connected with the successful management of bees. I know many let them take care of themselves, and appear to be satisfied with whatever they can get;

but I never should like to run a business in that way.

In the above I have called your attention to the three worst troubles in producing comb honey, and I have also given you a practical way of overcoming them.

About twenty-six years ago I sold nearly three tons of comb honey that was produced in this way to a dealer for two cents a pound above the market price, on account of its fine appearance. It is the same in producing comb honey that it is with extracted. You must adopt methods whereby you can combine a fine quality with a large quantity, and then you are on a straight road to success. If I should ever again return to the production of comb honey the above method is the one I should most *decidedly* adopt.

When I was running my bees for comb honey we had no practical feeders as we have now, whereby honey can easily be fed to our comb-honey-producing colonies; neither did we realize how easy it is to have an abundance of choice young queens early in the season to supersede our old queens with. Had I known then as I do now how easily these two important factors can be acquired I would not have changed from comb honey to extracted as I did; for I am sure there is more money in producing a choice grade of comb honey, as I have described, than there is in producing extracted honey.

There are some other suggestions I should like to make to comb-honey producers, which I hope to find time to do in the future.

Delanson, N. Y.

[Mr. Alexander has generally been supposed to be an extracted-honey producer; but it appears from what he has written that he has had many years' experience in the production of a fancy article in comb.]

In the foregoing he has given some suggestions that will work well with any plan of comb-honey production. For example, his method of feeding colonies extracted during a lull in the flow could be adapted to the Doolittle system now being described in these columns; that is to say, I see nothing in the way to interfere with that plan.

We have had a good many articles describing feeding back; but so far as I remember these all had reference to a period *following* the honey-flow. But Mr. Alexander shows how this method of feeding back can be practiced to advantage even *during* the honey-flow, and yet at the same time enable the weak colonies that are usually practically worthless for comb honey to contribute according to their capacity to the comb-honey crop.

So many of Mr. Alexander's methods have been favorably commented on that I feel he is a particularly safe man to follow; and I hope some of our readers, at least, will test the plan and then at the close of the season tell us how it works.

It should be noticed that, when Mr. Alexander speaks of "clamps," he means comb-honey supers or section-containers. In some of the Eastern States such devices are very

often referred to as "clamps." They may cover just half of the hive or the whole of it. In the former case they are generally used in pairs.—Ed.]

FOUL BROOD.

The Izal Treatment.

BY S. SIMMINS.

Referring to page 104 of "A Modern Bee-farm," those who possess a copy will find the following general methods of treatment:

1. To begin with, never spray or sprinkle combs having large quantities of healthy brood with *any* disinfectant. Place them near the outside, and so treat when all living brood has hatched out.

2. In commencing to treat any very weak diseased stock (seeing that this treatment obviates any destruction of combs where there are sufficient bees) first of all, give the said colony a full comb of hatching brood. If this can not be done, then burn comb, frames, and bees at night, first smothering the bees.

3. *Treatment with izal solution.*—No feeding is necessary in summer. Have a change of hives, and wash out each week (three times will generally suffice) with solution of one teaspoonful to two quarts of water. At the same time, saturate the whole of the quilting, and continue this once a week until satisfied all is well.

4. *If desired to feed.*—Use only half-teaspoonful to 12 lbs. of sugar made into syrup.

5. *The water supply.*—One teaspoonful of izal to ten quarts of water.

In warm weather the saturated quilting is put on without wringing out the excess of moisture; but in late autumn and early spring the cloths may drain a little before being replaced. If quilts are not in use, then by all means use one for the time being, even if it is only a thin folded sack. This, being saturated with the solution, immediately checks infection, and when the hive sides are also wet with the same, the plague has little chance of extending its ravages; and, in fact, its area is rapidly restricted.

In autumn there is no better plan than that of feeding rapidly with syrup medicated as above, until the combs are almost solid with such stores. The rapid storing causes a high temperature and raises the vitality of the bees, so that they will clear out every vestige of foul matter, while the cells are occupied by medicated food, which ensures healthy brood in the very cells where but recently only diseased matter was present. Then following on into the spring, with returning warmth and the new development of brood, the workers still draw upon that stored food which is death to the dreaded *Bacillus alvei*.

Where the disease is prevalent this plan of feeding heavily in autumn, and again in spring, if needed, will be found to do away with any possibility of serious loss. The great thing is to raise, in the first instance, the greatest possible vitality in the workers; indeed, I can assure my readers that, under the stimulus of a rapid incoming of either honey or syrup, the average domesticated honey-bees will dispose of all visible evidence of foul matter, without medication in

any form. The izar, however, checks infection and finally destroys the enemy.

Right here I wish to state emphatically that the bees in Europe generally are no more immune than those in America or elsewhere. No bees are more troubled with the complaint than our common native variety, and none so helpless when they have it. Bees imported from Carniola or Italy, with us, just as they may be with you, are better able to subdue it. Selections can, however, be made that will enable the bee-keeper to work with such improved stock as will be practically immune. These bees will hold their own against any complaint during the busy season; and, if occasionally failing during the trying springtime, will always respond immediately upon receiving the slightest assistance.

In a future paper I propose to give particulars of experiments that will prove of interest to all who have suffered from the ravages of foul brood. None but convincing practical demonstrations will be offered by me.

Broomham, England.

INTENSIVE BEE-KEEPING.

Alexander's Article on the Care of Bees Not so Good for a Locality Having an Early Honey-flow.

BY J. RIDLEY.

On page 1237 Mr. Alexander tells how to obtain the best results from 100 colonies of bees. His method in brief is:

1. Stimulative feeding from the time the bees are taken from the cellar about April 15.

2. Dividing the colonies, making two of each, about May 26.

3. Giving the queenless colonies two capped queen-cells each.

4. About the last of June dividing these latter colonies, making two of each, thus having 300 colonies "in good condition for any harvest that commences after July 4."

It may seem presumptuous on my part to criticise so able and successful a bee-keeper as Mr. Alexander; but to safeguard the interests of Minnesota bee-keepers, and caution them to "go slow" in experimenting along the lines suggested, I offer the following for their consideration:

At the recent meeting of the Minnesota Bee-keepers' Association, held in Minneapolis, Mr. Lamont was on the program for a paper. Instead of preparing a paper himself he read from GLEANINGS the article of Mr. Alexander. Quite a discussion of the article followed, and it was the general (and I think the unanimous) opinion of those who took part in the discussion, that, while that method would probably be all right in Mr. Alexander's locality in New York, and similar localities where a large part of the honey-flow is from buckwheat and other late honey producing flora, it would not be a success here.

The reasons given as to why it would not be successful here, briefly summarized, were as follows: 1. Our springs are too late and cold for such stimulative feeding as was recommended. From April 15 to May 15 we are apt to have a good deal of cold freezing weather, especially at night; and if one undertakes to increase brood-rearing by stimulative feeding, unless he is extra careful he will have a lot of chilled brood.

2. If one followed that method, and increased from one colony to three, he would be likely to have three weak colonies that would store but little if any surplus honey. Best results are obtained "in this locality," by preventing increase as much as possible, making each colony strong in bees. One strong colony will store more surplus honey than three weak or medium ones.

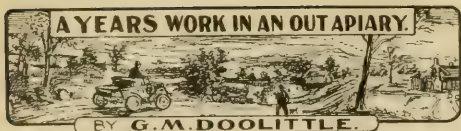
3. In many localities in this State the principal honey-flow is about over by July 4, when, according to Mr. Alexander's method, one would be just ready for it. But little buckwheat is raised, and in many sections none whatever, and a late honey-flow can not be depended upon. Last season there was practically none. Some localities have basswood, but that often fails to yield honey, so that bee-keepers have come to put their main reliance for honey on white clover, which is generally at its best from about June 15 to July 4, so we need to have our colonies strong for storing honey by the middle of June.

4. There is but little demand for bees. The profits from the sale of the colonies increased is hardly worth considering as a factor. One would hardly get more than enough to pay for the hives.

There is no doubt that we fail to give our bees the attention they require in order to obtain the best results. We practice too much the slipshod method. As many farmers skim over too many acres without giving thorough cultivation to any of them, so bee-keepers are apt to keep more bees than they can properly care for. We should study the conditions that prevail in our localities, and strive to adapt our methods to those conditions. Uncle Sam's farm is very large, and has an almost unlimited variety of soil and climate; and what will grow and thrive and be a success in one part will prove a complete failure in another.

Monticello, Minn.

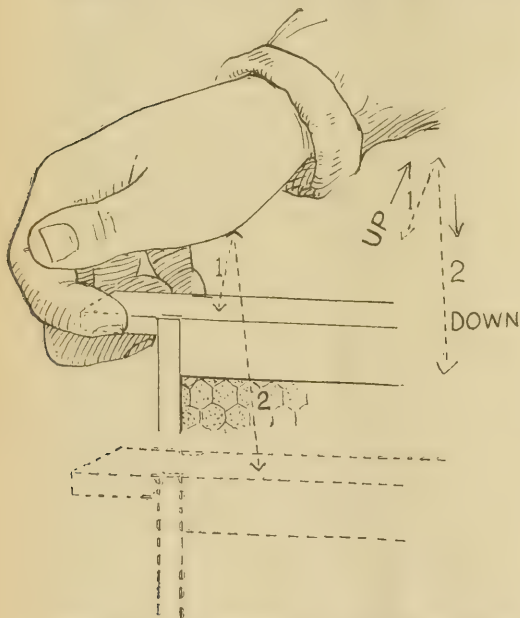
[There is no question but locality does have a very strong bearing on the success or failure of the various plans that have been recommended; that is to say, a method that may work in one place might prove utterly inadequate in another. Mr. Alexander has already spoken of the peculiar conditions in his locality; and in one or two footnotes I have referred to the same thing, suggesting that possibly one or two of the plans under consideration would not work in localities where the season closes by July 1. Taking it all in all, your suggestions should be carefully considered by those who have local conditions like your own.—ED.]



CHAPTER IV.

Continued from last issue.

Perhaps I better say a few words regarding this shaking-off part, for very many do not seem to be handy at shaking the bees off their combs, some of our best bee-keepers telling me that it could not be done to any advantage till I had shown them how. Let me see if I can tell the reader so he can do it with ease. Let the projecting ends of the top-bar to the frame rest mainly on the big finger of each hand; then, with a quick upward motion, toss these ends against the ball of the hands at the base of the thumb, and at just the instant the ends of



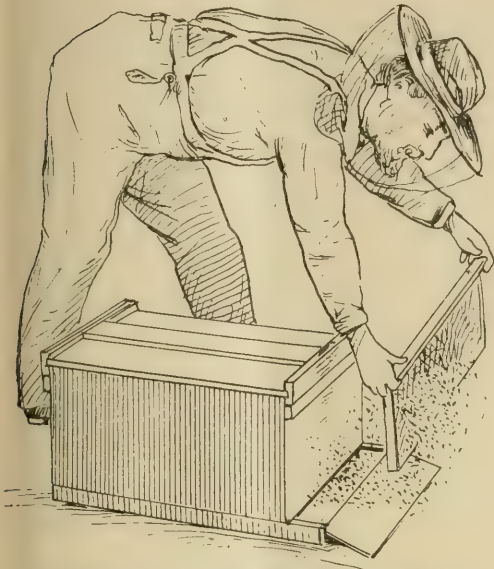
DOOLITTLE'S METHOD OF HOLDING AND SHAKING FRAMES.

the frame strike the ball of the hands give the hands a quick downward motion. This takes the bee off its guard, as it is holding on to keep from falling off the comb downward, having no idea that there is any danger from falling off upward. But this "falling upward" is exactly what it does, as three-fourths the bees, when I shake the combs, are tossed up in the air as they are dislodged. The instant the ends of the frame strike the fingers again, toss it up against the ball of the hands a second time, and then back to the fingers, when, if you get the "hang" of the matter, as you will after a few trials, you will find that 990 out of

every 1000 bees are off the comb; and if you have that proportion off you will have no need of the brush, for it is not necessary to get each and every bee off the combs of brood. Only ten to fifteen bees left on each comb will be but from 100 to 150 bees for the whole, which will make little difference with the swarm. However, I like to get as many as is consistent with quick work, with the shook colony, for the more bees there are here the better the results in honey. Then, I wish to say that there are times when thin nectar is coming in bountifully, when I can not shake all the bees off thus, or by any other plan; for if I do the bees will be so nearly drowned in this thin nectar which shakes out of the combs that they will not go in the hive. During such a flow of nectar I shake the combs the same way, only do it so gently that no nectar is shaken out, when the bees which still hold to the combs must be brushed off. I have always declared it a nuisance to have thin nectar coming in at a time when I am obliged to free combs from bees, but have always been consoled by the thought that this thin nectar is what is to be turned into cash by and by, when the bees have it evaporated into nice honey, so enjoyable to the consumer later on. Where I am obliged to use a brush I greatly prefer the "Dixie," as sold by The A. I. Root Company, to any other I have ever tried, and I have used all which have been advertised, and many besides, which have been sent me for my approval and recommendation. This brush is soft, so that it does not injure the bees, and yet is firm enough to take all the bees off one side of the comb with only one stroke over the same. In the absence of any brush, through oversight or something of the kind, a bunch of five or six tops of goldenrod, or even of grass, will do very well — in fact, better than some of the brushes which have been sent me.

As the hive into which this "shook" colony is to go is really their own home, and contains more than an abundance of honey, this plan does entirely away with all the labor and time used in drumming and pounding the hives, as well as waiting for the bees to fill themselves with honey — something which has been considered as a thing of vital importance with all of the other plans of "shook swarming." Nothing of the kind is required to make the swarm stay, or for any other purpose, for the bees are still on *their own combs*, with sufficient brood, and room enough for the queen to lay right along. All of this, together with the carrying of the honey from the combs into the sections, keeps them contented, and brings great results in honey to their keeper. As a prolific queen in the height of her egg-laying always falls off the comb she is on at the first shake, she being so heavy with eggs, I hold each comb as low as possible in front of the entrance in shaking, so she shall not be injured by the fall. I have reason to believe that many queens have been seriously injured by the "shook swarm-

ing" of the past, through the carelessness of the operator in this matter, and then the plan condemned, because, at the end of the season, more honey has been found in the brood-chamber than in the sections, when the operator alone was to blame for the



SHAKING THE BEES IN FRONT OF THE HIVE.

queen being injured to such an extent that she could not keep the combs filled with brood, as she otherwise would. Always remember that a good queen is the chief source of success in all things pertaining to a large yield of section honey. As fast as the combs are freed from bees they are set in the empty hive, at first brought, each comb being set in the order it had in the old hive till all are in.

I now go to one of the colonies considered too weak to tier on the third visit, take off the cover, put on the queen-excluder just taken off from No. 1, and on top of this I set the hive of beeless brood, when the cover is put on top of all.

If, in shaking the bees off their combs, I come across any comb which is not more than one-third to one-half full of brood, the same having as many empty cells as those containing the brood, such a frame is kept out of the hive of beeless brood, and used to go in No. 2 when it is prepared the same as No. 1 has been, instead of a comb taken from a weaker colony, as was done when fixing No. 1. As this saves time, can be found in very many of the colonies, and answers the purpose just as well, I am constantly on the lookout for such during the time I am "swarming" the colonies.

Returning to No. 1 the bees that still adhere to the empty hive and bottom-board are dislodged, so as to fall with the rest of the "shook" colony, when the hive and

bottom-board are carried to No. 2, which is to go through the same process as has No. 1, and so on till the whole 13 have all been "swarmed," which takes far less time for each one than the telling how it is done. By this plan I do not have to look for the queen nor overhaul the combs, nor by any other plan look for queen-cells, as is generally the case with most of the other ways of artificial swarming. In all the other plans of "shook" swarming it is recommended to wait about the "swarming" till queen-cells are sealed, or have eggs or larvæ in them. In my practice I have found that this is all a myth, and it is also something that is not applicable to the work in an out-apiary, with only a few visits to the same each year.

All that is necessary is to have all the colonies, to be treated, strong to overflowing with bees. Then, when the time is ripe to do the work, *go on and shake*, no matter about the queen-cells, whether they have them or not; only, if any are found with eggs, larvæ, or pupæ, in them, when the combs are shaken and freed from bees, they should be cut off, so they will not bother by emerging in the hives above the queen-excluder. Nor can the idea that the colony that starts no queen-cells, and would not swarm if let alone (the same giving better results if left unshook), be tolerated or carried out in an out-apiary when worked for comb honey on the "few visits" plan, even if this "giving better results" was the case, as the liability of such colonies swarming at unexpected times must always be counted upon. But such is not the case when the apiary is worked on the plan here given, for nearly all of the colonies treated in this way give better results than any colony which does not swarm, worked in the usual way. Therefore this way of working, as here given, does away with all the labor required in trying to find out whether colonies are going to swarm or not, by way of looking for queen-cells once a week in using the different plans that have been published, such as tipping up the hives and smoking the bees so the bottom of the combs may be inspected for cells, clamps for holding the sections from falling off while this inspection is going on, the prying-apart of divisible brood-chambers to see if queen-cells are being built between, or even having a "cell-detector hole" cut and fixed in the back of the hive, which can be opened once a day or oftener to discover if cells are started on a comb, cut and fixed in such a way that, if queen-cells are started in any part of the hive, they will be started so they can be seen from this hole; and, also, all the labor of requeening, caging queens, etc., used in trying to prevent swarming. In fact, it supersedes any and all the plans heretofore used by hundreds and thousands of apiarists when working on the shook-swarming plans or prevention of swarming. And as it not only does away with all but a minimum amount of work, and also gives the greatest possible yield of section honey,

I claim that what is here given stands "head and shoulders" above any thing else in sight during the past or at the present time, especially in working an out-apiary for comb honey.

Hive No. 3, on row 2, contained what I considered my best breeder for comb honey, and I had left it strong in bees and brood on the last visit, hoping it might make some preparation for swarming by the time I came again, and when shaking it I found just what I wanted, which was queen-cells with one or two day old larvæ in them, the larvæ literally swimming in royal jelly.

The shaking of these combs was done more carefully than with the others, for fear of dislodging the swimming larvæ, although there is little danger along this line, until the royal larvæ attain an age of four or five days. This hive of beeless brood and queen-cells was placed on top of the strongest colony not tiered on my third visit, and only this one hive of brood was put on it, while the others had two and three hives each, as I had 13 hives of brood to go on six colonies, hence taking only one for this hive left twelve to go on the other five not tiered before. Why I put no other brood on this colony with these cells was because I wished these royal larvæ given every possible advantage looking toward the best of queens. I do not generally depend on queens or queen-cells from the out-apiary for work therein, as I generally have more time and conveniences for rearing them in the home yard, taking whatever I wish along this line with me at each visit. But if we have a good breeding queen at the out-apiary, and wish to use cells or queens from her brood, as was the case above, this tells the reader how it can be done.

The reader is undoubtedly familiar with the truth advocated of late years, that, if an extracting-super is placed over a colony as soon as it becomes strong in bees, swarming will be retarded to quite an extent. Then on the arrival of the honey harvest, if this extracting-super is taken off, and a super of sections placed on the hive, the bees will the more readily enter the sections from the fact that they have been used to working above the brood-nest. I practiced this quite largely eight to twelve years ago, and obtained much better results than I had done before. Ever since "Scientific Queen-rearing" was given to the public (1889) I have been spending my best efforts in trying to work out a perfect plan of non-swarming, either with or without manipulation; and during the first six or seven years, just as I would begin to think I had something of value a different season would come, the bees swarm, and spoil it all. I was about to give up in despair, when one day it came to me, "why not use this extracted super plan, combined with shook swarming?" which was then first appearing in sight. My mental reply was, "I do not want any plan that will not put the first-gathered honey (more than is needed for brood-rearing) anywhere else than in the

sections." Then the thought came, "Is it not possible to have that first honey, which others extract, stored in the upper story of a full-sized hive, thereby retarding swarming still more, and then work in such a way as to cause the bees to put it in sections later on?" With this, despair turned to hope, and this hope has become a reality by the perfect working of the plan as now given to the public; and the result of the year 1905 (114½ lbs. of section honey on an average per colony), the poorest of all late years for honey in this locality, has caused me to write the matter up, so all who wish can use it the coming season.

Having the 13 colonies "swarmed," and the six others on the road to prosperity after a careful looking-over the whole, to see that "all is well," the scythe is again wrapped up, allowed a whole seat in the ambulance (auto), the starting-crank turned, when I am soon experiencing a delightful rest in the "noonday" sun (which had seemed pretty hot in my work in the beeyard), made so comfortable through the pleasant breeze caused by the tireless running of the automobile. In this we have what was done at the fourth visit although the same is pretty well mixed up with other things pertaining to the developing of this plan.

OVER-WEIGHT SECTIONS AS AN ADVERTISING SCHEME.

A Reply to Wm. Muth-Rasmussen.

BY T. K. MASSIE.

Our friend Wm. Muth-Rasmussen, page 1310, thinks that, as I cut out all light-weight sections, and convert them into chunk honey, I should be consistent and cut out, also, "all combs weighing over a pound and convert them into chunk honey"—should "be honest toward myself," etc. This naturally implies that I am losing something on over-weight sections, and that the light-weight-section men gain where I lose. Let us follow this thought to its logical conclusion, and see if I am not ahead of the light-weight-section people in the final outcome. Suppose my $4\frac{1}{2} \times 5 \times 1\frac{1}{8}$ plain sections average 18 ounces. Take off 1 oz. for sections, and we have 17 oz. honey, net. Then I get 18 cents for 17 ounces of honey, or $1\frac{1}{7}$ cents per oz. Suppose the light weights average 15 oz. They would then weigh 14 oz. net. Suppose he gets 15 cts. for the 14 oz. That would be $1\frac{1}{4}$ cents per ounce. Then in every 238 sections sold, the light-weight man gains 5 cents on me, which is about 12½ cents per thousand. Does our friend think the light-weight man can pay his extra bills of advertising, time lost in selling, dues in the Honey-producers' League, etc., for 12½ cts. on a thousand? I say, no. My over-weight sections are the best-paying advertising I can do. Mr. M. overlooked the *hint* I gave on the sale of extracted

honey — a hint which I thought all practical bee-keepers would see without having to state it clearly. But here it is, in plain words. I sell *all my extracted honey at 18 cents per pound*. The light-weight-section fellow gets about 7 cents, average. Who is losing here? I am educating all my customers — all consumers in my territory — to demand a full-pound section. Next season, grocers will be called upon to cut out light-weights and sell by the pound. This they will not do. Then, of course, they will not buy the light-weight sections.

I agree with friend M. "that force of honey-flow, temperature, and other atmospheric conditions, strength of colony, building and storing propensity of individual colonies," etc., are factors which govern, to a great extent, the weight of the finished section. But I again disagree with him when he states that more is dependent upon these factors than is upon the "size and shape of the section." On these points I am in accord with friend J. E. Crane, page 1305. I endorse, in the main, all he says. I am glad to say, also, that this is one time more that I can endorse the editor's statements in his footnote to friend Crane's article. All the readers of GLEANINGS will do well to go back and again carefully read that article and footnote, and ponder them well.

Tophet, W. Va., Jan. 23.

IF I WERE TO START ANEW, WHAT STYLE OF FRAMES, SUPERS, AND APPLIANCES WOULD I ADOPT?

The Hoffman Preferred for Extracting.

BY WM. ROHRIG.

[Mr. Rohrig is one of the most extensive bee-keepers in the West. At one time, at least, he owned apiaries both in Arizona and California, with a total aggregate of something over 1000 colonies.—Ed.]

In the discussion of the merits of the Hoffman frames, one thing, to my mind, has been brought out quite clearly. Bee-keepers will never agree on a uniform style of hive, frame, super, or other appliances. While location, undoubtedly, has a great deal to do with this difference of opinion, yet it is a fact that there is difference of opinion even in the same locality. This is brought about to some extent, doubtless, by the natural dislike of many to having any thing but uniform hives, etc., in use in the same yard. Having started with a certain style of hive and frame, and other appliances adapted to their use, they very naturally dislike to change.

It so happened in buying a number of apiaries some years ago that I was unfortunate in securing hives of different sizes and styles. I saw at once that, if I intended to keep bees on any thing like a large scale, it would be well for me to adopt a uniform size of frame. As most of my hives and frames were of the Langstroth style and size I concluded to try the Hoffman frame;

so, about fourteen years ago I sent a small order for this frame and began to experiment with them. As I was producing extracted honey I am free to say that I did not like the looks of the things, fearing that the end-bars would be quite a nuisance when it came to uncapping. After two years' trial I was convinced that the frame was all right for my use. By using only nine frames in the super of a ten-frame hive, the annoyance that I had expected while uncapping was scarcely noticeable, and, no other serious objections presenting themselves, I began to use the frame quite extensively, until now I have several thousand in use. I still have a large number of free hanging frames in use, and they are good frames too; but in time they must all go, and the Hoffman will take their place unless some other self-spacing frame should be developed that I think is better. My reasons for preferring the Hoffman above all other frames are that, with ordinary care, they are always quite accurately spaced. If it is desirable to move an apiary, so far as the frames are concerned the hives are always ready, and there is no danger of the frames jamming together, mashing the bees and making a mess of it; and they can be handled rapidly during the busy season when time is money. I do not wish to be understood as saying that the Hoffman frame is without fault. It has its faults. The main one with me is that it can not be manipulated with the same rapidity when the weather is cool and propolis hard. The free-hanging frame has, perhaps, a little the best of it at this particular time of the year; but usually no great amount of work can be done at such times any way, so that this does not count for much.

In conclusion I will say that, if I were to start anew to build an apiary in this locality I would adopt the ten-frame Langstroth hive furnished with Hoffman frames (V end-bars) well wired, with full sheets of foundation in each frame.

Tempe, Ariz.

PROPER COLOR FOR HIVES.

A Reply to Mr. Greiner's Article, Page 85.

BY ALLEN LATHAM.

Mr. Greiner's article has much in it with which I can heartily agree, and the same can be said of the footnote by the editor; but there are some statements which are misleading, and others which are not based upon the bottom facts. With the editor's permission I will ask for further space in which to make my position clearer.

Let me state again that my experiments have all been conducted with air-spaced hives covered with an almost black roofing-paper. I have grave doubts as to the advisability of painting thin-walled hives black, not so much because of their being too severely heated by the sun as because

of their liability to become chilled by too much radiation.

In spite of what I have just said, and in contradiction to the statement to be found in the fourth paragraph of Mr. Greiner's article, I offer the following fact: I bought this fall seven colonies in box hives. Two hives were white, two brown, one yellow, one snuff-colored, and one not painted. The last hive mentioned was weather-beaten to a very dark tint, almost black. The past summer had a spell of weather in which combs melted down freely. Of these seven hives the only one with melted-down combs was one of the two white hives. These hives were out in the full sunshine.

In all of our considerations of this matter we must keep in mind not only reflected heat but radiated heat; not only the heat from the sun, but other sources of heat; not only the color of the hive, but where the hive is to be placed.

Mr. Greiner in his fifth paragraph makes a most excellent point when he says: "Why should we work in the opposite direction, etc.?" The matter of loss of heat from the super has caused me much perturbation of mind—so much, in fact, that last summer I whitewashed several of my supers, making them a snowy white. I must say, though, that I detected no difference in results gained thereby. I use thin section-cases inside of warmly arranged supers, so that the night does not bring about a serious cooling of the sections.

I am rather of the opinion that black hives can be used in the open, provided the covers are white, or, better still, covered with a substance bright and polished. The rays of the sun are so direct in the season of melting-down of combs that the walls of the hive can be of any color so far as absorption of heat is concerned.

The melting down of combs, by the way, is laid too largely to the rays of the sun. Who ever heard of the combs of a weak colony melting down? Has anyone ever had combs melt down except during a heavy honey-flow? I don't know how it is elsewhere, but here the chief cause of melting-down of combs is the heat generated by the bees in reducing great quantities of nectar, at which time the combs are loaded with honey and with bees heavy with honey. To be sure, the melting down occurs usually about two in the afternoon, when the heat of the day is at its maximum; but that is a case of "the last straw."

In the first paragraph of his footnote the editor makes an excellent suggestion to Mr. Greiner, and then immediately shows that he himself can profitably read parts of my article again. Let him read from page 1313, the paragraph in the second column, which starts, "The last statement may seem to contradict," and he may then think differently. To enter into a minute discussion of all heat lost and gained by the cluster of bees in winter would require most exhaustive and painstaking experiments in order that definite deductions might be drawn.

One can only generalize; but generalizing is an excellent thing when so well roped that it keeps well within the premises.

The hotter a body is, the more rapidly will it lose heat; and, conversely, the colder a body is, the more slowly will it radiate heat. All bodies are always losing and gaining heat. Warmer bodies lose more than they gain; colder gain more than they lose. Bodies of nearly the same temperature make a pretty fair exchange. Bearing in mind these and possibly omitted kindred facts, let us think of the conditions surrounding the cluster of bees in winter. In white hives the cluster is bounded by a wall which is always cold or colder; in black hives the cluster is bounded by a wall which is well warmed during sunny days, but gets cold faster at night than the white wall. In both cases there is between the bees and the walls of the hives a layer of air. In the white hive this layer is moist, cold, and will conduct heat to the walls from the cluster; in the black hive this air (if the entrance is ample) is warm during the day; is dry comparatively, and does not conduct much heat to the walls of the hive. In both hives the clusters of bees will radiate heat alike and equally. If the wall of the black hive is colder than that of the white hive it will not radiate as much heat to the cluster as will that of the white hive. Now, just how much warmer is the wall of the white hive than that of the black hive during the winter night? Mr. Editor, just sit an hour upon each and report. To be sure, the black will be cold in ten minutes after the sun goes down, while the white will not be much colder forty minutes after the sun goes down; but, since the white was already cold at the start, it will have to be caught up with by the black before the black can get colder than it. I am not sure that the black ever catches the white; but I know it never gets far ahead in case it passes white.

Permit me, Mr. Editor, to make one suggestion about snow-covered ground. Is it not the porous character of the snow, making thus of it a splendid non conductor of heat, that accounts for its protecting power rather than its color? If snow were black it would do the same; and, in fact, it is black at night when the most freezing takes place. Being white it serves to cool off the earth in that it reflects the heat of the sun during the day. Our mild winters are our snowless winters; but if snow were black it would melt dangerously quick, so that white is the proper color.

I am pleased to see that my article has aroused the interest of so good an apiarist as Mr. Greiner, and I can say with him that I should like to see more expression of opinion. Though I am not so confident that black is the all-desirable color in summer, I know that it is the very finest in winter. I think that no one can make a mistake in having the walls of his hives black, but I now believe that the covers should not be black. I whitewash my covers (I have no shade), but don't like the handling of the

whitewashed cover. I am seeking something better.

I wish to thank both Mr. Greiner and the editor for the kindly way in which they have criticised my article upon the proper color for hives. I am well aware that what I offered in that article abounds in unorthodox principles, and that I might well have expected to be branded a heretic. My chief hope is that Mr. Greiner, Editor Root, and others may live to reap the blessings which come from the following of these principles.

Norwich, Conn.

SWARMING NOT A CALAMITY BUT A BLESSING.

Why a Divisible-brood-chamber Hive is Superior to a Twelve-frame Holtermann; Working in Harmony with Nature rather than Fighting her.

BY J. E. HAND.

Mr. Holtermann's article on swarming—p. 365, is especially interesting to me, as it shows about how the average honey-producer looks at swarming. Viewing his article from the standpoint of the hive I am using, and with the light I now have on hiving swarms so that no break shall occur in the storing of surplus honey, I am very certain that Mr. H. has greatly magnified the evils of swarming.

He has, in the very beginning of his article, branded swarming as the bane of modern apiculture, and declared it the cause of all the ills known to modern bee-keeping, and all this without even telling us for a certainty how we can prevent this great catastrophe, for he has acknowledged his inability to prevent swarming successfully.

After admitting his system to be entirely inadequate to the demands of a new swarm of bees, so that no honey shall be lost by the issuing of a swarm, he makes the broad and contradictory statement that the twelve-frame hive is better for comb-honey production than a smaller one. The only remedy that Mr. H. has to offer for this great evil (swarming) is the hope that Mr. Aspinwall's hive may prove a success.

When a man with the inventive genius possessed by Mr. Aspinwall pits his reasoning powers against the instinct of the little bee, there can be but one result—the man should win. The question yet remains, "Will the end justify the means?" Right here the question arises, "Is the prevention of swarming desirable from the standpoint of the comb-honey producer?" It is true there are times and conditions under which a sure preventive of swarming would seem to be desirable, such as out-apiaries, and where the apiarist has not the time to care for swarms. In such cases the "shook-swarming" system is a sure thing, and leaves nothing further to be desired.

From Mr. Holtermann's point of view, with his twelve-frame hives for comb-honey production it is no wonder that he considers

swarming as a great calamity. What could any one expect from the average swarm of bees hived in a twelve-frame hive, in any ordinary location? From the standpoint of the horizontally contractible-brood-chamber hive that is capable of contraction horizontally to nearly a third the capacity of his hive, swarming ceases to be a calamity. On the contrary, it is a blessing, as not only can much more comb honey be produced by allowing the bees to swarm once, but a much higher grade of honey is assured. It is not possible to produce a strictly fancy article of comb honey over old black brood-combs, hence the prevention of swarming is not desirable from the standpoint of the comb-honey producer.

It is not *swarming* that is the bane of modern apiculture, as Mr. H. would have us believe; but no greater calamity could happen to a swarm of bees or their owner than hiving them in a twelve-frame hive for comb honey.

Ever since bee-keeping has been a pursuit of any consequence, much talent has been brought to bear trying to eliminate the God-given instinct of the bee by breeding out the swarming impulse, and much inventive genius has been wasted in a vain attempt to produce a non-swarming hive. It is needless to state that very little has ever yet been accomplished along these lines. All this talent has been brought to bear in direct opposition to nature's plan. The successful physician, in treating diseases, will always work in harmony with nature, and by so doing he will assist her to throw off the shackles of disease. How much better it would be if some of the talent that has been wasted trying to invent non-swarming hives had been directed along the lines of assisting nature by working in harmony with the natural instincts of the bees, so that they may be kept contented and happy, and working with a rush and vim that can never be found except in a new swarm of bees!

Every thing that has ever yet been accomplished has been along this line, and it has changed what seemed to be a calamity into a blessing. I allude to the horizontally contractible hive. The instinct of the bee to swarm was given it by an all-wise Creator, who makes no mistakes, as the only means of propagating its species and perpetuating its existence against its enemies, who were sure to be attracted by its rich stores of wealth and sweetness. If it had not been for this instinct the bee would, long ere this, have become extinct. In view of these truths who can truthfully make the assertion that swarming is a calamity?

Mr. H. has also fallen into the oft-repeated error common to the advocates of a large-brood-chamber hive, in assuming that a large hive always contains a large colony of bees. He says a colony which did not cast a swarm in 1905, and filled a twelve-frame brood-chamber in the fall as well as another, an eight-frame one (winter and other things being equal), will build up faster in

the spring. Not knowing any thing about the age of the queen in the twelve-frame hive, and the eight-frame one having cast a swarm last season, it will contain a young queen; and the fact that she filled an eight-frame brood-chamber last fall proves her to be a good one. I will take my chances on the eight-frame hives. Of course, the eight-frame hive should be expanded to the full capacity of the queen during the breeding season. The chances are two to one in favor of the young queen. It is the *queen* and not the *hive* that does the business at *this* end of the season. There are times when an eight-frame hive is too large, and there are times when a twelve-frame hive is too small; but who wants to carry a barn around during the whole year for the sake of using it a few days during the breeding season?

The keynote of successful modern apiculture is expansion and contraction by means of shallow sectional hives, and the handling of *hives* instead of *frames*. The bee-keeper who handles frames is wasting time that could be put to better use. He is on a par with the farmer who would cut his hay with a scythe or his grain with a cradle. There is a better way.

Birmingham, O., March 26.

[Strong arguments can be advanced on either side of this subject of large and small hives. In some localities, and perhaps with some bee-keepers, it is far better to let the bees swarm once; but I can not help feeling that, with the average bee-keeper and the average locality, it would be very desirable if this swarming propensity could be held in check.

Is it not possible, Mr. Hand, that some of the methods for the prevention of swarming virtually contemplate some plan of *artificial* swarming that brings about the same active energy that is so noticeable after a case of *natural* swarming? Several of the shook-swarming plans are really methods of artificial swarming; that is, the natural bent of the bees for a new home and more room has been satisfied. How do they know but that they have actually swarmed?

The J. E. Chambers plan, described on p. 582, May 1st issue, virtually brings about a condition that is almost analogous to that surrounding the colony that has just swarmed in the natural way. The same may be said of the Doolittle method described on p. 598 and in this issue. Possibly you may argue that no *artificial* method can approach or compare in actual results with the *natural* method. This may be true.

Personally I have always had a strong leaning toward a large hive; and I have also had a leaning toward a divisible hive and shallow frames. These two ideas may seem somewhat antagonistic; but the divisible brood-chambers allow of a *gradual* expansion to a large hive if needed, while a twelve-frame hive or a Jumbo ten-frame requires an expansion in big jumps, so to speak. It is true that division-boards can be used; but

this brings about a contraction that is not as perfect as a horizontal expansion with shallow brood-chambers.

On the other hand, it may be stated that shallow frames chop up the brood-nest into a multiplicity of small patches of brood; and I have had a fear that the bees will be more contented on large patches and fewer of them; and if that be true, Mr. Holtermann, the Dadants, and all their following would have quite an advantage over the other crowd favoring a divisible hive. It must not be forgotten that the Dadants have been producers of enormous crops of honey, and that, too, with a percentage of scarcely one or two per cent of swarming in the whole yard.

This is a fruitful and interesting theme for discussion, and we invite Mr. C. P. Dadant, as well as others, to take a *Hand* in it. Yes, Handle it without fear or favor.—Ed.]

UNITING WEAK COLONIES BY THE ALEXANDER METHOD.

BY A. A. CLARK.

After reading Mr. Alexander's article in GLEANINGS, page 354, I decided to try it. This spring, when I removed my bees from the cellar, and after all had several good flights, I examined each one. All had their queens. Five I found that were weak in bees and short of stores. These were fed a cake of the Good candy, and closed on three frames with a division-board. Having a cold spell for a few days the bees were unable to fly; but on the first warm day these five colonies were pounced upon by the other strong colonies and their food all stolen. In the evening I carried each of the weaklings into the cellar, gave each a Doolittle feederful of syrup, and left them in the cellar two days. The third day, being warm, I carried them out and examined them. Each one had uncapped brood and eggs with the syrup nicely stored around it. Then I decided it would be a good time to unite as per Mr. Alexander's directions. I selected five strong colonies, put on the excluder, then the weak colonies, in each a feeder with some syrup, and gave the lower colony one also. To each I gave a little smoke to prevent fighting; then in a little while I blew some in at the entrance. All seemed to agree, as there were no dead bees carried out. Next day was cold, and bees did not fly. In a few days they had good weather, and all were getting pollen from soft maple and willows. I did not disturb these weak colonies until the 19th, when I thought perhaps they might need some more syrup. This is how I found them: In No. 1 a few scattering bees, feed all gone; took out all combs; three had brood in all stages. Just as the last frame was lifted out I found the queen and a small ball of bees on the excluder dead. No. 2, bees all below; queen with part of one leg chewed off. No. 3 were all right, with a queen and a small cluster of bees; brood in all stages; not quite so many

bees as when united. No. 4, bees all below, the queen trying to get through the excluder. No. 5 contained a daughter of the Root queen I received as a premium in a photo contest—a very promising young queen. I was hoping she was all right. In this I was disappointed. The bees were all below, and I found her on the excluder nearer dead than alive. I fed and caged her, and put her in a strong colony, but she never recovered. As the day was fine when I examined them I decided to divide the lower colonies and save the queens if possible, all of them being young and prolific Italians. So I took extra hives with two extra combs of sealed stores; then one comb of brood and bees, putting the queen and the comb of brood in the hive between the two combs of honey; then a division-board and cloth over; then I exchanged places with the strong colony while they were flying. Now, April 23, they are all fairly strong. What I want to know is, why one of them was all right and the others the way I have described.

Le Mars, Ia.

[As Mr. Alexander is probably still confined to his bed—at least unable to take care of his correspondence—I take the liberty of suggesting where, possibly, your trouble may be. By referring to Mr. Alexander's article on page 354 he says unite the weak one "to a good strong colony." His understanding of "a good strong colony," from what I saw at his yards, I should say might be different from your idea of the same thing. A colony must not only fill the spaces between the frames comfortably, but must be fairly boiling over with bees. Did I not actually see the proof of Mr. Alexander's statement verified right in his own yard, of two colonies one above the other, each having a queen, and separated by a perforated zinc, I should have supposed, of course, that such a plan would not work; that the bees would fight, that those from below would immediately go above and ball the queen. But clearly these things didn't happen at the Alexander yard at the time of my visit.

There is something else, I believe, is important; and that is, doing the uniting *without any smoking*. When you smoked them to prevent them from fighting you set them to boiling over. In their excitement they went up into the upper story, there came across the strange queen with her strange odor and killed her. But by *quietly* uniting without smoke the bees from below would come up till after a day or two. In the mean time, the weakling bunch of bees will have acquired the odor of those below; then when there is actual intermingling there will be no fighting.

You spoke of one set of bees being united successfully. Is it not possible that this got less smoke?

Another thing should be mentioned. Mr. Alexander's bees are of the very gentle leather-colored Italians. You do not say what yours are. From the fact that you thought it necessary to *smoke* them before uniting would indicate that they might have

been hybrids. And this leads me to say that *possibly* hybrids, Cyprians, and other cross strains would not submit to this plan of uniting with queens —Ed.]

BRIEF NOTES ON CURRENT TOPICS.

Hoffman Frames not Movable.

BY H. H. LEWIS.

I was much struck by the apparent ease with which you stated you could take out the frames in early spring as compared with my experience. Why, I have turned hives upside down and driven the frames out with a hammer, smashing some frames all to pieces. I began to ask where and why the difference, and why are Hoffmans always hard to handle with me? Humidity of the locality has a great deal to do with the successful use of a Hoffman frame, in my opinion. I am located in a country of excessive rainfall; and during the winter my hives, although under cover, swell with moisture, and Hoffman frames almost to bursting. In the spring it is impossible to get a frame out unless by the method above described; and as fast as the hive dries out during hot weather and shrinks, the bees fill up the cracks between the frames with propolis, and so I am not much better off so far as handling frames is concerned than I was in winter. However, I established the first out-apiary I know of in British Columbia last season, and found out that staple or nail-spaced frames were not the whole thing.

I hauled my honey home in the hives as I took them off, and the rattle and banging together of the nail-spaced frames was so bad that honey was running over the bottom of my light spring wagon, and I had to extract as soon as I got home. Hives with Hoffman frames carried all right.

CONTRACTING ENTRANCES DURING WINTER.

For a number of years I contracted the entrances during cold weather, as you advocate; but the result was that, with me, the moisture was running out the entrance in streams. Bees did not winter well either. Since then I leave the entrance full width at all times, and am more successful. My bees are wintered with sealed covers, no packing on top of frames, as cold is not excessive—rarely goes to zero.

PRODUCING COMB AND EXTRACTED HONEY ON THE SAME HIVE.

The first hive I bought, about fourteen years ago, had hanging section frames. I got about 300 frames of this kind, but soon adopted the open-top frame, as I saw a good many advantages in it, and used the hanging frames to produce extracted honey. They were the correct thing for this purpose—best frame to put on in the spring, while the nights were cool. I have tried sections and these extracting-frames in the same super dozens of times, but never had any success. I tried it this season with no success. As soon as the bees filled out the extracted frames they would swarm rather

than go into the sections. I tried putting another super on, with about half of each, extracting and sections, with the same result. Bees would swarm before they would touch the sections. I had one hive with four supers on, filled the same way, and in the fall I had about all the extracting-frames full of honey, but not a section. I have a poor location for comb honey, any way. The case might be different with abundant pasturage and warm nights.

East Burnaby, B. C., Dec. 4.

[It is very possible, and no doubt quite probable, that, in a locality like the one you describe, the Hoffman frame might be very unsatisfactory. In that case I should naturally suppose that the metal-spaced Hoffman as described in GLEANINGS, page 17, Jan. 1st, would suit your conditions better. These would obviate the objections against the staple-spaced frames that you tested.

The entrance of a colony should never be contracted in winter to a point where it would result in an excess of moisture in the hive causing dampness and mold, and ultimately end in the spring in dysentery. But this question of size of hive-entrance depends very largely on the humidity of the locality. Inasmuch as your frames and hive parts swell by reason of the great excess of moisture, it follows that your entrances should be full width during winter.

The excess of moisture in your locality doubtless accounts for your unsatisfactory experience in producing comb honey.

Referring again to the Hoffman frame, you have no doubt observed that it has many warm friends and supporters—for example, the article by Mr. Hickox below is a fair sample.—ED.]

HOFFMAN FRAMES.

Preferred by an Owner of 1500 Colonies; Hoffman Frames Best in an Extracting Apiary where Propolis is Abundant.

BY W. HICKOX.

Probably enough has been said in regard to the Hoffman frame; but as it seems you have been holding a kind of voting contest in regard to frames I will send you my vote in its favor.

As I have bought bees in all kinds of hives, and in all conditions, for the past six years, I have had a chance to become practically acquainted with nearly all forms of movable frames, and many that are not movable. I have employed from two to six helpers each season, many coming here decidedly in favor of some frame and hive they had used at home; but before the season was through I do not know of one who would not prefer the Hoffman frame to any other he had ever used. I have made a point of asking the boys which was their choice, since the matter has come up so prominently; and as they

have had a chance here to use both the common frame and Hoffman, and have all day at it, first one and then the other, they all tell me that it *makes them tired* to open a hive and find the plain frames. We are getting rid of the old frames as fast as we have good cause to reject them without loss. As we handle about 1500 colonies each year, over half for extracted honey, ease of manipulation is quite an object with us, as well as certainty that a green hand will get the combs properly spaced.

Personally I prefer the Hoffman frame in an extracting-super as well as in the brood-chamber. If we have a honey-flow that amounts to any thing the combs are drawn out so the end projections are not in the way in uncapping. If the flow is poor they are no more in the way than the top-bar is, or the common plain end piece, as one has to be careful any way.

A neighboring bee-keeper who has a large number of bees, and who has never given the Hoffman frame a fair trial, hired an "expert" helper, and set him to clipping queens. Upon a later visit to his apiary I found the helper had failed to space the frames properly, and many bees and several valuable queens were killed by the combs being too closely pressed together. This would not have happened with a self-spacing frame.

I believe we have in this locality as much propolis as in any place in the United States—certainly much more than I ever found in Michigan or Ohio—so much that our hands and any tools we may use in extracting are all gummed up with it; but instead of this being in favor of the plain frame I find it much easier to work the Hoffman frame. For some reason, possibly because the bees have to use the space around the end of the frame for a passageway, there is less propolis placed there, and that is just where we particularly do not want it. The little placed along the end-bar, where the frames join each other, does not cause serious trouble. We use a screwdriver to loosen the frames; and should it happen that they do not open readily we simply reach down about two inches from the top, and a little pressure immediately causes them to open up. As this is seldom required it does not begin to take the time it does to space the common frame when we are ready to close the hive.

As to experience I have had with the old frame, I will say two summers I handled 350 colonies of bees for extracted honey, handling the extracting-frames at least ten times per colony, or equal to about 30,000 combs one handling each year, besides the brood-combs, about half as many; so I think I have had enough experience in that time to become used to them; and as one does not like a change in tools unless they are easier to handle and readily adapt themselves to our unconscious muscular action, the fact of a sense of relief when opening a hive of Hoffman frames is to me a proof of their easier manipulation.

Berthoud, Col.

A VISIT TO SAM LING'S BEE-RANCH.

The Only Chinese Bee Specialist in California,
and Probably the Only One
in the World.

BY TRANSIENT.

Hearing of Sam Ling, the bee-rancher (all apiaries in California are bee-ranches), the Chinaman who produces honey by tons; he who could increase his bees in winter and get the first honey-flow as early as May; of the Celestial who, rumor said, was producing large queens from every queen-cell started; of the oriental who has drones the year round for emergencies; of the "pig-tail" who never loses a swarm of bees with his own invention, a swarm-catcher; of the foreigner from the Flowery Kingdom whose perfect, straight comb-honey sections were

for business, for Sam Ling attends to his business—the production of comb honey.

Instead of a "pig-tailed Celestial" we met a man who greeted us in fair English, and made us welcome to his home made with his own hands from timber growing near by.

Our time being limited to one day we made our business known to Mr. Ling, and soon had him in his apiary, where the first thing noticed was quite a commotion in front of two or three hives in different parts of his apiary. All other swarms were remarkably quiet, for it was a cool day, and as late as two o'clock.

"What is the meaning of the excitement there?" I asked of Ling.

"Some queen fly to-day," he said.

"What are queens out for to day?" I asked. "There is no honey coming in, and no swarms are coming on, surely, thus early."



SAM LING'S BEE-RANCH.

produced without foundation starters; of the "yellow peril" whose quantities of honey would overstock our markets, made the writer determined to seek out this Asiatic apiarist and learn for himself and GLEANINGS readers the truth or fiction of Dame Rumor. Early in January after a long ride by buckboard over hills and through vales, yet following the shores of the Pacific for fully twenty miles, we found it necessary, in reaching our destination, to push on by trail. So a mustang (a Mexican horse) was procured, and we pushed on boldly from the ocean, back into the Coast Range Mountains, some eleven miles to where our foreign bee-rancher was supposed to be located. Suddenly we came upon a clearing in the mountain vastness, and, to our surprise, found before us, not an ordinary California bee-ranch, but a veritable up-to-date apiary. Yes, here, hundreds of miles from a factory, and miles from a road, we saw well-made, well painted Dovetailed hives, all leveled and in shape

"Yes," said Ling, "I make more bees (swarms) every day now."

"But you can't do that now, Mr. Ling; you have no drones at this season of the year. Your queens will be no good."

"Oh! you no sabe him" (Ling talks a mixture of Spanish, English, and Portuguese). "I make him drones one month ago; keep him in those big hives over there."

Interested beyond our imagination I proceeded to question him about the business. He is not up-to-date in bee terms, and it was very hard to get a good understanding of his procedure. As nearly as I can understand, and from an examination of his drones, they are the product of fertile workers. He makes several swarms queenless, and then waits for fertile workers to appear, when he puts the frames of brood, bees, and all over a strong colony, with a queen and drone excluder between the stories. In this way, with an entrance in the rear of the upper story, he lets fly his drones at such times

as he needs them and can keep them in, when he so desires. The workers have access to both stories, and fly from their regular entrance. Having drones he is ready to make swarms, which he does in the old way by taking three frames of brood and bees from strong swarms.

When I ventured to say that his drones were not well sexed and not natural ones, he shrugged his shoulders and said, "Well, I do him that way every year. You go try him. You don't hab believe me; can do it yourself."

"But your queens and cells will be small," I said, "from mere nuclei."

"Oh, no! I make him just so big as I want him," said Ling.

Here again I engaged him with interrogations of how he did and what he meant by

He says, "I no like any more book, for I make him from my own head."

He has manuscript piled a foot high in his Chinese hieroglyphics to prove his determination.

It was late, and a cloudy hour when I proposed to photograph him as well as his bees. He readily gave his consent; but his poses are his own. His swarm-catcher, which I failed to see, and from lack of time did not get a full idea of, is made of burlap and wood strips, and he says it is a success. Ling uses no foundation starters in his one-pound section supers, but uses full sheets of foundation in his brood-chambers, and of his own make, I have been informed. He uses bait combs in his outside rows of sections, thereby getting his sections all filled at the same time, so he says. He remarked that



SAM LING AMONG HIS BEES.

making large queens. He proceeds as follows, but said that I "must not tell somebody." He takes any small queen-cell; and just before it is capped over he cuts from the opening with a sharp razor as small a piece or strip as he can. The bees then, he says, will build on to this opening, or extend it the fraction of an inch. When they again start to cap it over he uses the razor again, and even a third time. In this way he gets large cells and correspondingly large and better queens. Again he said, "Don't hab believe me, you can do it. I do it every year all time."

He, like all Celestials, intends to return to his native land; and his hopes now are to "heap rich in four more years, and then make one bee book for my own country."

his customers preferred comb honey not made on foundation sheets or even starters.

One thing sure, his honey is sought for, and his success as an apiarist is attested by his snug bank account and good credit at home.

I have given your readers the facts as I got them. Some of his ideas are new to me, but may have been tried and exploded by the older ones of the fraternity.

Ling has had no experience with foul brood, but believes an ounce of precaution is worth a pound of cure, so he has buried in a near-by mud-hole a sack containing rock salt and sulphur.

"Some bees there all the time in warm time," he says. "You see, you no let him start you no hab him—all same smallpox."

Ling is a typical mountaineer, as the many pelts of the mountain cats and antlers of deer he had attest. He escorted me down the mountain canyon after the sun had hid its rays from view.

Sam Ling is a native of the Flowery Kingdom. When but 13 years old he shipped before the mast and landed in England. His eagerness to learn, a peculiarity of his race, led him into many pursuits before he settled down in the Coast Range Mountains of California as a bee-rancher. He was first a photographic printer in the days of the old wet-plate process, and tells with pride of handling fifty frames in the sun at one time.



A CHINESE BEE-KEEPER WHO IS WRITING A BEE-BOOK IN CHINESE, AND WILL SHORTLY PUBLISH IT IN HIS NATIVE LAND.

Later in life he got the gold fever, and made his way to California, where he followed our coast from Lassen Co. in the north to Los Angeles in the south, prospecting for the yellow metal. He had no great success, so he went to abalone fishing on the rocks of the coast off Monterey Bay in California. It was here that he found an ideal spot for an apiary, and settled down after having circled the globe. He is a possessor of a home and two apiaries. He has no longer to seek for customers. They seek him, and

by mail correspondence he sends his comb honey to parts as far distant as Chicago. The summer resort of Pacific Grove takes the bulk of his crop, being some twenty miles distant. He is educated in his own language, and intends, when his fortune is made, to return to China, and publish a book in his own language on bees and honey. He has discarded his queue and blouse, and tries in all ways to be thoroughly American.

I left him as dusk approached, feeling proud of the fact that soon, through the medium of GLEANINGS, the views of his apiary would soon be flying to all parts of the globe, even to his home in the Orient.

[I am sure our readers will all be glad to make the acquaintance of Sam Ling, more especially as he will possibly be the man who will introduce modern methods to that great country that is just now beginning to awake from its centuries of little or no progress. There is a grand future before China, and such men as Sam Ling will unlock the door to a new and brilliant future. The Chinaman has in his make-up that which will make a fine bee-keeper, and there is no question that bee-keeping will leap forward with tremendous bounds in China if once introduced. All it needs is missionaries, schools, and colleges. Now that China is under the direct protection of the United States, England, and Japan, it will not be long before she will recognize and adopt the progressive ideas of those natural protectors. GLEANINGS desires to extend the right hand of fellowship to our new-found friend, and can only wish him Godspeed in the message he will carry back to his people. — ED.]

BEE-KEEPING IN IDAHO.

G. J. Yoder's Apiary; the Hives and Appliances he Uses, and Why he Uses Them; the Advantages of the Brush Sheds in Hot Weather.

BY E. F. ATWATER.

About eight miles northwest of this place is the home apiary of G. J. Yoder & Son, containing 200 colonies of bees. About half are under an Arizona-brush shed, while the rest are out in the open sunshine. Mr. Yoder is a veteran of at least thirty years' experience in Michigan, Indiana, Missouri, and Idaho—in fact, one of the most thorough, careful, and successful bee-masters to be found anywhere. Some time ago he described in GLEANINGS a method of fastening full sheets of foundation to three or four sides of the section, and also illustrated his bricks of candied alfalfa honey. This yard, the largest in this neighborhood, is located in a fair alfalfa location where a great many bees are kept; but, nevertheless, no one else in that vicinity gets such large yields per colony. Mr. Yoder has had an extended and varied experience with different hives,



AN ARIZONA-BRUSH BEE-SHED IN IDAHO.

and, as a result he has decided on a ten-frame hive containing shallow Hoffman frames, $7\frac{1}{2}$ inches deep, as the best size and style for all purposes in this locality. He has a few of the regular Danzenbaker hives, but his preference is as above.

This yard was equipped with the 4×5 plain section and fence separator, but they have been discarded in favor of supers containing seven single-tier wide frames to hold the standard $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$ beeway sections and old-style separators. That is my

experience and my choice also. For the first time in thirty years Mr. Yoder was stung by a queen-bee last spring. The queen lost her sting, but continues to lay just as before—a rare experience surely.

The Yoder gable shingle lid is used on all colonies.

Another novel arrangement when considerable work must be done out in the hot sun, is a light sled-like box on which is mounted a large umbrella (like those used on delivery wagons), furnishing both seat and shade



A BEE-YARD AND BRUSH BEE-SHED OF ONE OF THE MOST EXTENSIVE BEE KEEPERS IN IDAHO.

in hottest weather, and easily pulled from hive to hive.

When a colony swarms, a solid division-board is slipped into the middle of the brood-nest of the old hive, and a queen is mated on each side. Both are allowed to lay until the opening of the second flow from alfalfa, when the division-board is taken out and one of the queens used elsewhere, as desired.

All swarms are hived on narrow starters in the frames, and full sheets in the supers. If the queen with the swarm is an old one a young laying queen is often run in with the swarm, in her place, to insure worker comb.

In regard to the use of two $7\frac{1}{2}$ -inch bodies, for spring breeding, Mr. Yoder seems to think that *one body well filled* with brood is better than the same or a greater amount of brood scattered through two bodies. That is also my conclusion with average Italian bees in comb-honey yards; but with some Carniolan blood I hope to secure stock that will be capable of filling a half more than the standard eight-frames with brood before the first flow begins.

We have a yard in a low valley location, about three miles north of the Yoder apiary, and no shade available. At our yard the heat is often oppressive; but when we come on to the "bench" we find Mr. Yoder at work under the brush shed, cool and comfortable. All colonies are faced south during winter; but in summer the increase is placed in a row under the north side of the shed, facing north.

Meridian, Ida.

[I have seen those brush sheds in practical use in Arizona. In a hot country where the thermometer goes anywhere from 100 to 110 in the shade, with an almost cloudless sky, these brush sheds are almost a necessity. Shade-boards, possibly, might afford relief; but the sheds are more convenient, and certainly more comfortable, for the apiarist. They are arranged to stand east and west, so that, as the sun rises in the east, and moves westward the bees are always in the shade.

In the illustrations here shown, the brush shed does not seem to have many bees under it. Perhaps early in the season it is not necessary to have them there.

The hives in the foreground, I notice, have all ventilating double covers. Such a cover is far better than a single-thickness board out in the open.—ED.]

THE PEARL AGNES BEE-HIVE.

BY PROF. EDWARD F. BIGELOW.

The Pearl Agnes hive was designed by me a few months ago, and has recently been placed on the market.

The body of the hive has five frames with a total comb capacity of five-sixths of two full-sized Hoffman frames—that is, each is exactly one-third that of a full frame ($16\frac{1}{2} \times 8$ inches interior). The frame itself has

somewhat the appearance of a large section $5\frac{1}{2} \times 8$ inches. It is supplied with full comb foundation, or with a starter across the end as may be desired. The length (8 inches) of these small sections is the same as the depth of the interior of a Hoffman frame, and the depth ($5\frac{1}{2}$ inches) is one-third the length of the Hoffman, so that three may be fitted into the length of a Hoffman, if placed side by side and on end.



FIG. 1.

The super is fitted with sections $2\frac{1}{2}$ inches deep by 2 inches wide—that is, one fourth the size of the Danzenbaker 4×5 section, and hence it may be used, if desired, in the regular Danzenbaker super as "toy" or "sample" sections (Fig. 2). These little sections, when filled either in the Pearl Agnes hive or the regular full-sized super, are convenient, dainty, attractive, and, to the young folks, "just too cunning for any thing." They may be used as sale samples, or novelties for the table, or as gifts to friends and

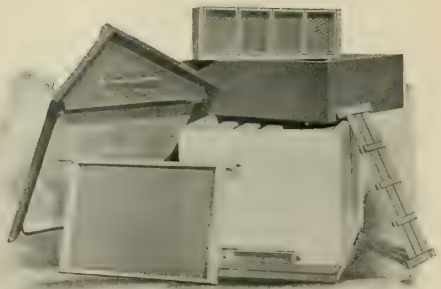


FIG. 2.

to visitors at the apiary. The fences of the super are in the same form, but of smaller size than the regular fences. The cover is shaped like a gable and roof, so that, together with the fanciful painting of the three parts in three different colors, the

whole has the appearance of a doll's play-house (Fig. 1). This effect is further enhanced by the feeding-bottle (with perforated cap) which extends down through the roof, and is of the proper length to project far enough to have the aspect of a chimney (Fig. 1). The inventor is in such hearty sympathy with Old Saint Nicholas, and a magazine of that name so full of good things for the young folks, that it seems eminently fitting that the honey-bees should get their presents of sweetness—*a la* Saint Nick—down the chimney!

The house-like appearance is further increased by a neat label on the gable end, in the place usually occupied by the attic window. The words on this label are,

THE PEARL AGNES BEE-HIVE
DESIGNED BY
EDWARD F. BIGELOW, STAMFORD, CT.
MANUFACTURED BY
THE A. I. ROOT COMPANY, MEDINA, OHIO

The door is a swinging wire screen, so that the entrance may be easily closed when the hive is to be carried from place to place for observation or experiment, and when the professional bee-keeper desires to take it to an outdoor apiary as an enlarged nucleus for breeding purposes.

In the invention of this hive I have had in mind several purposes.

1. To supply the educator with an inexpensive, attractive miniature hive, all complete with comb and colony by the manufacturers or by a large apiary. For demonstration in the yard it prevents the disturbance of a full-sized working colony. For the schoolroom it can be easily carried, taken apart, and put together, and yet it shows in miniature every thing that could be shown by a large hive, which it would be difficult or impossible to take into the schoolroom.

2. For the young folks a hive that will give them a start in the fascinating work of bee-keeping and observation, at a minimum of cost. To the large apiarist it is what the flower-bed or school-garden is to general horticulture or to agriculture. It is a sample. It shows the thing and gives the pleasure on a small, inexpensive, and simple scale. In floriculture or in vegetable gardening the child enjoys the small bed more than he would do if obliged to cultivate an acre, or even a market-wagon full of lettuce or radishes or popcorn. But before the coming of the Pearl Agnes hive there was nothing for the interested boy in which to keep a colony, except the regular hive used by the large apiary, which often contains a thousand colonies. This hive is, then, for the young folks a play-apiary, as well as a means of nature study.

3. For the commercial apiarist this Pearl Agnes hive is better in some respects than the usual "baby nucleus" for mating, because "the nucleus" is too small for that purpose, except with close and continued attention. It is a hive to be kept especially

for exhibition to visiting friends. This is better and easier than to disturb one of the regular colonies by taking it out. It may also become a source of income if it be purchased empty from the manufacturers, and filled with a complete colony and supplied to nearby teachers. As previously explained, the supplying of the hive thus filled would be equivalent, in number of bees and quantity of comb, to five-sixths of a two-frame nucleus. Simply put six of these section frames into two full frames, and fill the Pearl Agnes hive with five of these frames. But, better than all this, perhaps, to the professional apiarist, it solves the problem of plenty of queens in early spring, when queens are not only the most valuable but the rarest. Queens are most easily obtained in the latter part of summer or in early autumn. They are most needed in the spring. A ten-frame hive fitted with thirty of these large sections may be divided into six Pearl Agnes hives, and thus *five extra queens* for that one hive carried through the winter. In early spring all the thirty frames may be put back into the ten-frame hive, and there will then be *five extra queens* to be used when queens are queens.

The first Pearl Agnes hive was roughly made last autumn from my drawings and specifications, and was placed in the hands of my esteemed friend and honored fellow-townsmen Mr. L. C. Root, who is well known as the author of "Practical Bee-keeping," and an apiarist with an experience of almost half a century conducting apiaries of the largest size, and he is still an enthusiast with many colonies. He reports at the present writing (last week in March) that the bees have wintered astonishingly well (indoors) in this Pearl Agnes hive. I am indebted to him for the suggestion in regard to the possession of plenty of queens in early spring.

4. To the experimental apiarist, the advantages of the hive are so many and so important that I prefer to defer even suggestion in reference to them till later, when I may be able to announce and to illustrate some of the things that have been done, rather than not to predict what may be accomplished. I will merely advise the reader to procure one or more of these hives; and my assurance is that, if he will handle them, study them, and dream about them as much as has the inventor, some of the suggestions will come to him spontaneously, and thus give him all the charm and pleasure of original discovery. The results of such discoveries may add much of value to the apiarist as well as to the scientist. It would be, you know, difficult to play a game of chess through all its entrancing situations if the men were of full size. One can often imagine and theorize better in miniature, better with a plan than with the completed house, better with a map than with the country itself. Perhaps these advantages will be yours if you become an experimental apiarist with the Pearl Agnes hive.

It is not for me within the province of this

article to tell you what I think the manufacturers intend to do with this hive. But I will give you a small hint as to what I suspected was in the mind of one of the managers when he said a certain thing. From this I infer (and I "guess" that the inference is well founded) that they no more expect to make a profit directly from this hive than the fisherman expects to eat the chubby little "shiner" that he puts on his hook when he goes angling for pickerel. These shrewd manufacturers know that bee-keeping is fascinating, and that all they have to do is to get you started. Every thing else follows easily. So this hive will be put on the market at less than net cost, and in this laudable action the manufacturers will not be hampered by any patent to be taken out by the inventor. He has too strongly at heart the interests of apiculture as an educational factor.

But, to revert to the figure of the fisherman and his bait. The parallel is not quite true, and so far as it is inaccurate it is to your advantage. This "bait" (the Pearl Agnes hive) in itself is good, and the more freely it is offered (by the manufacturers) the more reason for your pulling it off the "hook" and taking it home with you—in fact, get several of the "baits."

The name, "Pearl Agnes," is in honor of the ten-year old sweetness-maker of the "B(igelow)-hive" in which I am writing.

MAILING AND INTRODUCING CAGES FOR QUEENS.

Precautions to be Observed; Dequeening and Introducing at One Operation.

BY E. R. ROOT.

As we are just now on the eve of a season when queen-breeders will be doing a rushing business, it may be advisable to make some suggestions that will be valuable alike to both the breeder and his customers.

The illustration shown on the next page shows very fairly the queen-cages used by many of the most extensive breeders in the country. They are all based somewhat on the principle of the three-hole Benton, particularly the small one. In this the end hole contains candy, and the other two are for the occupancy of the queen and her attendants. The hole or holes at the end opposite the candy end in the small and medium sized cages is perforated with small holes to give air to the bees whenever the temperature rises. When it falls they seek the inner hole, that is warmer and protected, next to the candy.

It is very important that the compartments to receive the food should be coated on the inside with beeswax or paraffine, and that the candy, when in place and nicely leveled off, should be covered over with a small square of foundation or a sheet of wax, or one thickness of paraffine paper. The object of these is to prevent the too

rapid evaporation of moisture from the candy; for the more moisture it can be made to hold and not "run" or become sticky the better it is for the bees.

In the cages used by the great majority of breeders a quarter-inch hole is bored into the candy-hole, which is likewise lined with paraffine, and filled with candy. This is for the purpose of introduction—the bees in the hive to receive the queen eating away the candy and finally liberating her; but if the cage has been on a considerable journey her majesty and retinue will have consumed a considerable portion of their candy, so that sometimes in a few hours the bees in the hive will release the new mother before she and her attendants have acquired the body odor of the colony. It then very often happens that she is balled and destroyed.

To prevent a too rapid entrance of the bees into the cage, a narrow piece of thin pasteboard, a trifle narrower than the hole, so that the candy is slightly exposed, is tacked over the candy in the end hole. The cage as thus prepared is laid right on top of the colony or between the frames. The bees, attracted by the candy, will eat away as far as they can reach, and at the same time gnaw away the pasteboard, which is soaked with the sweet. This latter operation requires from 24 to 36 hours of time. If, then, the bees eat away the candy in five or six hours, they are usually in a good mood to receive the queen when she finally emerges from the cage.

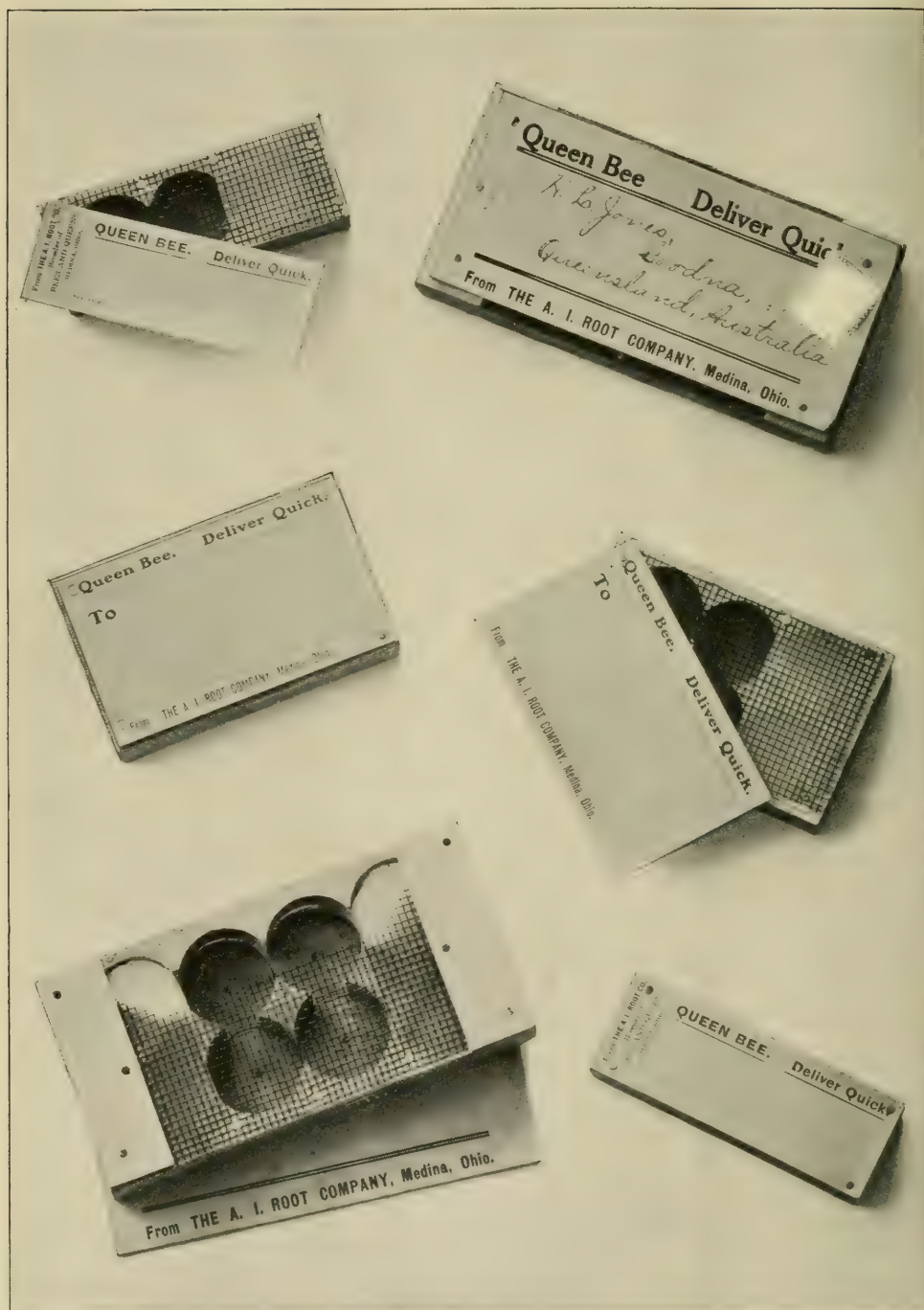
The cage as thus constructed is practically automatic after a postage stamp has been attached and the address marked on the cover. The recipient of the cage reads the accompanying directions, which simply means put the cage, after the cover has been removed, screen side down among the bees. Nothing further needs to be done, as the bees will take care of the rest of the work, on the principle that "you press the button, and we do the rest."

DIRECTIONS FOR INTRODUCING.

Before giving this queen to the colony be sure it is queenless. A stock that has been without a queen from 12 to 16 days—long enough so that there is possibly one or more virgins in the hive, will not as a rule accept an introduced queen. The colony should not be queenless more than five days, and to secure the best results one or two days are better. See that all queen-cells that may have been started are destroyed. To introduce with this cage, note the condition of the queen, and place cage on top of or between frames; if on top of the frames, put the wire cloth down next to the bees. The bees should gnaw away the pasteboard nailed over one end, eat out the candy left in the cage, and release the queen; but under some conditions they fail to gnaw the pasteboard. If they fail to do so in 24 hours, tear the pasteboard away and leave the bees to eat out candy. If the weather is cold set the cage right over where the cluster of bees is. Should queen and her attendants arrive feeble, or daubed up, release her at once among bees. If, after they clean her off, they ball her, return her to cage and introduce as explained. If she arrives dead, notify us and we will replace. If your bees are or have been robbing, you may not succeed in introducing. We do not guarantee safe introduction.

N. B.—Queens just from the mails usually look small and dark. After laying a few days they will improve.

As a matter of precaution, in the case of valuable queens it is advised that the cover of the hive be removed within 24 hours to



MODIFIED BENTON MAILING AND INTRODUCING CAGES.

see whether the bees are successfully gnawing away the pasteboard. If they are, let them alone and close up the hive. If not, remove the pasteboard, when the bees will soon find the candy; but in no case handle the cage with the fingers more than is absolutely necessary. Some strains of bees are very susceptible to strange odors; and if a queen has something about her different from the colony, that strange odor has a tendency to make them antagonistic. We always find it advisable, in cases of introducing, to handle any cage as little as possible, and then let it alone, leaving the bees to release the queen rather than attempt to do the work ourselves. The disturbance in opening the hive may put some colonies in a bad mood; and if there is a time when a colony should be in a perfectly normal condition, without disturbance, it is when the queen emerges from the cage among the bees.

It should be stated, and experience shows it in our own apiaries, that a colony just made queenless is far better than one that has been in that condition for ten days or two weeks, for the reasons given in the introductory sentence of the directions above. Indeed, we go so far as to remove one queen and introduce another *at the same operation*; and as a general rule we do not go near the hive until a day or two after the queen has been released. We never advise a customer to dequeen a colony and then send for a queen. Extended observation shows that this is a serious mistake. Even if a queen is sent promptly, the colony will be queenless four or five days, counting two days for the letter to go to the breeder, and two or three days for him to get the queen to his customer. During this time initial cells may have been started in the colony, and these have a tendency to make the bees less kindly disposed toward the freshly introduced queen when they have already laid plans for one of their own blood and their own raising. If a breeder is slow in making delivery the colony will be in the worst mood to accept a queen from Uncle Sam's mail-bags. A customer had far better wait until he has actually received his queen, then dequeen and introduce at the same time. If a queen arrives in the mails in good condition, it may be advisable to dequeen the colony for 12 or 24 hours, and then introduce the new one. I say it *may* be advisable, because I do not believe that any advantage will be secured.

Referring to the other cage in the other illustration, I may say that the medium size requires two cents postage, and the large size five cents. For cheap queens, especially those that go a short distance, we use the smallest cage shown, attaching one cent postage. For the average grade of tested and select tested we use the medium size. For our very best breeding-queens, and for all export work, we use the large size. But experience of late seems to indicate that a large-sized three-hole Benton, of the same proportions as the regular Benton, shown

in the large illustration, is preferable for export. Just why this should be so, I do not know; but I know that, years ago, we secured a little better results with our big Benton in export mailing than we have been able to obtain with the largest cage shown. Part of this difference is due to the fact that the foreign countries are much more strict now with regard to the examination of all matter from the standpoint of sanitation than formerly. We positively know that many of our best queens *en route* for export have been fumigated to death, because the cages containing them were put in the sulphur-room along with other mail matter. The customer, on receiving the queen, discovers nothing unusual, and no odor, and complains to the sender that the bees and queen were all dead. Investigation reveals the fact that fumigation was practiced with the inevitable results as stated.

I do not know how we can protect ourselves against this in all cases. Government officials — especially in foreign countries — are very often officious in the extreme. A simple request *not* to fumigate may be an invitation to do the very thing we expressly desire them not to do.

There is one other cage (not shown in the plate) that we have used; namely, one on the same general principle as the large Benton, except that it is a little longer. In the center there is a compartment for holding a very small piece of sealed comb honey. This is secured in place by melted paraffine. The object of the honey was to give the bees a food that they could utilize, *providing* the candy should become hard during shipment; but the general results seemed to be no better than where candy was used alone for the purpose.

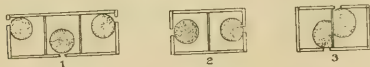
Dr. E. F. Phillips, of the Department of Agriculture, when I saw him last, strongly advised the regular Benton cages, pure and simple. Those shown in the illustrations are *modified* Bentons. The arguments presented by the doctor seem to indicate that the Benton original models are ahead of the "improved" form for transmission through the mails. I grant that this is probably true; but customers all over the country, as we find them, seem to want their cages covered with wire cloth to render observation easy, and at the same time adapted for introducing. We have modified the Benton to suit conditions of our trade. I believe, however, the regular Benton, as now made for the government, will accomplish introduction the same as the regular cages, but without the wire cloth, in order to make a warmer cage. It will be admitted, perhaps, that the wire meshes make an excellent radiator of heat and a conveyor of cold from without.

We shall be glad to receive suggestions and criticisms from our subscribers; for on the successful mailing and introduction of queens depends in a great measure successful requeening with new and desirable traits.



THE THREE-COMPARTMENT MATING-BOX; A REASON FOR NOT USING IT.

I have read with interest what has been said by both Dr. Miller and Editor Root—see pages 18, 140, 199. There is one point left out. A swarm or nucleus will always cluster near the entrance. This is particularly so of a nucleus. In the three-compartment mating-box the one real good point is lost, for this is the way they will cluster—see No. 1.



In the two-compartment or twin box the same is true if the entrance is placed at the ends as No. 2. With the entrance placed as in No. 3 the warmth of the division-board, together with the opposite effect produced by the cold, causes the bees to form nearer a sphere of the two clusters. This is the only way I have been able to secure the desired results, and that only in part. Say, doctor, "if I could get you out alone I'd have it out with you." I hate to be a second party against you, but I could not let this go by unnoticed. Surely you will pardon me this time.

Madison, Wis.

A. K. FERRIS.

[Mr. Ferris hits the nail on the head. So, Dr. Miller, your idea of a three or four compartment mating-box goes glimmering—that is, providing Mr. Ferris is right, as I am satisfied he is.—Ed.]

WHAT CAN BE DONE WITH GOOD COMBS CONTAINING SOUR HONEY?

Will you tell me what to do with a lot of combs containing sour honey? My husband had 108 colonies one fall, and just half that number in the spring. This was the winter when many could tell the same story, and many fared still worse. The frames left contain good straight worker combs. I could make wax of them, but do not want to unless necessary. Will it do the bees any harm to put several of these sour moldy combs in the hive at once, so that they might be cleaned up? or would it be better to put them out in the yard when the weather is right, and let them work on them as they would on other combs?

M. L. P.

Syracuse, N. Y.

[Combs containing sour honey are a very undesirable asset in the bee-yard. If only slightly acid they may be given to the bees in the brooding season; but even then there

will be some risk. A better way is to uncap and extract, and if the honey is very sour make vinegar of it. If only slightly soured, boil it till the acid taste or smell disappears. It may then be given to the bees as a stimulative feed. But if the honey is quite sour, no amount of boiling will make it sweet.—Ed.]

BEEES WITHOUT A HIVE FOR YEARS.

Mr. Samuel Simmins, on page 86, speaking of visiting a bee-keeper once who had some hives on some strips of 1×2-inch timber upon stakes, and without bottom-boards, reminded me of a colony of bees I saw on Lano River, in Kimble Co., in 1900. These bees were hanging from an overhanging ledge of rock, about forty feet from the ground, and about that far from the top. Some old settlers in the neighborhood told me these bees had been there for a good many years, and no one had succeeded in getting to them to rob them. But the strangest thing about it was that they had gone through some pretty bad winters. They were sheltered only on the north side, and overhead. The overhanging rocks sheltered them from the sun as well as the rain; so it doesn't seem so strange that those bees Mr. Simmins writes about should go through minus a bottom-board when these others stayed for years right "outdoors." It is strange, after all, what a bee can live through sometimes, and at other times will die with the best of care. It is true that our winters here are mild compared with the winters further north. We always winter on summer stands in single-walled hives; but we do have some real cold weather sometimes, but it doesn't last long.

A. A. ASHLEY.

Brownwood, Texas. Feb. 2.

THE MARBACH METAL-SPACED FRAME.

While you have not asked for any praise or criticism I am going to take the liberty to say a few things concerning the Marbach metal-spaced Hoffman frame. The frame is certainly unique, and the workmanship and the material used are perfect. But there are two objections.

First, I will say that every spring I thoroughly clean all top-bars and rabbets from accumulated propolis, using a scraper and choosing a warm day; and as the ends have the most propolis, those metal strips that pass over the top-bars would prove a nuisance, and prevent one from doing a swift and clean job. I don't want even any nail-heads on top of the top-bar.

It is surprising how quick and nice a job a person can do with a proper scraper in cleaning off a set of frames with short rests, rabbets and all, where the propolis is warm and sticky, and it pays all through the season's work.

If the tin spacers could be used without extending over the top-bars it would be better; but they would not be so substantial. But I don't think they will prove substantial any way. I believe that, after they have

been used for some time, and much propolis has accumulated, and is stiff and hard, the fastenings will give way before the propolis, leaving the tins loose and inaccurate. Then I would have to go clear back to town for some newsboy to swear for me.

Again, you can never push the propolis out of the bearings by applying pressure as you can with the V-shaped all-wood bearings of the regular Hoffman when the propolis is warm.

I don't believe they will ever crowd the all-wood Hoffman frames off the market, which goes to show again that new ideas and radical changes are getting very scarce.

M. A. GILL.

Longmont, Colo., Jan. 4.

[Your points may all be well taken. Only the experience of the season will prove their correctness. We have not as yet cataloged the metal-spaced Hoffman, although we have had an opportunity to do so, as the idea was brought out in our establishment before our catalog for this year went to press. We deemed it best to advertise them in the bee-journals, and test them thoroughly in our own yards.

The majority of bee-keepers, I think, do not scrape top-bars as you describe, although perhaps they ought to do so. But this is a matter also that hinges on locality and the strain of bees so far as their tendency to build burr-combs and deposit propolis is concerned. —Ed.]

A REPORT ON THE PLAN OF HIVING SWARMS WITH A MIRROR.

Mr. Root:—You ask, p. 1143, 1905, to hear from subscribers who have tried a mirror for hiving bees. I used a mirror successfully about 25 years ago in the manner described by Mr. Suppe. I have tried to hive bees about a hundred times on different occasions since with a mirror, and failed to make it work. On reading Mr. Suppe's way carefully it seems to me now that the cause of failure was due to the smallness of the glass. I used one 8×10, while the one I succeeded with 25 years ago was 18 inches square, or about four times as large. The success, then, seems to depend upon the amount of reflecting surface. A glass 3 ft. square, having 9 square feet of surface, would have 9 times the effect on a swarm of bees that one a foot square would.

WM. BELSHAW.

Lowell, Wash., Nov. 16, 1905.

[It may be that I am unduly skeptical, but I do not see how flashing the sunlight with a mirror in front of a swarm in the air can have any appreciable effect; but I do know that a spray of water can be used to drive it in any direction. In fact, I have repeatedly made the bees alight pretty nearly where I wanted. I would drive them to some particular low-down bush, then douse them with water until they began to settle. Wet bees will not fly very long. It is too hard work —Ed.]

INTRODUCING QUEENS BY THE SIMMINS PLAN.

On page 69 the editor speaks of the Simmins "starvation method" of introducing queens. Last summer I used the method as described by Arthur C. Miller in GLEANINGS early in 1905. I ran my queens in just before dark. I had but one failure during the season. I consider it the safest way to introduce queens I have ever tried, and I have tried many. It is the quickest. Take a queen out any time during the day. Wait until the field bees are back in the hive at night, and you have just about a sure thing in introducing that way. E. D. HOWELL.

New Hampton, N. Y., Jan. 26.

A HIVE-TOOL MADE FROM A SAW-BLADE.

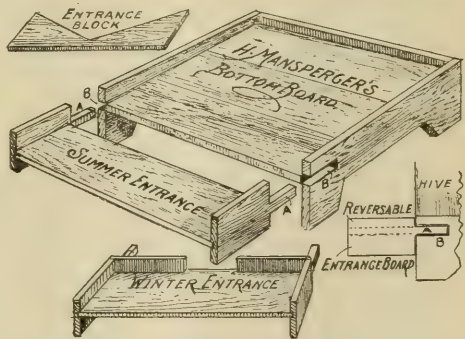
It is made out of a saw-blade 12 inches long, knife edge at A, tack-puller at B, screw-driver at C, hammer at D, saw at edge E, and chisel or gouge at F.



What are the objections to a brood-frame hanging in the hive crosswise?

A BOTTOM-BOARD HAVING AN ADJUSTABLE ENTRANCE ATTACHMENT.

Please say what you think of this bottom-board with the reversible alighting-board. This gives a deep entrance in summer; and by reversing you have a small entrance and a deep space under the frames. The bottom-



board proper slopes from $\frac{3}{8}$ to $\frac{7}{8}$ inch. This alighting-board slips off when moving, and a screen slide, made to fit, takes its place.

Lewistown, Mo.

H. MANSFINGER.

[The arrangement of your bottom-board is very similar to the one that was advertised in the Root Co.'s catalog, except the detail of construction, which is a little different. I can scarcely see that it is any better or worse, so far as handling is concerned, but it would be more expensive to make.

Frames should always be at right angles to the entrance of the hive, so that, when the hive is tipped to let water run out at the entrance, the frames and foundation in sections will hang plumb. —Ed.]



And Jesus went about healing all manner of sickness and all manner of disease among the people. — MATT. 4:23.

His disciples were a hungered, and began to pluck the ears of grain, and did eat, rubbing them in their hands. — MATT. 12:1; LUKE 6:1.

I told you some days ago that I loved working in my little carpenter shop down in Florida, because Jesus was a carpenter in his early days. The question may sometimes arise as to what his occupation was after he gave up carpenter work and until his death. I suppose the answer would be, of course, primarily preaching the gospel. But there is another occupation that kept him very busy indeed. Our first text tells us it was healing all manner of sickness; and the record that we have of that beautiful pure life informs us that his work on earth was to help and cure all who were sick or suffering in any way; therefore if we wish to follow in the footsteps of the Lord Jesus Christ we ought to make our business, or a large part of it, in life to alleviate sickness and pain. I was going to say "and death;" but death will come to us all. But, even though that may be true, it is in the power of humanity to do much to alleviate the *pain* and *suffering* that usually come with death.

It has rejoiced my heart in the past few days to see how our whole United States has dropped everything, and it would almost seem as if it had *forgotten* every thing, in its readiness and willingness to help the destitute and suffering in that ill-fated city far away on the Pacific coast. I have been wondering if that great calamity would not arouse some of us and help us to get over the craze that seems recently to have gotten hold of our people to rob our fellow-men, or, to make it more *direct*, to rob the people who *pay our taxes*.

To get back to our subject, there *are* quite a few noble men and women in our land who are doing much to relieve sickness and suffering by applying their vigorous minds to this problem of getting well and keeping well. One of the foremost in this line is, to my notion, T. B. Terry, of Hudson, O. You who have read his potato-book and strawberry-book, and "Our Farming," know something about how this man by his vigor and energetic way made a poor farm in Northern Ohio yield up its treasures of potatoes, wheat, and clover; and the strawberry-growers have read the story, and been benefited by the same vigorous way in which he taught us how to grow *more* (and better) strawberries, and with *less expense*, than the world ever did it before.

Well, after many years of teaching and preaching (yes, a lot of Bro. Terry's teachings are *real preaching*) his health failed. As he was getting good pay for traveling, and talking at farmers' institutes, it was an important matter for him to hold out, and so he consulted some of the best and wisest physicians in the land. But his troubles seemed to be one of the hard cases to manage. I remember a despondent letter he wrote me wherein he despaired of ever being well. I did not know how badly off he was, however, until yesterday, when his good wife told me the doctors said at one time he could not live more than about three weeks. Well, T. B. Terry did not propose to die and give up his work right in the prime of life, even if the doctors did say so. He went to studying over the matter, and experimenting. He went to digging down into the whys and wherefores and the causes of things (just as he did with potatoes and strawberries), and God has blessed his efforts. Why, it makes me think of that old favorite text of mine—"knock, and it shall be opened unto you." Some of my good friends may say I have no authority for applying it to potatoes, strawberries, and good health; but I am *sure* the great Father is not displeased, even if we do apply it in any way. Terry's digestion was out of order. He knew that. And there was kidney trouble. His experience reminds me a good deal of Dr. Salisbury's early experiments. Dr. S., however, turned his attention to lean meat while Terry's investigations took a different line. You know how often of late I have spoken of "God's medicines." Terry was full of faith that God's remedies were infinitely better, more natural and proper, than the stuff in the drug-stores, or even the medicines that most of our leading physicians are recommending and using. I think one of his first attempts was in *chewing* his food very thoroughly. On page 236 (GLEANINGS for Feb. 15) he has told you something of what he has done. I was so much impressed with that account that I told Mrs. Root I was going right over to visit friend Terry as soon as I got home, and I was going to beg the privilege of eating a meal of uncooked food with him. May be I had better tell you about that visit.

I found Mrs. Terry a perfect picture of health, out in the front yard; and as we started to go into the house I stopped with an exclamation of surprise. They have recently put in a sort of bay window. The middle pane of glass is, perhaps, three or four feet wide, and five or six feet long. In front of that sheet of glass was the finest begonia, covered with bloom, I ever saw anywhere. Beside it were geraniums and other plants that out-rivaled in thrifty luxuriance any thing I ever *saw* before. There was not a wilted leaf in the whole collection. Not a leaf had a dark color, nor was it shriveled around the edges; and all their house-plants, for that matter, were just that way. I have my reasons, as you will notice later on, for thus speaking of the house-plants.

Pretty soon Mr. Terry himself came out, bareheaded and in his shirtsleeves, although it was a cool April morning. Said shirtsleeves, I found out, later on, had no flannels nor any thing else under them. A very thin cotton shirt was all that covered his arms and chest; and my old friend who was so near the grave five or six years ago was one of the best specimens of well-developed physical manhood I ever saw. He was just like the begonia and the geranium. He asked me if I would like to take a wrestle, and then he told me to feel of the muscles of his arms and legs. I tell you, my friends, there were many "happy surprises" during that visit of three hours. He has developed like a prizefighter—not so *much* flesh, however; and when I felt of the muscles of his arms it reminded me of pressing on an automobile-tire after you have pumped it up *good and hard*. There was not a bit of yield. Now, this beautiful physical development—this picture of health and strength—came largely from his way of dieting. I am sure you will be patient with me if I go over the minute details of that visit.

We talked, and answered questions for fully three hours, with scarcely a let-up. Even while I was taking my meal of uncooked food I kept talking. Terry says that is not the best way, however; for if your mind is on something else you will forget and let that delicious uncooked food slip down your throat before it ought to go down.

He has two meals a day—breakfast at eight and dinner at five—nothing whatever between meals—not even fruit; and no water or any other liquid until two hours after each meal.

The first course of this uncooked food was Pettijohn's rolled wheat. Terry says he has a teacupful at a meal, and so I took a teacupful—just a cent's worth. Then you want a good allowance of butter, say about a cent's worth. Now, do not touch the fruit or nuts until you are through with the first course. Take a little butter on your spoon, then a spoonful of rolled wheat. When you begin to chew, it will seem like a dry ration. But do not yield to any temptation to take a bit of tea or coffee, nor even water or fruit—not just yet. Chew those dry flakes with the butter until the motion of your jaws prompts a secretion of saliva. Your mouth and your food will then be moist enough. Now take another spoonful, and keep on chewing. If I am correct, your grain ration is the most important part of the meal, and you want to take thirty or forty minutes to eat that teacupful of wheat.*

* Our second text tells us that the use of uncooked food is so old that Jesus' disciples used it; and while we are not told that Jesus himself ate of it, I think it is quite likely he did. Before roller mills were invented, or perhaps mills of any kind to make the beautiful fine flour and snowy-white bread (?), people ate the wheat just as God made it, and it may be worth our while to get back in some things to the simple ways of humanity in ages past. I suppose wheat nicely cleaned would answer in place of the rolled wheat; but the rolling process greatly assists chewing it, until it is in its very best state to be assimilated by the digestive organs.

Now, do not get impatient and say you have no time for such "folderol." When you need a doctor, and have to stay in bed, it will cost you more than an hour for each of the two meals. Chew the wheat and butter until they are just a creamy liquid. Of course, your teeth should be in good shape. If they are not, go to a dentist and have them fixed. By the way, I am talking to *sick* people now. "Those that are whole need not a physician," as Christ told us. If you will be patient, and do just as I say, you will find this part of your meal very enjoyable.

After you get done with your grain, take some nuts. The nuts supply the place of meat. They furnish the protein, if I have got it right. Chew the nuts in the same way. I like peanuts properly roasted. May be Terry would say that is cooking. He prefers the meats of English walnuts, and he grinds them up in an Enterprise grinder—the same kind we have described for grinding beefsteak; and when he goes out on a trip he has just a can of ground meats and a package of rolled wheat; and he can travel on the Pullman cars or any other kind of cars and have his lunch at the usual time and at an expense so trifling and insignificant that the most poverty-stricken person in the land can not urge that it is beyond his means.

After the careful and deliberate chewing of the grain and nuts, you can have all the fruit you want—any kind of fruit so it is well ripened and easy of digestion. I told friend Terry that bananas did not agree with me. He said it was because I did not pick out those that are perfectly ripe—the ones that are black all over, and which you can usually get at a low price. As soon as he suggested it I remembered I knew it before, but I had forgotten it. Many kinds of fruit are not easily digested until they are so dead ripe they come pretty near decay. Please do not understand that I recommend decayed or rotten fruit by any means. One spring a wagon came along when apples were very scarce, and the driver had some Fallawater apples that had been kept in cold storage. They were so mealy one could peel them just as you would a very ripe peach; and the apple would almost mush up in your hands. When I could not eat ordinary wilted or tough apples I could eat these in any quantity, and feel happy. Look out for green fruits or wilted strawberries.

By the way, you had better work into these things gradually. My impression is that anybody can eat and digest the rolled wheat I have described, but I may be mistaken. With nuts or any thing that your stomach is unused to, take only a little at first.

I believe that the fruit I enjoyed most was some uncooked dried peaches. Instead of cooking these dried peaches they were soaked for 48 hours in water. I am sure this fruit must have been ripe and mellow when it was dried or evaporated, because the peaches seemed almost equal to the ripe

fruit right from the tree. I was "out of sorts" when I visited friend Terry—in fact, I had been having distress in the region of digestion for two or three days. I made a very good dinner as above, and nothing more that day except at the usual supper hour, 5 P.M., when I ate a little rolled wheat in the way I have described. That night I slept soundly from ten o'clock till daylight—something I had not done before for months. To tell the truth, I have been working toward this sort of diet for some time back—that is, when I was at home so I could do it conveniently.

I wish you could have heard all the questions I asked friend Terry, and his answers. I will go over some of them. You can use olive oil, if you like, in the place of butter. Terry uses it considerably. I suppose a little good cream would answer. You do not want milk nor any other liquid that will dissolve the rolled wheat; for if you do, the chewing will not be necessary; in fact, without the long chewing you do not get the secretion of saliva, and this is the great secret of good digestion. This saliva *must* not be washed down your throat with tea, coffee, nor even milk nor pure water.

So many people are accustomed to drink something at their meals it may be a hard matter to get them over it; but just try it and see if your digestion is not better with no liquids until two hours after your meal.*

When I first arrived I greatly enjoyed a brimming glass of rain water kept in a big stone crock since the last heavy rain. When I suggested that it was some trouble to be on hand to catch this nice rain water Mr. Terry said he usually caught enough to last three or four weeks. Mrs. Root thinks even rain water would become flat and insipid by being kept that length of time. Well, it is not a bit flat for me—just what I like. Like myself, friend Terry prefers his drinking-water at pretty nearly ordinary temperatures—neither hot nor cold. I think *some* times that a drink of hot water is very beneficial; but I seldom care for it nowadays.

Now about the plants in those rooms and the secret of it. Mr. Terry has been just as hard at work to secure pure air, comfortably warm, as he has to secure the best food in just the right condition when he wants it to eat. The air comes from outdoors under

the porch. In order that the wind (and sometimes snow) may not blow in he has it turned at an angle and then it goes into a cold room. From this cold room it is admitted according to the weather into the flues in the furnace. When it is perfectly warm it goes into the rooms above, and is made to pass over a series of shallow pans of water. This air, before it is used by the plants or people, takes up all the water it needs—about 20 quarts a day; and these shallow pans have to be filled up almost daily. When I suggested it was considerable trouble, friend Terry said, "So are doctors and drug-stores trouble. Which will you take?"

In our little greenhouse at home I have what we call a hygrometer. Well, ever since I got it I have been surprised to see how the quantity of moisture changes in my greenhouse. No wonder my plants suffer sometimes from over-dampness, and then, worse still, from an atmosphere that the instrument records dry or *very* dry. While admiring the plants and their beautiful growth, without a sickly-looking leaf, friend Terry remarked: "The conditions that are needed to make those beautiful plants are also just what is needed to make a beautiful woman;" and, if I remember correctly, he laid his hand playfully on his wife's shoulder, or may be he just pointed to her; and there is *no* mistaking it—Mrs. Terry is just as much a picture of health as the plants she lovingly cares for.

Perhaps you are tempted again to say, "Oh! we can not fuss with the air in order to keep it always just so—neither too dry nor too damp. But, my friend, you do "fuss" when you go to sanitariums or consult expensive doctors; and a good many times you do *not* get the health either. Now, Terry has got these three most precious of God's gifts up to a point of perfection and scientific accuracy that I never dreamed of before—food, air, and water. Furthermore, in his experiments and investigations he has succeeded perfectly in cutting off the fearful waste of fuel that goes on in the ordinary home. Why, my dear friend, I am pretty sure I could cook *your* dinner with the heat that comes out of the top of your chimney every day of your life. With some of the arrangements for warming the home the dinner would be burned up and spoiled if set over the chimney before it would even cook on top of the stove. Seventy-five per cent of the real benefit of your fuel often goes out of the chimney.

Well, I went down into the basement (in fact, I went all over the house from garret to cellar); and while there was quite a little fire in the furnace, the sheet-iron pipe that goes into the chimney was not even warm.

"Why, friend Terry, your chimney is of no use. The gases from the consuming coal can not rise unless this pipe is warmed a little."

"Not so, Mr. Root. The gases from hard coal are lighter than common air, and will go up when perfectly cold. I have worked at this thing a long while to make the coal

* Perhaps I should mention here, that, like Dr. Salisbury, he recommends that no liquid be taken—not even a drink of water, within half an hour of the meal ahead of you. Drink all you want, and as often as you want, and the more the better, within the bounds of reason, from two hours after eating until half an hour before eating again. In order to do this, be very careful not to sit down to any meal when you are very thirsty; and to avoid this, do not forget to drink all you want at least half an hour before each meal. Several times lately I have found it hard to go without a drink at mealtimes because I had forgotten to quench my thirst half an hour before. If you have fruit or very juicy oranges at the close of your meal, this in a measure takes the place of water; but do not take any thing that would prevent nature from furnishing that life-giving saliva that comes by working the jaws, and which is the proper and natural moistening of the food. For the same reason do not eat your uncooked sauce, or fruit *with* your wheat.

give us every bit of the heat, and not waste a particle."

Besides saving all the heat, he has a very neat and tidy arrangement for sifting the ashes so that no *unconsumed* fuel goes out on the ash-heap. These things I have mentioned are all described in his articles in the *Philadelphia Practical Farmer*.

He has a sanitary closet near the furnace, to be used only in bad weather, and which he says is far ahead of any of the water-closets, and I have no doubt of it.

Now, there is one other exceedingly important point to be touched on before I close. Friend Terry is an earnest student of physical culture. He has books and magazines to keep him thoroughly posted on all these points I have mentioned. His wonderful development of himself, especially that hard firm muscle, comes, perhaps, largely from a *systematic* course of exercise and drill. He makes it a point to walk at least four miles a day in the open air. You remember what I said about my two-mile walk along the Gulf in Florida. His articles in the *Practical Farmer* have brought him a large correspondence, and he is constantly receiving reports from those who have followed his teachings, and he knows pretty well how it works with the average humanity. All this work is done entirely without pay. The only pay he gets, if I am correct, is what the *Practical Farmer* pays him for his weekly writings.

In winding up I wish to tell my good friends at Dr. Miller's that there is a strong prospect that, in the near future, I *may* dispense with my fur cap entirely—at least for a whole summer. Let me see. A few months ago I think I said I would not only give a thousand dollars, but I would give every thing I have in this world (except Mrs. Root) for the physical vigor and muscular development of the young man who was poling the boat during that tremendous cold north wind. Through a kind Providence that prayer *may* yet be answered, for it *was* a sort of prayer. And with still *another* prayer that what I have just written may bring health, new life, and happiness into *many* homes I still remain

Your old friend

A. I. ROOT.

The above was submitted to Mr. Terry, who adds:

The warmed air from the furnace comes in through humidifiers of our own make, which stand over registers. It takes from five to ten minutes a day to fill these, and that is all there is of it. The working is ideal, and entirely automatic. The colder the air that comes to the furnace, the more water it needs to make it natural and right when warmed up to 70 degrees in rooms above. In zero weather about 50 quarts are taken up by air that passes over it—taken up *cold* entirely; in mild weather about 20 to 30 quarts, the amount varying between 20 and 50 quarts, according to outside temperature. There is never any steam on the windows, never any excess of moisture, nor any shortage. Not a door-panel in the house shrinks. The piano keeps in perfect tune. Is it any wonder that human beings do too? The conditions as regards moisture are simply ideal every single hour of every day. We beat nature outside, and the air is also as pure, within one-hundredth part of one per cent, by actual test, as it is outdoors. But that is another matter. It is almost free from dust.

One other point, please: We use the closet in the cellar *every* day all winter. It is not only for bad weather, but for good, whenever there is a steady fire in the furnace or grate, and it is more comfortable to go there than outdoors—in the night, for example. We are still using this closet now, May 4. No trace of odor can possibly get out into the room. It all goes up the chimney.

T. B. TERRY.

LEMONS FOR THE CURE OF CONSUMPTION, STOMACH TROUBLES, ETC.

The following comes from our good friend R. V. Murray, of Cleveland, who makes the pictures for *GLEANINGS*, or at least a part of them.

On reading the article in last *GLEANINGS* on A. I. R.'s use of lemons I thought perhaps some experiments that we were making would be of interest to some who might be troubled with rheumatism or stomach trouble. The authority from which the original formula came was one of the foremost doctors of Chicago (once in a while some good comes out of that burg), and the patient was one of the prominent members and an officer of the Young Women's Christian Association. The college secretary of that association obtained it from her, and she has handed it down to myself and others. She was first interested in the matter on her mother's account, she being very much troubled with rheumatism, and the result was so satisfactory in her case and others' who have tried it that I encouraged my own wife to undertake the same treatment.

Most people on hearing of the formula at once declare that it would kill them; but, to make the matter short, I will quote the words of the doctor: "If sugar is left out, no juice of any natural fruit, the lemon in particular, need be feared, no harm can come from it." The formula is as follows:

Take, for instance, a treatment of nine days, and in each case commence, with the morning of the first day, the juice of one lemon in as much water as agreeable—no sugar.

Second day two lemons, morning and evening.

Third day, three lemons, morning, noon, and night.

Fourth day, four lemons, and so forth, increasing one lemon each day. For instance, on the sixth day six lemons, dividing the time as nearly equal as possible.

On the ninth day, of course, nine lemons; then decrease in the same ratio till you get back to zero. After that, use an occasional lemon as one thinks it may be needed.

Some constitutions might require only a seven or eight day treatment. Eat during treatment as usual. The appetite is stronger, and the skin clears wonderfully, and the whole system is improved, and the bowels are much benefited.

R. V. MURRAY.

Cleveland, O, Nov., 23.

And here is something along the same line from the *Farming World*:

THE USE OF LEMONS.

A correspondent some time ago furnished the following recipe as a new cure for consumption: "Put a dozen whole lemons in cold water and boil until soft (not too soft); roll and squeeze until all the juice is extracted; sweeten the juice enough to be palatable, and drink. Use as many as a dozen a day. Should they cause pain or looseness of the bowels, lessen the quantity, and use five or six a day until better, then begin and use a dozen again. By the time you have used five or six dozen you will begin to gain strength and have an appetite. Of course, as you get better you need not use so many. Follow these directions, and we know you will never regret it if there is any help for you. Only keep it up faithfully. We know of two cases where both the patients were given up by the physicians, and were in the last stages of consumption, yet both were cured by using lemons according to directions we have stated. One lady in particular was bed-ridden, and very low; had tried every thing that money could procure, but all in vain, when, to please a friend, she was persuaded to use them in February, and in April she weighed 140 pounds. She is a strong woman to-day, and likely to live as long as any of us. When people feel the need of an acid, if they would let vinegar alone and use lemons or sour apples they would feel just as well satisfied, and receive no injury."

I am sure friend Murray is exactly right in saying *no sugar*. I have been in the hab-

it of using lemons for years, or lemonade, without sugar; but in my case, and I feel sure in that of thousands of others, the sugar will destroy all the virtue there is in the lemon juice. Sugar will ferment, or aid fermentation; whereas the diluted juice of the lemon can not.

The clipping from the *Farming World* sounds like a pretty big "dose," but perhaps it is all right. I would, however, commence, as friend Murray suggests, by using a little to start with, and more as your stomach seems to be able to use it.



THE CAUCASIAN BEES ON THE ISLAND.

I am well aware, dear friends, of all that has been said in GLEANINGS in regard to mixing Caucasian bees with those we already have; notwithstanding, I have decided to give my experience with them during the four months I was in Florida.

The two-frame nucleus that contained the queen was located before our cottage was built; and when we came to decide on our location, these Caucasians came pretty nearly in front of the door that we used most. As they had fixed their location, and were busily gathering pollen, we decided to let them remain, moving them a few inches a day until they were a little further from the door. Well, from first to last not one of these bees ever offered to sting us. I opened them early in the morning and handled them during the coldest weather we had. I bumped them around in all ways; but I never received a sting from one of them except when I pinched it. You might adduce from this that they would not defend themselves in case of attack from robbers. Now, this is not at all true. Like the gentle Italians, they were much better to defend themselves than the blacks or hybrids.

I had quite a little time with having my nucleus hives robbed; and sometimes, when the hybrids were about, the robbers would come around the Caucasians. But a bee would dart out and catch the robber on the wing, and roll him in the dust with such vehemence that they very soon abandoned that hive. When you open the hive of some strains of blacks and hybrids, you all know how they will dive into the cells and gorge themselves with honey, even sometimes uncapping the honey. I have been satisfied for years that this is a wasteful operation. At one time I had a colony of blacks fed up for winter on sugar syrup. They had been weighed, and pronounced O. K.; but just before winter set in I decided to put in an

Italian queen. The colony was very heavy, and they dropped from the combs on the sides and bottom of the hive so much I thought I should never find the queen. Every time I opened the hive they were so ugly that I was obliged to smoke them severely. Then, of course, they tore off the cappings, and gorged themselves with honey. I was four or five days in finding that queen, and began to notice wax scales on many of the bees, because of filling themselves so often with honey in this way on account of the disturbance I made to get that queen. You may suggest that they put the honey back into the cells after the hive was closed up. Perhaps they did, some of it; but before I got their queen changed it seemed as if half their stores were gone; and since that time I have satisfied myself, by carefully watching, that, every time bees gorge themselves with honey when you give them a severe smoking, there is a loss. Besides that, a colony that will do this when you go to extract, wastes its time, because it is often an hour or two before it gets down to business again. With Caucasians or gentle Italians there is no such waste. The Caucasians are ahead of any other bees in this respect.

When honey began to come in, February and March, as soon as I opened the hive the bees would dart right off from the exposed combs, making that peculiar "zip, zip, zip," as working bees always do when they start off for the fields in the morning. Not only this, but when I had the combs all out of the hives, and visitors were holding them several rods away, these bees would start off the combs and go in quest of honey. Italians may do this under favorable circumstances; but I can not remember that I have ever seen them do it. The Caucasian queen goes right along laying eggs, without paying any attention to what is being done. Of course, I handled the combs very carefully. They were such quiet, lovable little pets that it hurt my conscience to pinch or crush one of them; and a good many times last winter I thought I should be very glad to have again my old metal-cornered frames, especially for handling the Caucasians. I have never gotten hold of any other frame where I could set the combs into the hive quickly, and not pinch a bee. I decided in a very few weeks after getting to Florida, that, if Caucasians were even *equal* as honey-gatherers, I should regard them as a valuable acquisition.

Now, if you did not know A. I. Root you might think I was booming these new bees from selfish motives after what I am going to say. And, even though you do know A. I. Root, you might think he had got a new hobby in his head, and that his opinion is biased. Well, you can take the testimony for what it is worth. Here it is:

Before I had worked with the bees a month I called Mr. Shumard's attention to the fact that they were getting more honey according to the number of bees in the hive than any of the rest of our colonies. There were five colonies already on the island, one or

two of them almost pure blacks. A couple of hives of vicious hybrids and one very nicely marked Italians were in the lot. When the saw-palmetto came out the Caucasians were bulging their combs with honey just above the brood-nest; and this was the case when some pretty strong nuclei of apparently almost equal strength had to be fed to keep them from starving. In April they had so much honey if an extractor had been handy I would have thrown some of it out to give the queen room. When I took the queen to Florida, Ernest told me that she was probably pretty old. They feared she would fail soon, as she had been producing drones in worker-cells. This she did the whole winter more or less; and while I mention it, perhaps I had better add that I have considerable reason to believe these smaller drones reared in worker-cells are not good to fertilize queens. We did not get any laying queens until I could get this old queen to laying eggs in drone comb. While the hive was away ahead of all others in the way of gathering honey, we were constantly taking away brood for my experiments in trying to get queens with my 22 nuclei. When honey began to come in pretty lively she began to show greater ability in filling combs with eggs, until she finally outstripped all our other queens in this respect.

About this time I found queen-cells in the Caucasian hive; and when she began to lay eggs in them I removed enough brood to break up the swarming notion.

Now, this is all I know about their disposition to swarm. With the experience I have had I can not say whether they are greatly addicted to swarming or not; but even if this is true, I think that, by judicious crossing, it could be corrected. Neither can I say that Caucasian bees as a rule are extra-good honey-gatherers. I can only say this: I would rather have that queen to start an apiary than any other queen I ever before saw or had any thing to do with.

On my way home from Florida I talked with Prof. Phillips and his assistant, Mr. Leslie Martin, about the Caucasians. They very nearly if not quite agreed with me in all the points I have mentioned. Mr. Martin opened a hive of them in the house-apiary on their grounds in Washington; and in order to see whether these Caucasians were like my own on the island, I carried a frame to the open door. While standing there the working bees took wing from that comb, with that well-known "zip, zip," and went out at the open door. Of course, they did not take their bearings, so that, when they returned with a load of honey or pollen, they would go to the usual entrance instead of coming back where they took wing. Experiments at Washington indicate that young queens that meet drones of other races produce bees that are remarkably gentle.

Now, friends, how much time and money would it save the average bee-keeper if he could dispense with his smoker entirely, to say nothing about veils, gloves, and other fixings? My Caucasians never had a puff

of smoke, and the hive was opened one to four or five times a day. Every visitor who came to the island had to see the new bees that did not sting.

Perhaps it would not be practicable to expect to get an apiary of forty or fifty colonies that would never need a smoker at all; but I am pretty sanguine in regard to the matter.

Then, again, aside from the time saved to the owner of the bees, I am sure a race of bees that goes right on gathering honey when the hive is opened will accomplish more than those "idiots" that stand on their heads, stick up their stings, and buzz around your face every time you try to handle them.

Caucasians will rob like other bees; but I do not think they are disposed to learn to rob. In one case when I took some frames covered with bees to start a nucleus they found their way home and learned the trick of all joining in to carry the honey back to their old hive where it came from. They worked at this early and late with a wonderful alacrity just like any other bees that are robbing. But while robbing they manifested no disposition to buzz about your ears and threaten to sting.

At present we have no Caucasian queens for sale; and as you can tell nothing or practically nothing about their purity from the markings of their worker-bees, I would suggest that a queen never be called "tested" until her progeny is old enough to be tested for gentleness. If somebody should send for a Caucasian queen after what I have said in the above, and find her bees are as vicious as other bees, he would have good ground to conclude she was not Caucasian at all; and, therefore, instead of testing the bees as they hatch out we should, in my opinion, wait till the workers are old enough to show their gentleness as well as their ability to gather honey. Such a tested queen ought to be worth a good deal more than common queens; for she would in reality be a queen that might be used for breeding—a tested breeder, for instance.

Let those who are in the queen business decide what such a queen ought to be worth. If I ever start another apiary I want a daughter of the queen I have been describing; and I think I should be justified in paying a good big price for a queen equal to the one I have been working with for the past four months.

STILL MORE ABOUT THE CHICKENS ON OUR ROBINSON CRUSOE ISLAND.

After neighbor Shumard fenced the chickens away from around the house they went off into the woods, laid eggs, and hatched chickens "worse than ever." One hen came out with 16 that she hatched "all her own self;" and when I came away they were so well feathered out there was very little danger of any being lost. They had no care whatever except to see that both wheat and water were kept in a place where the older fowls could not get access to it and take it

away from them. Another hen brought out 18, and I think she will probably manage that many just the same.

Now, I fear there are many of us who are so shiftless that we can not keep wheat or corn exposed day and night without trouble from *rats and mice*. There are no mice in Florida—at least I never heard of any; but there were a hoard of rats on the island when Mr. Shumard's folks first came; but he opened up such a warfare on them that now there is not one to be seen. You see, by being isolated on an island of your own, vermin of this kind can not come on to you from shiftless neighbors.

You may think I have devoted considerable space to this matter of chickens on the Florida keys; but I tell you, friends, it is a *wonderful opportunity* to have a place where you can raise chickens every month in the year, not only without an incubator or brooder, but without a structure or building of any sort whatever, and where the chickens can be weaned when three or four weeks old without a foe to molest them. I have taken all this pains to let you know that such a thing is possible, and that there are places on this beautiful world of ours where it has been and *is* being done.

DANDELIONS, AND WHAT TO DO WITH THEM WHEN THEY COME UP ON YOUR LAWN, ETC.

At a certain time in the spring our lawn is a bed of golden yellow for several days, and oftentimes it is humming with bees in a way that ought to make the bee-keeper's heart glad. But it is a posy-garden rather than a lawn, and Mrs. Root calls it a garden of weeds. Several attempts have been made in our neighborhood to dig out the dandelions; but our experiment station has discouraged such work by telling us that for every plant you dig out or cut off you will probably have half a dozen in just a little while, equal to the parent, or pretty nearly. Our Mr. Calvert gave the matter a test by keeping a gang of boys at the job for quite a spell on several different days. The result was, if I am correct, there were more dandelions on that spot a little later on than ever before. "Cultivation" seemed to do them good. I believe our experiment stations have decided there is no way but to turn the sod, grow a crop of potatoes or something else, and give careful cultivation until the dandelions are killed out. No plant will live very long—not even the dreaded Canada thistle—if it is cut off persistently just as fast as it shows a green leaf. In one case I killed out Canada thistles so they have not been seen since. For a period of three or four weeks I cut them off almost daily. Perhaps you are well aware that, down east, dandelions are grown as a choice article of food, and bring high prices in the markets. In Florida they are not seen at all; and although I sowed quite a little seed to test the matter, not a plant came up. Now, if anybody knows of any better way

to get rid of dandelions, we should be glad to hear about it. Perhaps I should add that, after the bloom is past, they disappear, blossoms and leaves, so that we have a pretty grassy lawn during the middle and latter part of summer. They are, however, on hand, and "up and dressed" before any thing else, every spring.

After submitting the above to Mr. Calvert he says a good deal may be accomplished by sowing grass seed very thickly over your weedy lawn and then making it grow vigorously by giving the lawn a good dressing of fine old manure well rotted. The grass will start with such vigor that it crowds out and often exterminates to a considerable degree even dandelions. Of course, the lawn-mower is kept going, clipping the dandelion-buds, just as they begin to push open, almost daily. A lawn-mower does not hurt the grass, but it injures almost all kinds of weeds. Mr. Calvert also suggests that the above is a pretty good plan to get rid of saloons—drive them out, squeeze them out, starve them out, by getting so many schools, churches, and Sunday-schools established that they can not exist.

Temperance.

HOW ONE WOMAN, ALMOST SINGLE-HANDED, MADE A TOWN DRY.

I suppose our readers, or a great part of them, remember the story I told in our issue for Dec. 15, with the above heading. Soon after its publication, while I was in Florida, the following letter came from Mrs. Florence D. Richards. It would have found a place here sooner had I been at home. The friends of temperance will surely be interested in something direct from this woman who has done so much for temperance throughout our land.

Mr. Root:—I have just been reading the kindly "write-up" from your pen. I wish to thank you for the many nice things you have said, and to tell you how much we appreciate men who take the brave stand on the whiskey and tobacco question you have for so many years. You have been quite an inspiration to me in my work, and I have mentioned your name many times in my speeches, telling these things as a memorial of you.

I think you have given me altogether too much credit, though, in your article, for I certainly did the least of any one there. I am afraid our people will think I have been boasting of my ability to accomplish things. Our good preachers all joined hands; our editors, both of them, came out boldly against the saloon, and the W. C. T. U. did the "house-to-house canvassing." I didn't do any of that, and the good men of the town did the *voting* when it came to that.

It was a few of our councilmen and the city solicitor, instead of the mayor, who stood for the saloons. Our mayor was one of the driest of dry men, and helped us bravely in our fight. I don't want any of the credit which does not belong to me, and I think very little of it does. Most cordially yours,

Leipsic, O.

FLORENCE D. RICHARDS.

In addition to the above, perhaps I should mention that several letters have been received, informing me that, instead of Leipsic being a town of six or eight thousand inhabitants, as I gave it, its population is only about half that.

A Train Load of Books

Another Big Book-house Failed. I Bought the Entire Stock for Spot Cash, and have Cut Prices 50 to 90 per Cent.

I buy more bankrupt stocks of first-class new books and more publishers' editions than any other dealer in America.

I sell more books to the public than any man in America. I ship books to every country in the world. WHY? Because I sell books at less than half price. You read books, and, in justice to yourself, you must have my FREE catalog of books. I sell almost any book or set of books on the market for less than half, and many fine books and sets at less than one-quarter price.

THESE ARE SAMPLE PRICES:

Late Copyrights were \$1.50 : : Our Price, 38c

The 3c list includes "The Leopard's Spots," "Little Shepherd of Kingdom Come," "The Christian," "David Harum," etc.

ENCYCLOPEDIA BRITANNICA, Regularly \$36. Our price, \$7.75

CHAS. DICKENS' COMPLETE WORK, 15 vols. Regularly \$15. Our price, 2.95

I sell every book under guarantee to be new, perfect, and satisfactory, or money back without questioning or quibbling.

Practically any book or set of books you want at a fraction of the retail price while they last.

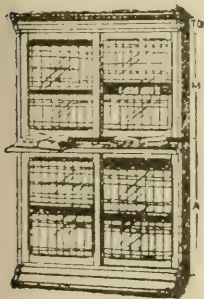
THE REASON WHY I sell books at less than half regular price is more fully explained in my catalog of books, *which will be sent free*. It will save you more than one-half. Also tells how you can get a library FREE for a little of your time. Lest you forget, fill in your name in the space below and mail to-day.

NAME

ADDRESS

DAVID B. CLARKSON

The Book Broker Dept. Cl. CHICAGO



SECTIONAL BOOKCASES

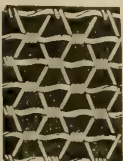
Sliding doors, adjustable shelves, in Quartered Oak and Mahogany. Send for illustrated free catalog.

The Cleveland Desk Co.,
CLEVELAND, O.

Office and Library Furniture.

THE "BEST" LIGHT

The only 100 Candle Power Light that burns its own gas and gives absolute satisfaction during a long life of efficient service. No Grease, Smoke, Dirt or Odor. Brighter than electricity or acetylene, cheaper than kerosene. Over 100 styles. Every lamp warranted. The Best Light Co., 306 E. 5th St., Canton, O.



FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today

COILED SPRING FENCE CO.
Box 101 WINCHESTER, INDIANA.

BANKING BY MAIL

4 Per Cent INTEREST
Compounded Twice a Year!

Assets of over one-half million and the management of prudent men of solid financial standing give this bank every element of safety.

Send to-day for particulars, explaining how you can open an account safely and conveniently by mail.

Under ordinary circumstances all or any part of your deposit may be withdrawn at will.

THE SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.



THERE'S MONEY IN FARMING

If you understand modern methods and farm INTELLIGENTLY.

Every reader of GLEANINGS who is interested in farming or gardening, in the growing of fruit or of flowers, is invited to send for a free copy of our 80-page catalog and full information in regard to the Home Study Courses in Agriculture, Horticulture, Landscape Gardening, and Floriculture, which we offer under Prof. Brooks, of the Massachusetts Agricultural College, and Prof. Craig, of Cornell University.

Home Correspondence School, Dept. 12, Springfield, Mass.



"The Best Gift of All"

—Her Diamond Engagement Ring.

Diamonds As An Investment. Are a better and safer investment than real estate, banks, insurance, stocks, etc. Diamonds have advanced in value 20 per cent annually in recent years, and their scarcity indicates a still further increase in the near future. Diamonds are the universal currency and can be immediately converted into cash. It pays to look prosperous; to be successful, look successful—wear a Diamond.

Loftis System DIAMONDS On Credit

Our Prices are 10 to 15 per cent lower than the ordinary spot cash retail jeweler. We are direct importers, buying our Diamonds in the rough, which we cleave, cut and polish in our own work shops. In buying from us you save the profit of broker, jobber, wholesaler and retailer.

The Loftis System. The credit of the honest employee is just as good as that of his more fortunate employer. Confidence in the honesty of the people is the key-note of our success. Let us send you our new illustrated Catalog, 66 pages, 1000 photographic reproductions of the latest and most fashionable in jewelry art; you can make selection in the privacy of your own home and the article selected will be sent on approval without expense to you. If you decide to purchase, you pay one-fifth of the amount and pay the balance in eight equal monthly payments.

Our Guarantee. We give you our written guarantee certificate as to value and quality of Diamond purchased, and the privilege of exchanging same at any time for any other article of Jewelry from our Million Dollar Stock, or for a larger stone, allowing you full credit for what you have already paid. Our Guarantee is backed by higher bank and commercial ratings than all our small imitators combined—consult your local Banker, have him refer to his Dun or Bradstreet book of commercial ratings.

Strictly Confidential. Every transaction with our customers is strictly confidential, for even your own family need not know that you are not paying spot cash—unless you tell them. The Diamond your friend is wearing was probably bought on the Loftis System.

Your Credit established with us is a valuable asset elsewhere. Other standards of value may rise or fall, but Diamonds, the universal currency, will continually increase in value.

The Old Reliable, Original Diamonds on Credit House. Established in 1858, with a continuous record of success, we are the oldest, the largest, and most reliable credit retailers of Diamonds, Watches and Jewelry in the world.

"Save a Diamond." Let us act as your bankers and help you make and save money. Send today for our latest Catalog and Diamond Souvenir, showing "How easily you can wear and own a Diamond by the Loftis System." Remember Diamonds win Hearts.

DIAMOND CUTTERS
WATCHMAKERS

LOFTIS
BROS & CO.

Diamond Importers
JEWELERS

Dept. E637 92-96 State St. Chicago, Illinois, U. S. A.

Illustration courtesy Chicago Record Herald Sunday Magazine.

85 BEST Farm Gates SOLD to ONE MAN

Shelbyville, Ind., March 3, '06.
Best Gate Co., 67-69 E. Jackson St.
Shelbyville, Indiana.

Dear Sirs:—Please deliver to bearer, Albert Luther, six 12 ft. **BEST Gates** for Fairland farm. This will make **eighty-five BEST gates** bought of you for our farms in this county, many of which have been in use several years. They are **light, durable**, and do not sag or warp, and **have not cost one cent for repairs**. In view of these facts, I will continue to buy **BEST Gates**, and no doubt will have **one hundred or more** in use before fall. Very truly yours,
J. B. HAMILTON.

and are now in actual everyday use on his farm. This certainly is pretty strong evidence of the superiority of the **BEST GATE**. A good gate is necessary to complete the fences on a well kept farm. It will more than pay for its first cost in one season in the time and labor it saves the farmer in passing through it, or in driving from one field into another.

The BEST Gate

is certainly just what its name implies—it is the **BEST** for any purpose. It is light, strong and convenient to handle. The frame is made of select hard pine and strongly braced. There are **TEN STRANDS OF HIGH CARBON COILED SPRING STEEL WIRE** on this gate which are attached to the frame work with a **PATENT RACHET** so as to allow for tightening when needed. You cannot reproduce this gate for less than **50 PER CENT MORE THAN WE ASK**. We sell the **BEST GATE**

Direct from Factory to User

and **PREPAY THE FREIGHT** as far as 300 miles from Shelbyville. **PRICE \$5 and upward** according to the size of gate. The illustration below shows the strength of **THE BEST GATE**. It is not an exaggeration for this gate will hold a weight of more than 700

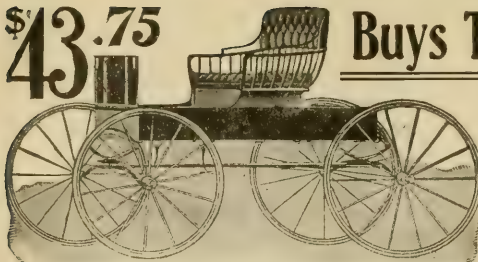
lbs. without buckling or sagging. Write for our booklet, it describes **The Best Gate** more thoroughly than we can in this advertisement.



THE BEST GATE CO.
Dept. L Shelbyville, Indiana.



\$43.75



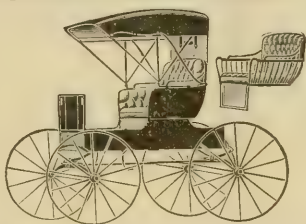
Buys This Rubber-Tire Wagon

Union Quality. Fully Guaranteed. Best hickory wheels; $\frac{3}{4}$ -in. Rubber Tire; long-distance, dust-proof, high-arched axles; oil-tempered springs. First-quality material and finish, worth nearly double our Factory Price. We ship for your examination, without a cent in advance, if desired, and allow

30 DAYS FREE TRIAL

Money refunded on all purchases not satisfactory. You save dealers' profits. We build 150 styles of Vehicles, from \$26.50 to \$150. 50 styles Harness, \$5 to \$60. Write to-day for our 200-page Illustrated Style Book. Free for asking.

Union Buggy Co., 45 Saginaw St., Pontiac, Mich.

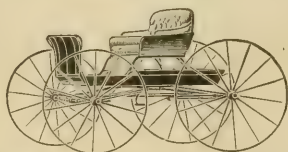


No. 629 1/4. Combination Top Buggy with Bike Gear. Price complete with extra stick seat, \$58.50. As good as sells for \$25. more.

33 Years Selling Direct

Our vehicles and harness have been sold direct from our factory to user for a third of a century. We ship for examination and approval and guarantee safe delivery. You are out nothing if not satisfied as to style, quality and price. **We are the largest manufacturers in the world** selling to the consumer exclusively. We make 200 styles of Vehicles, 65 styles of Harness. Send for large free catalog.

ELKHART CARRIAGE & HARNESS MFG. CO.,
Elkhart, Indiana.



No. 689. Banner Spring Concord Style Wagon. Price complete, \$40. As good as sells for \$25. more.

\$35.50
30 Day
Test.



No
Money
in
Advance

"Anderton" Vehicles and Harness direct from factory at lowest factory prices.

A REAL FREE TRIAL

with no deposit, no fuss of any kind. A two years approval test, with a \$25,000 bank deposit to insure your getting your money back, if not satisfied. You can try an "Anderton" with your money in your pocket. Write for free 110-page illustrated catalog No. 21. It fully explains our offer.

The Anderton Mfg. Co., 41 Third St., Cincinnati, O.

SPLIT HICKORY

2 Years' guarantee Factory to you. Saves you two profits.

THE OHIO CARRIAGE MFG. CO.
H.C. Phelps, Pres.
Station 293
Cincinnati, Ohio.

30 DAYS

FREE TRIAL

\$35

Free 1906 catalog now ready. 180 pages. 100 styles vehicles and harness. Biggest Bargains. Tell us what style vehicle you want.

SAVE HALF



the price. You can't beat our buggy jobs at any price. Here's the reason: You're dealing with the factory.

30 Days Free Trial, Two Years Guarantee.

Remember we make what we sell. We're not a mail order house. That's why we can give such a guarantee. Direct sales, direct guarantee, a price unequalled and 30 days to make up your mind. Write for our vehicle catalog and complete selling plan. The Progressive Vehicle Mfg. Co., Dept. O, Ft. Wayne, Ind.



Poultry In, Stock Out

Page Poultry Fence is so closely woven that poultry can't get out; so strong and high that heavy stock can't get in. Stands up straight on few posts, requires no top rail or bottom board and lasts. Let us tell you about it.

Page Woven Wire Fence Co., Box, 5415 Adrian, Mich.

YOU SPRAY

Make it as easy and effective as possible. Buy your outfit from a concern that has long made a specialty of spraying machinery. A

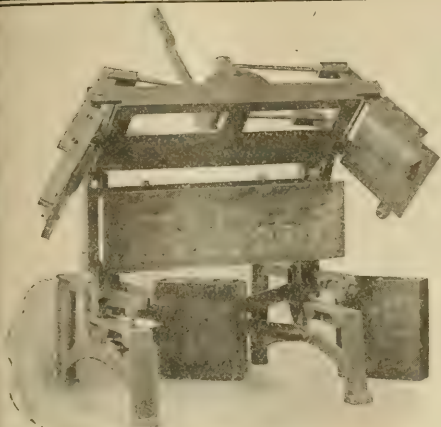
DEMING SPRAYING OUTFIT



always gives satisfaction. 20 styles. An outfit for every purpose including Barrel, Knapsack, Bucket and Hand Sprayers and Power Outfits. Get free catalog and study the Deming line before you buy.

THE DEMING CO.,

230 Depot St., Salem, O.
Henion & Hubbel, Western Agents, Chicago.



This is One Style of Machine

on which hollow concrete blocks from which the attractive homes we have shown in the last few numbers of GLEANINGS are built.

We make several different styles of machines, having different capacities, and intended for different purposes.

All are built by the most careful workmen and from the best material obtainable. The designs we follow have been accepted after long and careful experimenting.

We would like to send our interesting booklet, showing machines, houses, and blocks. Every man who builds needs a copy. It's free for the asking.

Medina Concrete Company

22 Court St., Medina, Ohio

PIONEER GUARANTEED NURSERY STOCK AT WHOLESALE PRICES

All stock guaranteed disease free and true to name.
Hart Pioneer Stock is pure bred and produces heavy crops.
Value received for every dollar sent us. No Agent's Commission
WRITE FOR COMPLETE PRICE LIST. WE WILL SAVE YOU MONEY
HART PIONEER NURSERIES, Est. 1867 Fort Scott, Kan.

Sold by Dealers in Seeds all over America.



*My Grandfather used
Mr. Hammond's Slug Shot
for Potato Bugs. So does my
father use it. My Mother puts Slug Shot on
roses.*



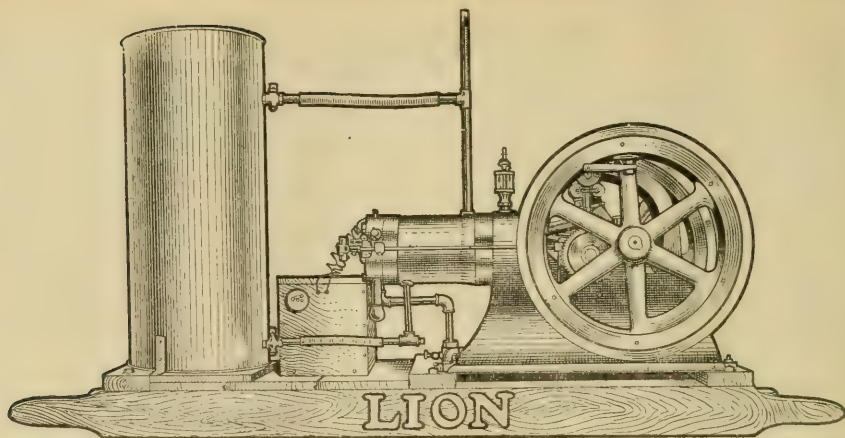
"SLUG SHOT"

Used from Ocean to Ocean

A light, composite, fine powder, easily distributed either by duster, bellows, or in water by spraying. Thoroughly reliable in killing Currant Worms, Potato Bugs, Cabbage Worms, Lice, Slugs, Sow Bugs, etc., and it is also strongly impregnated with fungicides. Put up in Popular Packages at Popular Prices. **Sold by Seed Dealers and Merchants.**

HAMMOND'S SLUG SHOT WORKS, FISHKILL-ON-HUDSON, N. Y.

Write for pamphlets worth having on Bugs and Blight, and for bee-hive paint.



IT'S READY TO OPERATE

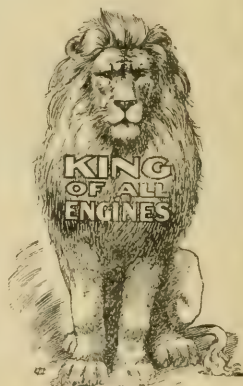
There's no firing-up—no waiting for steam with a **Lion** Gasoline Engine. It is **always ready to operate**. Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

The Lion Engine

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

We sell direct from factory to buyer, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion** engine and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion** engine. It is free if you mention this paper when you write.

Lyons Engine Company
LYONS, MICHIGAN





I am The
Paint Man

Let Me Tell You the Price You Should Pay for Paint

See that house in the lower corner? It's an eight room cottage. I painted it complete in two colors, with trimmings, for \$9.60

I made the paint to order—shipped it without advance payment—paid all the freight—gave privilege of trying two gallons free—sold it on six months time—gave my 8 year guarantee backed by a \$50,000 bond. It was fresh

O. L. Chase Made-To-Order Paint
2 gals. free to try—6 months time to pay—all freight prepaid

The owner used the paint—wrote me he was tickled to death with the way it spread and the way it looked—recommended several of his neighbors to me—paid me for it at once.

That's the way it goes—this is only one customer out of thousands. What do you know about paint anyway? As paint makers themselves disagree, who knows? I disagree with all paint makers. Other paint makers say, "Pay me—and then paint." I say, "Paint—and then pay me."—then you are sure to be satisfied.

My big Fresh Paint Book is Free—the finest Paint Book ever published—large samples of colors to choose from. Write for it today—now. I will write you a personal letter and tell you what you should pay for paint.

O. L. CHASE, The Paint Man,
Personal Office: Lincoln Missouri Trust Bldg.
ST. LOUIS, MO.

I painted that house for \$9.60—2 coats. Send me your name and address on a postal and I'll tell you what the paint for your house will cost.



Gleanings in Bee Culture, \$1.00	} Total . . . \$2.50
San Francisco Earthquake, 1.50	
Our Price for the Two \$1.50	

The book we offer contains 500 pages with hundreds of illustrations. The author is the great historian, Charles Morris, LL. D. It is an accurate and authentic account of the greatest calamity that has ever happened in this country. Thousands of agents are now offering this book at \$1.50 cash. We include the subscription to GLEANINGS at the same price. Agents Wanted.

Compendium Subscription Agency, Bath, New York
166 Howell Street

THE NEW TRI-CHROME SMITH PREMIER



Writes in three colors with but one ribbon. No other typewriter does it.

VALUABLE FOR

Correspondence, Intricate Tabular Work,
Statistical Work, Statement Work,
Legal Documents, Library Indexing,
Wholesale Billing.

The Smith Premier Typewriter Company
SYRACUSE, NEW YORK
Branch Stores Everywhere



LATHROP'S CHICK SERVER FOR FOOD OR WATER

Chicks cannot get in it or on it. Made without seams.

DEALERS HAVE THEM.
EACH, 25c. POSTPAID, 35c.
DOZEN, \$2.50

LATHROP MFG. CO.
80 Central Ave. Rochester, N.Y.

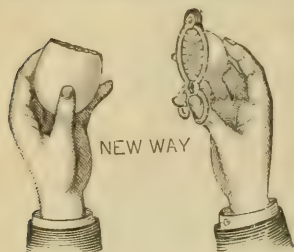
BANTA Incubators & Brooders

Backed by 14 Years
of Successful Use by



poultrymen all over the world. No guesswork. They are automatic in regulation and ventilation. Fully guaranteed to give YOU satisfaction. Send for free book. BANTA - BENDER MFG. CO., Dept. 23, Ligonier, Ind.

Every Family Needs
W. R. Hartigan's Improved Egg-opener



Prevents daubing, and pieces of shell in food. They are durable. Any person can open eggs with them. Nickel, 25c; silver, 50c. Sent to any address post-paid on receipt of above price in silver.

W. R. Hartigan & Son
 Collinsville, Ct.
 U. S. A.

Liberal discount to agents

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"



The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

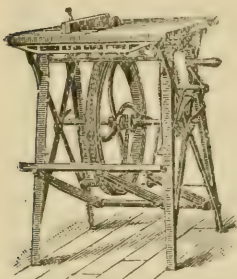
F. E. Myers & Bro.,
 Ashland, Ohio.



TELEPHONE

Facts for Farmers

Send for free book 36-A. It contains telephone facts that are money-savers
 Stromberg-Carlson Tel. Mfg. Co., Rochester, N.Y., Chicago, Ill.



BARNES' HAND and FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

MACHINES ON TRIAL
 Send for illustrated catalog and prices. Address
 W. F. & JNO. BARNES CO.
 545 Ruby Street,
 ROCKFORD, ILLINOIS.

BUFF ORPINGTONS!

I offer 12 eggs from purebred imported stock for \$3.00; 12 eggs from birds not especially mated, \$1.00. Thirteen early hatched chicks (cockerel and 12 pullets) if ordered before June 1, \$12.00; from first-class laying strains.

M. H. WINEBRENER,
 Importer and Breeder, Walkersville, Md.

JOSEPH HORNE CO. Pittsburgh, Penn.

A New Safety Razor---The Christy Hoe
 Price, Including Six Blades, \$1.50.

In designing the "Hoe" safety razor the aim has been to overcome all faults that other safety razors have, and so successful have been the efforts that a novice can shave the first time without practice, annoyance, or inconvenience.

Unlike all other safety razors, the "Hoe" requires no adjusting of the blades. It's self-adjusting; there are no troublesome springs, hinges, or screws to arrange. You can not put a blade in the "Hoe" wrong if you try to. It is easily done in a moment; there is no chance for a mistake.

In their efforts to make a razor that can be used with convenience, makers have overlooked one feature of the utmost importance, viz., the handle. This part of every razor on the market is a serious inconvenience in shaving, necessitating a cramped position of the hand at almost every angle.

The handle of the "Hoe" has the length necessary to be easily grasped and enable one to hold at the proper angle in all positions, and perfectly balanced.

Guard---This is one of the most important features of a safety razor, forming, as it does, the protection from the edge of the blade, all makers using practically the same form, and until the invention of the Christy Comb Guard, no particular efforts have been made to perfect it. In the Christy Comb Guard the teeth of the guard point toward the blade. It is so designed as to leave the edge of the blade free with a clear space for lather to pass through upon the top of blade just like, and with all the advantages of, an ordinary razor.

The heart and life of a razor is the blade. The process used in making the blades of the "Hoe" razor is absolutely new, producing blades of uniform temper, and lasting cutting quality, and is a wide departure from the usual method. Every blade warranted perfect.

The strop is an item to be considered in the cost of a razor, most makers charging 75 cts. to \$1.50 extra for the same.

Without extra charge, the case in which the Hoe Safety Razor is packed is supplied with an especially prepared strop, securely fastened to the top of case.

Special Notices by A. I. Root.

TWO NEW BOOKS BY THE O. JUDD CO.

The first one is entitled "Diseases of Swine," by Prof. Robert A. Craig. It is of the utmost importance that our farming community should be able to treat domestic animals, when diseased, in a sensible and scientific way; and it is high time that old notions and superstitions were set aside in favor of intelligent and scientific treatment. This book, just from the press, is fully up to the times, and ought to be in the hands of every family that keeps even a single pig.

The other book, "Profitable Dairying," is a volume similar in size; and when I tell you that a considerable part of it is devoted to giving a minute description of the far-famed model dairy farm of the Rev. J. T. Dietrich, near Philadelphia, I presume I have said almost enough in favor of the book. The farm in question was fully discussed in GLEANINGS about a year ago or more. Let me repeat briefly. On this farm of 15 acres, where, 20 years ago, it would not maintain one horse and two cows, there are now kept 27 dairy cattle in addition to two horses. Surely every one interested in caring for cattle can afford 75 cts. to get the full particulars of this interesting story about "high-pressure" farming. Each book contains nearly 200 pages. The price is 75 cts. postpaid. They can be sent from this office.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

BEE-KEEPERS' SUPPLIES

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.



**New Metal-spaced
Hoffman Frames
are Here in Stock**

Conversation with Wilson

"Hallo, Mr. Wilson, how are you to-day?"

"Quite well, thank you, but I am a little tired. It is very warm to-day, and I mowed the lawn and all around the bees while it was cool. I thought I'd come over and chat with you while I rest a little. We were talking about Pouder's idea of doing all feeding in the fall. How does he feed?"

"Some time in September he removes the supers, examines each hive carefully, and marks on each hive the amount of feeding necessary. Then he places a Porter escape board on each hive, placing the bee-space down, which makes a double bee-space. This is to be left on all winter, and by placing it in position early it will be securely waxed, and he places an empty super on this. Now this makes an excellent place to set a Miller feeder, allowing the bees to come up through the opening for the escape. After removing the feeder he places a piece of section over the escape opening and fills the super with dry sawdust or any dry packing."

"How about the Hill device and the bur-lap?"

"Pouder is awful bitter against the Hill device. Says that method was put in type twenty-five years ago and has just stood that way, and he thinks the method has caused the loss of many a good colony. Says that with a board, sealed air-tight and with no upward ventilation, every thing will remain perfectly dry; while with burlap instead of a board every bit of packing will become white with frost in zero weather, and then when it moderates every thing becomes wet. I have noticed that when looking in the upper story of such a hive I thought the snow had drifted in, but further investigation showed that it was the condensed moisture from the bees."

"I had the impression that Pouder wintered his bees in the cellar."

"For two years he has wintered in the cellar, but he says he would prefer outdoor wintering if the boys would not molest them. He is located down town, and investigative boys will pry into things. Says he places them in the cellar on his birthday, December second, and sets them out on St. Patrick's day, rain or shine."

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight; always be sure to attach name to package.

CATALOG FREE

WALTER S. POUDER,

513--515 Massachusetts Ave.,

INDIANAPOLIS, IND.

Bee = keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

Good Goods, Low Prices and Prompt Shipments

are the **POINTS** in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

Page & Lyon Mfg. Co., New London, Wis.

Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

BEEES AND QUEENS—Orders booked now for spring delivery.

HONEY AND WAX—We handle honey and wax. Write for particulars.

The A. I. Root Co.

Northwestern Branch,
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

DO YOU KNOW

That the sale of Dittmer's Foundation has increased so much that we were forced to double our melting capacity in order to fill orders promptly?

There is a Reason for This

It is because Dittmer's Foundation is tough, clear, and transparent, and has the natural color of beeswax.

AGENTS FOR DITTMER'S FOUNDATION:

W. D. Soper.....Jackson, Mich.
Bee and Honey Co.....Beeville, Texas
E. H. Taylor...Welwyn Sta., Herts, Eng.
E. Grainger & Co.....Toronto, Ont., Can.

Our warehouse is well stocked with all kinds of bee-keepers' supplies.

Beeswax always wanted.

Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trestler Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.



Michigan Distributors

—FOR—

**G. B. Lewis Co.'s Beeware,
Dadant's Foundation.**

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service.

ADVANCED BEE-VEIL. Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

A. G. Woodman Co., Grand Rapids, Mich.

Dear Sir:—Your Advanced bee-veil just arrived, and is, as advertised, the best on the market. Find enclosure for ten more veils. Platteville, Wis., April 14, 1906. N. E. FRANCE.

A. G. Woodman Co.,
Beeswax Wanted. Grand Rapids, Mich.

Bee-keepers' Supplies!

Lewis' famous "Beeware." Root's Smokers and Extractors; Dadant's Comb Foundation, etc.; Queens and Nuclei in Season, Large and Complete Stock; Prompt Service. We will meet all competitors who handle first-class goods. Catalog with practical hints free.

"Mandy Lee" Incubators and Brooders!

Whether you are experienced in artificial incubation or not, these incubators will give you gratifying results. The "Mandy Lee" brooder is the only brooder made which applies direct contact heat to the little chicks' backs. Our free incubator catalog describes them. Prompt shipments.

C. M. Scott & Co., Indianapolis, Indiana
1004 East Washington Street

Bees, Queens, and Bee Supplies.

We manufacture standard dovetailed bee-hives and supplies cheaper than you ever bought before. Our queens and bees stand at the head in quality. Untested, 75c each; \$4.25 for 6, or \$8.00 per dozen. Tested, \$1.25 each; \$12.00 per dozen. Select tested, \$1.50 each. Special prices to dealers in large lots on application. State agents for Dittmer's foundation. Catalog free.

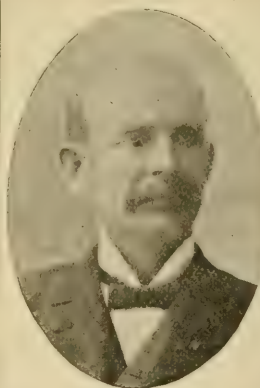
THE BEE AND HONEY CO.,

Will Atchley, Prop., Beeville, Bee Co., Texas.

**If You
Want
Root's
Goods**

I have them at Root's prices. Also A B C of Bee Culture—one of the best books printed on bees. Catalog free. Address as below.

D. Cooley, Kendall, Michigan



Established 1881

YES!

Same Place 1906

THIS IS THE MAN WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year. ♣ ♣ ♣ ♣ ♣

Geo. E. Hilton, - Fremont, Mich.

Increased Business Compels Larger Space!

So we have just doubled our capacity in the building at 141 Ontario Street, where we carry a full line of

Poultry-supplies and Lewis' Popular Beeware

Catalogs on application. ORDERS FILLED PROMPTLY AT FACTORY PRICES.
SPECIAL OFFER ON BEE-SUPPLY ORDERS.—Until June 1, 1906, we will GIVE FREE on each order for bee-supplies amounting to \$10.00 or over, a choice of ONE of the following: A Bingham Doctor Smoker, a Bingham Honey-knife, or a year's subscription to the Weekly American Bee Journal.
BEESWAX WANTED.—28c cash or 30c in trade
ITALIAN BEES in modern hives with select queens for sale; also pure Italian queens.

York Honey and Bee Supply Company Not Inc.

H. M. Arnd, Mgr.

141 Ontario Street, Chicago, Ill.

Phone North 1559

BINGHAM
Original
Direct Draft
CLEAN
Bee Smokers



Pat'd 1878, '82, '92 & 1903

Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and last; don't spit fire; don't go out; don't daub themselves all over. We are the most extensive exclusively bee-smoker makers in the world.

T. F. Bingham - Farwell, Mich.

Chico, California, October 28th, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.
J. M. RANKIN.

Ask Lathrop

for Root's Goods
at Root's Prices

All kinds of Bee and Poultry Supplies.
Catalog, etc., on request.

Lathrop Mfg. Co., Rochester, New York
27 East Avenue

If You Want the Bee-book

that "covers the whole apicultural field more completely than any other published," send \$1.20 to :: ::

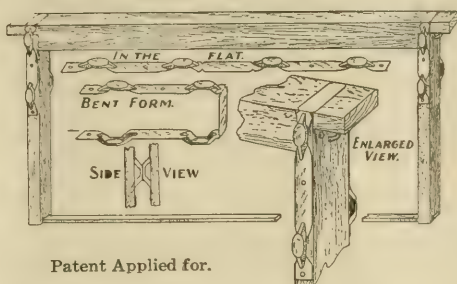
Prof. A. J. Cook, Claremont, Calif.

— FOR HIS —

"Bee-keepers' Guide"

Liberal Discount to the Trade.

Metal-spaced Hoffman Frame IN GREAT DEMAND.



Patent Applied for.

Has come to stay. Can be used interchangeably with regular Hoffman frames. Has all the advantages of the regular Hoffman. Is not affected by propolis. Can be handled without pry or screwdriver. Has no rights or lefts, and, therefore, can not be put up wrong. See full description in 1906 GLEANINGS, page 16.

PRICES.—Metal-spaced Hoffman frames—100, put up, \$4.50. In flat—10, 35c; 100, \$3.00; 500, \$14.00. Metal spacers only—30c per 100; \$2.50 per 1000. Hives with metal-spaced frames, 5c extra each body, 8 or 10 frame, put up or in the flat.

The A. I. Root, Company, Medina, Ohio.

BEST'S MORTGAGE-LIFTER BEES

are the gentlest, the strongest honey-gatherers, and by far the most rapid breeders, and beautiful, of any bees you will find. I have been among bees for 35 years, and have never found their equal. All tests show them to be better than any other strain. Price for the opening of the season: One warranted queen, \$1.50; tested, \$2.00; select tested, \$3.00; breeding queen, \$5.00; select breeder, \$8.00. Please send orders at once for delivery in 30 days.

BEST-THE-BEE-MAN, : : : : Slatington, Pennsylvania

H. C. Simpson, Catawba, S. C.

Dealer in

BEE - KEEPERS' SUPPLIES!

Breeder of Italian bees and queens.
Root's Goods a specialty.

CARNIOLAN QUEENS!
and ITALIAN

Ready to mail by April 15th. Quality of
the highest, prices the lowest. Write me.

Grant Anderson - Sabinal, Texas

Italian - Bees - and - Queens
The Very Best. . . . No Disease

Untested.....	\$.75	Good Breeder....	\$2.00
Tested	1.00	Extra Breeder...	3.00
Select Tested....	1.25	Very Best B'd'r.	5.00
Two-frame Nucleus with Queen.....			2.00
Full colony (8-fr.), queen and 5 lbs. bees...			4.00

F. C. Morrow, Wallaceburg, Ark.

Queens! Three and five band queens; perfect satisfaction and safe arrival. Untested, 60c; select, 75c, or \$8.00 per doz.; tested, \$1.00, or \$10.00 per doz. R. O. COX, Route 4, Greenville, Ala.

I can Now Furnish You

with the best of queens at 70c each or \$7.00 per dozen. I breed only from imported stock, Leather-banded Italians and Gray Carniolans. I want your orders, and guarantee safe arrival and satisfaction. Write for prices on large orders. Money-order office, San Angelo, Texas. Postoffice, Vigo, Texas.

J. E. Chambers.

QUEENS FOR SALE.

Golden and three banded Italians, untested, 75c; tested, \$1.50. Hardy and healthy. Orders booked now. Write for circular. Mennie & Fenton, Pine Island, Minn.

A. H. Reeves, Perch River, Jefferson Co., N. Y.

DISTRIBUTOR OF ROOT'S GOODS FOR

NORTHERN NEW YORK
BEE SWAX WANTED

SUPPLIES AT ONCE

There are other times when a little delay doesn't make much difference, but now is coming the time when goods must be had at once TO GET ALL THE SWARMS AND HONEY THAT ARE COMING TO YOU.

Another Carload Just In

Full stock of Dovetailed Hives, Section-Boxes, Danzenbaker Hives, Comb Foundation, Chaff Hives, Smokers, Frames, etc., etc., etc.

All Root's Goods at Factory Prices

We are Jobbers for these bee-supplies and are in a position to furnish all orders, small or large, wholesale or retail. We have the best shipping facilities in the State—Pennsylvania, New York Central, and Buffalo & Susquehanna Railroads—and can get the goods to you quicker and cheaper than any factory in the country. . . . Send for our catalog.

Frank W. Prothero, Du Bois, Penn.

Successor to Prothero & Arnold . . . Clearfield County

A Good Bee-hive!

is made of the best grade of white pine, accurately cut, so it will go together without the use of tools, except a hammer. Such is the kind of hives we make, and such is the kind you get when you buy from us. It is a cinch that we can make lower prices than you can get from any dealer, as you can save the middleman's profits when you buy direct from the manufacturer. We are manufacturers, and sell direct to the consumer. Send us a list of your wants, and let us make you prices. We guarantee every thing we sell to be satisfactory, or refund the money. We have large stocks of Dovetailed Hives, Sections, Shipping-cases, Foundation, Veils, Smokers, etc., on hand, and can ship promptly.

Minnesota Bee-supply Company

John Dell & Son, Proprietor

Power Building No. 20, Minneapolis, Minnesota



Everything for the Bee Keeper

will be found in our Illustrated Catalogue No. 40. It contains a full line of Hives, Supers, Followers, Sections, Section Holders, Frames, Extractors, Smokers, etc. All these and many other essentials are manufactured by us. Everything is guaranteed to be right and of best quality. Our prices are so reasonable that any bee keeper may afford the best supplies. We cannot tell you here of all the good things in this book.

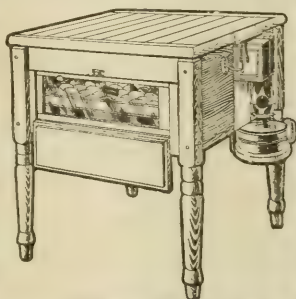
Better send for a copy today. We mail it free, together with a copy of the *Progressive Bee Keeper*, a splendid monthly publication devoted to bee interests. It will help you start right and keep you right after you are started. It is invaluable as an aid to every bee keeper. Ask for the paper and the book.

We Sell the Best Incubators and Brooders.

Delivered at your station, prices the lowest. Write us at once and save money. Address

LEAHY MFG. CO., 15 Talmage St., Higginsville, Mo.

Branches at Omaha, Neb. and East St. Louis, Ill.



CAUCASIAN QUEENS.

Try one or more of my gentle Caucasian queens, said to be the gentlest race of bees in the world, having a sting. The demand for these queens is good; in fact, orders are rolling in now. All orders filled in rotation, as received. Special prices on prompt orders. Untested, \$1.50 each; warranted tested, \$3.00 each. Ready in June. I control all bees within three miles of my apiary, and can promise pure stock. A few choice nuclei can be furnished with a fine queen, when wanted.

Money-order office, Olive Branch, Mississippi.

W. T. LEWIS, Lewisburgh, Mississippi.

Nuclei Queens

Two-frame nuclei, no queen, - - - \$2 25
Three frame " " " " - - - 3 25
Select tested (clipped) queens - - - 1 50

S. V. REEVES,

114 E. Park Ave., - Haddonfield, N. J.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatever ye would that men should do to you, do ye even so to them."

MALAN BROTHERS, Luserna, San Giovanni, Italy.

From Long-tongued Imported Italians.

Trial queen, 60c; Untested, 75c; \$7.50 per doz. Tested, \$1.25; \$12.00 per doz. Breeders, \$2.00 to \$3.00. Postal orders drawn on Decatur, Mich.

E. E. MOTT, Glenwood, Mich.



RED-CLOVER QUEENS AND ITALIANS BETTER THAN EVER.

Average queen, 75 cts. Untested, \$1.00; tested, \$1.25. Guaranteed to work red clover.

"Our red-clover fields are swarming with your bees," says G. W. Slaybaugh, York Springs, Pa.

Laying queens ready by return mail. Guaranteed to work red clover as well as white.

Send for my new circular; it's free. Root's Bee Supplies for sale. G. ROUTZAHN, Biglerville, Pa.

Queens.

Quirin-the-Queen-Breeder

is, as usual, again on hand with his SUPERIOR IMPROVED strain of ITALIAN BEES and queens. The editor of GLEANINGS, in observing the handling of our bees last fall, remarked that "such stock is in great demand." Years ago we used to be obliged to buy bees each spring to keep us agoing; but now we sell perhaps a carload each season; get tons of honey, and raise thousands of queens. We have bred our bees for business; they have no superior either side of the ocean. For a dozen testimonials see our full-page adv't in the Dec. 15th number of GLEANINGS, or ask for circulars.

Prices of Queens before July 1	1	6	12
Select queens.....	\$1 00	\$5 00	\$ 9 00
Tested queens.....	1 50	8 00	15 00
Select tested queens.....	2 00	10 00	18 00
Breeders.....	4 00		
Golden five-band breeders.....	6 00		
Two-comb nuclei, no queen.....	2 50	14 00	25 00
Full colonies on eight frames.....	6 00	30 00	

Add the price of whatever grade of queen is wanted, with nuclei or colonies, queens ready in April, nuclei about May 10; can furnish bees on Danzenbaker or L. frames; pure mating and safe arrival guaranteed. We employ 400 to 500 swarms in queen-rearing, and expect to keep 500 to 1000 queens on hand ready to mail. Our North-ern-bred bees are hardy, yet gentle; they will give you results. Address all orders to

Quirin-the-Queen-Breeder, Bellevue, Ohio

COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.

Yellow from Tip to Tip!!!

My Adel bees and queens are yellow all over.

Every queen a breeder, and guaranteed to

produce all golden queens and bees; non-

swarmers, gentle, great hustlers; \$1 each.

Catalog ready.

H. Alley, Wenham, Mass.

Profit or Loss

is invariably the result of good or poor stock. A good stock does not require as much attention and gives far better results.

Extra Honey Queens

are a good stock, selected for their pre-eminently good qualities. Try them. They are guaranteed.

Prices

One.....\$1.00 Six.....\$5.00 Twelve..\$9.00

Francis J. Colahan

Bernardo, San Diego Co., Calif.

Tennessee-bred Queens

From Extra Select Mothers

Three-band from dark leather imported; Moore's long tongue or my own; Golden from Laws, Doolittle's, or my own; Caucasians and Carniolans from direct imported. No disease. Contracts with dealers a specialty. Apiaries from 3/4 to 7 miles apart. Write name on postal, and get circular and what others say.

JOHN M. DAVIS

Spring Hill, Tennessee, U. S. A.

TAYLOR'S ITALIAN QUEENS FOR 1906

Leather-colored and golden Italians. I have made it a specialty for 18 years to breed for the best honey-gatherers of these races, and I have not been able to get any other stock that will store as much honey as my strains, gentle and beauties. Untested, 75 cts. each; \$3.00 per dozen. Tested, \$1.00, or \$11.00 a dozen. Select tested, \$1.50. Breeders, \$3.00 to \$5.00 each. I guarantee safe arrival on all queens. Untested Caucasians, queens, \$1.00 each. Send your orders to

☞ **J. W. Taylor, Beeville, Texas**

Queens - Italian - Queens

and bees from Root's Red-clover stock and Golden Italian queens. Better than ever.

Untested.....60c each; six, \$3.50

Select untested.....75c " " 4.00

Tested.....\$1.00 " " 5.00

Select tested.....1.25 " "

Two-frame nuclei with untested queen..2.00

Orders filled in rotation. . Send orders to

E. A. Simmons, Greenville, Ala.

CARNIOLANS our SPECIALTY

WE HAVE bred this race of bees for twenty years, and find they are among the gentlest bees known. Very hardy and prolific, and the best of honey-gatherers, and their combs are of snowy whiteness. We are wintering 50 select imported and 200 best select tested Carniolan queens for early orders.

Also breeders of Golden and Leather Italians. One untested queen, \$1.00; six for \$5.00; twelve for \$9.00. Tested, \$1.50. Best breeder, \$3.00. Best imported, \$5.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in U. S. or Canada. Descriptive list free.

F. A. Lockhart & Co.,

F. A. Lockhart & Co.—Mr. T. C. Stanton won first premium at the New York State Fair with the Carniolans you sent him, and I will add that your strain of Carniolans has won all the first premiums at the New York State Fair for many years. Where I showed your strain of Carniolans I won, and where I showed some other strains of Carniolans I lost.

Camillus, N. Y., Sept. 22, 1905.

S. D. HOUSE.

Lake George, New York

Finest Italian Queens

ALL SEASON I will offer choice Clover Queens and Nuclei, bred from a strictly three-band strain of bees, unsurpassed as honey-gatherers and for prolificness, etc. As to hardness, my strain of bees is simply wonderful. My entire apiary passed this winter on their summer stands, without the loss of a single colony.

Untested queens... 50c Select untested... 75c Tested queens... 75c Select tested... \$1.00
Two-frame nucleus, \$2.00. If with queen, add price of queen wanted. Ask for my circulars.

James W. Bain,

Marion, Ohio

DOOLITTLE & CLARK

are booking orders for their famous Italian queens. Now is the time to order breeders. Send for circular.

Grade.	One	Three	Twelve
Untested	\$1.00	\$2.50	\$9.00
Select Tested	1.50	4.00	14.00
Tested (1905 rearing)	2.50		
Select Breeding	5.00		
Extra Select Breeding	10.00		
Two-frame Nuclei	2.50	7.00	25.00

DOOLITTLE & CLARK

Borodino, Onondaga Co., New York

Quality Queens

Are the Best Italians yet.

Send for circular.

H. H. JEPSON,

182 Friend St., - Boston, Mass.

Every Bee - Keeper Knows the Worth of a Good Queen

Knows the worth of a good strain of bees, and also knows how worthless is a poor queen and inferior bees. Try our strain of three-banded Italians. They are bred for business, and will not disappoint you. Home-bred and imported mothers. Tested, \$1.00 each; untested, 75 cts. each; \$8.00 per dozen. Send for price list.

J. W. K. SHAW & CO.

Loreauville, : : : Louisiana

Italian and Caucasian Queens

ITALIANS.—Golden or leather-colored or honey queens. Before July 1st: Untested, \$1.00 each; 6 for \$5.00; 12 for \$9.00. Warranted, \$1.25 each; 6 for \$7.00; 12 for \$13.00. Tested, \$1.50 each.

CAUCASIANS.—Untested, \$1.20 each; 6 for \$7.00; 12 for \$11.00. Warranted tested, \$1.50 each.

TWO-FRAME NUCLEI.—No queens, \$2.50; 6 for \$14.00; 12 for \$27.00. Add price of any queen wanted. Nuclei ready by June 1st. Queens ready in May. Breeders from \$5.00 to \$10.00. Book your order now. Safe arrival of all stock guaranteed.

D. J. Blocher, Pearl City, Illinois

WE ARE HEADQUARTERS FOR THE ALBINO BEES,

the best in the world. If you are looking for the bee that will gather the most honey, and is the gentlest of all bees in handling, buy the Albino. I also furnish the Italian, but orders stand fifty to one in favor of the Albino.

Prices: Select tested Albino queens for breeding, \$4.00; tested Albino queens as they run, \$2.50; untested, \$1.00. Italians, tested, \$1.50; untested, \$1.00.

S. VALENTINE,

Rocky Ridge, - Frederick Co. - Md.

California Sage Queens

Old reliable Italian stock from well-known breeders. Bees that get the honey if it's in the field. One select untested, \$1.00; six, \$5.00; tested, \$1.50. Write for a circular.

J. W. GRIFFIN

528 Gladys Av., Los Angeles, Cal.

ITALIAN QUEENS AND GLEANINGS.

For \$1.10 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

W. T. CRAWFORD, Hinston, La.

Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws apiaries, and double your crop of honey.

I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season. I also offer another car of bees the coming season.

PRICES: Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

W. H. LAWS, BEEVILLE, BEE CO., TEXAS.

Caucasian-and-Italian-Queens from California

Prices: CAUCASIAN—One tested, \$3.00; one best breeding, \$6.00; one imported from Caucasus, \$7.00. ITALIAN—One untested, \$1.00, six for \$5.50, 12 for \$10.00; one tested, \$1.50; one best breeding, \$5.00. Caucasians bred from the best imported breeding queens. Italians bred from breeding queens we procure from principal breeders of this country who have the best honey-gatherers. Nuclei and full colonies of bees. Send for particulars, and see our adv. in GLEANINGS, February 1st.

A. E. Titoff, Ioamosa, San Bernardino Co., California

CAUCASIAN QUEENS!

For beginners, the timid, and the city bee-keeper Not stingless, but gentle. With this race many will master the art of handling bees. I breed HIGH-GRADE ITALIAN QUEENS also. The demand for these queens is great; the supply is limited. Write for particulars today. Address

Robert B. McCain, Yorkville, Ills. R. F. D.

Rose Lawn Queens

Italians Caucasians Carniolans

Bred in the purple. No finer on earth. Try one of our pure Gold strain, line bred for color and gentleness. Three banders of the "pat-em-on-the-back" kind that will eat out of your hand. Caucasians from imported breeders direct from the Caucasus. Separate mating yards. A strictly modern plant. Standard prices and honest treatment. Ask for our catalog.

Rose Lawn Apiary, Lincoln, Nebraska

Frank G. Odell, Proprietor

Italian and Caucasian Queens and Bees



Choice homebred and imported stock. All queens reared in full colonies.

PRICES FOR APRIL

ITALIANS

One untested queen \$1.10
One tested queen 1.50
One select tested 1.65
One breeder queen 2.75
One comb nucleus, no queen... 1.15

Untested queens in May. Safe arrival guaranteed. For prices on quantities, and description of each grade, send for free catalog.

J. L. Strong, Clarinda, Iowa, U. S. A.

204 East Logan Street

It won't Pay You

to keep those poor colonies when young vigorous queens given to them now will increase your honey crop many times. Italian queens only. I rear my queens carefully, guarantee them good and purely mated, or replaced free on notice. You will find my queens will give you satisfaction. No bee disease here. Bees: Untested, \$1.00; six, \$4.50; dozen, \$8.00; tested, \$1.50; six, \$8.00; dozen \$14.50; breeders, \$5.00. For larger quantities write for prices.

M. D. WHICHER, Los Olivos, Cal.

Untested Queens! Golden Italian

75 cts. each; six for \$4.00; an extra fine one for \$1.00. Warranted purely mated and good queens. . . .

J. B. Case, Port Orange, Fla.

1906 Italian and Caucasian Queens. Price list now ready. Write **E. E. LAWRENCE, Doniphan, Mo.**

Superior Stock

I make a specialty of long-tongue
Italian, Carniolan, and Caucasian,

Rearing only from best stock obtainable. My Italian queens are unexcelled; my Carniolans and Caucasians from best imported queens. All races bred in separate yards to insure purity. A postal will bring my price list for 1906.

CHARLES KOEPPEN

Fredericksburg, Va.

SWARTHMORE

niolans—but do not swarm as badly. Your attention is especially called to the Banats as a very desirable race of bees.

IS importing breeding stock from the Old World and calls your attention to the following price list. The Banatian bees have all the desirable points of the Carniolans—are much like Carniolans—especially called to the Banats as a very desirable race of bees.

Price List Direct Imported Queens:

Dark Races

"Banats" are like Carniolans; but do not swarm—very desirable race; \$8.00 each. Caucasians are the gentlest bees known; \$8.00 each—safe arrival guaranteed. Carniolans direct from the best breeder in Austria; \$5.00—safe arrival guaranteed. "Funny little Bees from Japan" will be bred from direct imported stock later.

Light Races

Italians from non-diseased district in Italy; fair, \$3.00; breeding, \$5.00. Cyprians direct from the best breeder on the Island of Cyprus, \$6.00. American Golden-all-over Queens have taken Grand Prize wherever shown. Select untested, \$1.25.  Send for circulars.

E. L. PRATT, Swarthmore, Pennsylvania.

Home-bred Queens of any of the above races on order.

BEES and QUEENS

The Three-banded
Long-tongued Strain
of Italians.

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

Superior Qualities.

Honey-gathering, size of bees, non-swarmling, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price.

Quality Our Motto.

1300 colonies to select from.

Untested queens.....\$1.00; 6, \$5.00; 12, 9.00
Select untested queens..... 1.25; 6, 6.00; 12, 11.00
Tested queens..... 1.50; 6, 8.00; 12, 15.00
Select tested queens..... 2.00; 6, 11.00.
Breeding queens, \$3.00 to \$5.00.

Yours for best service,

The Victor-Knolle Apiary Co.,
Hondo, Texas.

QUEENS.

Italian, Carniolan, and Carni-Italian Cross.

Can supply select untested queens at 75c each; three for \$2.00; six for \$3.50. I am now booking orders for early delivery.

George W. Barnes,

138N. Pleasant St.

Norwalk, Ohio.

Red-clover Queens from Westwood Apiary

will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.

Henry Shaffer Westwood, Ohio

Boston Headquarters — FOR — Bees-Queens-Supplies

H. H. Jepson - 182 Friend St.

Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:

Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

H. M. PARKER, Jr.

James Island, South Carolina

You are

Losing Money

by not introducing
Our Queens through-
out Your Apiary. . .

They are bred from pure Italian stock, red-clover strain; hardy Northern grown. Prompt shipments at these prices:

Untested.....\$1.00; \$5.00 for six

Select tested..... 1.50; \$7.50 for six

For prices in larger numbers and breeders write us.

Orders for delivery after May 15th now being booked.

Get your order in early.

Handsome booklet mailed free upon request.

B. C. Terry Co., Hinsdale, Ill.

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,

Box 18, Beeville, Bee Co., Tex.

Queens! Select three or five banded, \$1.00; tested three or five banded, \$1.25. Ready for delivery April 1st. Write for circular. Daniel Wurth, 1111 No. Smith Street, San Antonio, Texas

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Second hand typewriter, Oliver preferred, for bees or supplies.
Bee Man," Williamsport, Pa.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—You to own good queens; no delays; satisfaction. See my ad. on page 696.
M. D. WHITCHER, Los Olivos, Cal.

WANTED.—100 Hoffman frames with healthy worker comb, shallow extracting-frames, and two-frame extractor.
J. H. CROUCH,
145 Third Ave., Rensselaer, N. Y.

WANTED.—For delivery by June 1st six five-banded golden breeding queens, for a special customer. These must be extra-fine breeding stock, golden to the tip. Mention price and full particulars.
THE A. I. ROOT CO., Medina, Ohio.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.
H. F. HAGEN, 1632 Blake St., Denver, Col.

WANTED.—To exchange 500 chaff hives, also Carniolan queens, for honey (hives in flat). Both are as good as can be produced. I have a good market for best quality of white-clover honey and a little buckwheat, but can not raise profitably. Will allow Chicago price for honey. No poor grades of honey wanted.
W. W. CRIM, Pekin, Ind.

WANTED.—Save your slumgum. I will buy it. Let me know how much you have; in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.
UDO TOEPFERWEIN,
1322 South Flores St., San Antonio, Tex.

Help Wanted.

WANTED.—Young man with several years' experience with bees to help care for 400 colonies and work on farm; \$30.00 a month and expenses to a good man.
R. T. STINNETT, Delta, Colo.

WANTED.—Nurses. The Western Pennsylvania Hospital and Eye and Ear Hospital offer exceptional advantages for training. References required. Apply Superintendent's Office, 1945 Fifth Av., Pittsburg, Pa.

For Sale.

FOR SALE.—About 60 colonies of bees and all my fixtures cheap.
H. C. GILSON, Burr Oak, Mich.

FOR SALE.—Three-frame nuclei, with Italian queen, at \$2.25.
WM. H. STANLEY, Dixon, Ill.

FOR SALE.—Bee keepers' supplies. Root's goods. Root's prices. Free catalog.
F. R. DANIELS,
117 Florence St., Springfield, Mass.

FOR SALE.—Full colonies of bees at \$4.00 a stand in lots of 10.
J. GOBELI, Glenwood, St. Croix Co., Wis.

FOR SALE.—400 new extracting-combs cheap. Write to
R. G. JORDAN, Chenoa, Ill.

FOR SALE.—My apiary complete in the great irrigated alfalfa belt; no failure yet. See GLEANINGS of Dec. 15, 1903, page 1051.
C. K. C., Lovelock, Nev.

FOR SALE.—Best land for bee-keepers, farmers, dairymen. Cheap. Write us.
WRIGHT-ROBINSON, Cumberland, Wis.

FOR SALE.—Leather-colored Italian queens; all queens reared in full colonies; untested, 75c.
J. L. GULLEY & SON, Rt. 8, San Antonio, Tex.

FOR SALE.—Three-frame nuclei and Caucasian queen from my out-yard, \$2.00 f. o. b. railway; no foul brood in our county.
W. T. LEWIS, Lewisburg, Miss.

FOR SALE.—One carload of Italian bees in ten-frame Dovetailed hives, in perfect condition, at \$3.75 per colony. Address THE HYDE BEE CO., Floresville, Tex.

FOR SALE.—Bee-supplies, berry-boxes, etc.; best polished sections, \$4.50 per M. Catalog free.
J. J. BRADNER, Marion, Ind.

FOR SALE.—Twin mating-boxes cheap; just what you want. Investigate.
M. D. WHITCHER, Los Olivos, Cal.

FOR SALE.—Full colonies of bees with queen in strong shipping cases, \$3.25 each.
ALICE NYMAN,
429 Van Houten Ave., Passaic, N. J.

FOR SALE.—150 swarms of bees in eight-frame L. hives, extracting-supers, extractor, and tanks.
J. A. BROUHARD, San Luis Obispo, Calif.

FOR SALE.—The Alexander wire bee-veil. The best face-protector on the market. Try one and be convinced. At 75c each postpaid.
FRANK C. ALEXANDER, Delanson, N. Y.

FOR SALE.—About 300 sixty-pound cans; mostly new, good condition, new cases, two cans to a case; 40 cts. per case, f. o. b. Preston.
M. V. FACEY, Preston, Fillmore Co, Minn.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to
FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Bees; the right kind, right prices. Safe arrival and satisfaction guaranteed. Ask for illustrated Outfits for Beginners, price list, and our hints on buying bees.
MASON SUPPLY CO., Mechanic Fs., Me.

FOR SALE.—Twenty-five colonies of Italian bees in Danzenbaker hives (newly painted, good condition) \$5.00 a colony.
M. C. LONG,
Missouri Ave. and Main St., Kansas City, Mo.

FOR SALE.—A 3-h.p. gasoline engine; the best make on the market; will sell on a positive guarantee; run less than two months; have purchased a 7-h.p. of same engine.
B. L. FISHER, Rocky Mount, Va.

FOR SALE.—75 per cent profit; good opportunity; will sell a registered (patent office) article, or swap. Best offer takes the outfit. Apply or address
G. W., care A. I. Root Co., 44 Vesey St., New York.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season.
W. N. CANNON, Greenville, Ala.

FOR SALE.—A 40-acre tract of land in the Grand Traverse country, the raspberry region of Michigan, about 25 acres of which are cleared and fenced; a house, barn, bee-cellar, root-cellar, poultry-house, etc. About 350 fruit-trees, 60 of which are bearing; about 75 colonies of bees, and hives for 75 colonies more; also many supers and fixtures, making a complete apiary, in a choice location.
CLINTON F. PULSIFER,
1022 S. Main, Mount Pleasant, Mich.

FOR SALE.—Excelsior printing-press with 15 cases of type; chase 7x14; fine shape. Box 95, Medina, Ohio.

FOR SALE. 100 strong healthy colonies very cheap; 8 lbs. bees to hive. See my ad. on page 691. First order to each State at half price.

F. C. MORROW, Wallaceburg, Ark.

FOR SALE.—Second-hand empty sixty-pound honey-cans, two in a crate; in lots of 10, 40c per crate; 25 or more crates at 35c per crate.

THE FRED W. MUTH COMPANY,
51 Walnut St., Cincinnati, O.

Poultry Offers.

FOR SALE.—W. P. Rock eggs, \$1.00 per 15; Fishel strain. J. F. SMITH, Waynesville, Ill.

B. P. ROCKS.—Eggs, \$1.00 per setting; 14 chicks guaranteed. MRS. EDITH CHELTON, Landonville, Md.

FOR SALE.—24 Wh. or Br. Leghorn eggs for \$1.00; also other varieties. J. A. RUBRECHT, Telford, Pa.

FOR SALE.—Choice White P. Rock eggs from farm-range stock, \$1.00 per 20; \$2.00 per 45; \$4.00 per 100. F. E. SCHRIVER, Rt. 2, Forest, O.

FOR SALE.—Rhode Island Reds, White and Barred Rocks, White Wyandottes and Leghorns, Light Brahmas. Farm bred, pure stock. For birds (moderate prices), or eggs to hatch, at 8c each, write

WALTER SHERMAN, No. 100 Boulevard, Newport, R. I.

FOR SALE.—15 White Wyandotte eggs, \$1.00; nice cockerels, \$1.00 each, Duston strain; seed corn. Circular. J. F. MICHAEL, Winchester, Ind.

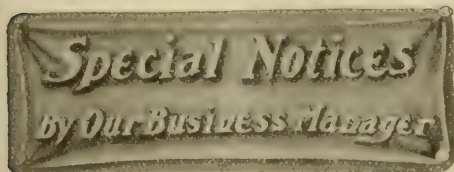
Blacks and Hybrids.

Notices in this column are inserted free, and the publishers assume no responsibility for sales made. We believe, however, that every advertiser will do just as he promises.

FOR SALE.—Fifteen hybrid and mismated queens; good ones; 25 to 35c each. LOUIS WERNER, Edwardsville, Ill.

FOR SALE.—Fifteen hybrid queens; all last year's rearing; excellent honey-gatherers. Get Northern stock; 30c each, six for \$1.50; delivered after May 20. W. L. NYGREN, Maine, Minn.

FOR SALE.—Queens from an Italian queen whose daughters have seven frames of brood May 1 this year. We call them hybrid hustlers. 60 cts.; tested, \$1.00. MRS. J. W. BACON, Waterloo, N. Y.



NO. 2 SECTIONS.

We wish to direct attention to our No. 2 grade of sections. We have an unusually large stock of all standard sizes, both beeway and plain, and the quality is far above the average for No. 2 grade. Indeed, we believe they are superior to many so-called No. 1 grade on the market to-day. The great majority are perfect in all respects except that they are somewhat creamy in color. The wood is as strong and the workmanship fully equal to the No. 1 grade. Our surplus stock of

No. 1 grade is exhausted, and we may have difficulty in making them fast enough to supply all orders promptly. In many cases it may be an advantage to get No. 2 grade promptly rather than have orders delayed waiting for No. 1. Your honey will look as well and sell as well in No. 2 sections as in No. 1. Let us have your orders for a larger proportion of the No. 2 grades. We are running overtime on both sections and comb foundation in an effort to supply them as fast as needed.

COMB FOUNDATION.

We have been fortunate in securing an adequate supply of beeswax to keep our foundation machinery running to its full capacity. The demand for foundation has been enormous, and it takes a lot of wax to keep us going. We have secured from one firm within a few weeks as much as ten tons. We hope now to get through this season without raising the price of comb foundation. For the present we continue paying 29 cents cash, 31 in trade, for average wax delivered here. The price will, no doubt, be marked down somewhat next month. If you have any wax to dispose of we would advise your shipping it without delay.

BIGELOW EDUCATIONAL HIVES.

We have arranged to supply the trade with these hives on short notice at the following prices:

Bigelow educational hive complete, as shown page 590, in pine, nailed and varnished.....	\$20.00
Same, in oak.....	25.00
Either of the above furnished, with glass only omitted, at a reduction of.....	1.50
The feeding-board and one and two frame hives may be omitted if desired, and price reduced by.....	5.00
Flying-cage in pine, no wire or glass.....	3.00
Same, in oak.....	4.00
Magnifying feeder, with lens, in pine.....	4.00
Same, in oak.....	5.00

Samples of these hives may be seen in our New York and Chicago offices, at 44 Vesey St. and 144 Erie St., respectively. Fuller particulars on application.

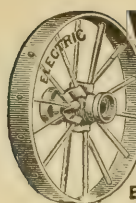
NOTE.—In running the above notice in the May 1st issue we made the following error: "Mahogany feeder" was printed instead of "magnifying feeder," as above.

THE PEARL AGNES HIVE.

A complete little hive. Just right for teachers of small schools, and others who want to study the bee for a short time at little expense; with 5 brood-frames 5½x8, and super holding 20 sections 2x2½x1½, with necessary fences, complete with foundation at the following price: each, nailed and painted, \$2.50; in flat, \$1.75; 10, in flat, \$15.00.



Filled with bees and untested Italian queen, this hive can be sent at low cost by express. We expect to make deliveries from apiaries in various parts of the country after June 1. Price of complete hive with bees and queen, with smoker, veil, and book of instructions, \$5.00.



WAGON SENSE

Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

Electric Handy Wagon.

It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

ELECTRIC WHEEL CO., Box 95, Quincy, Ill.



EXTENSION NUTS CURE AXLE WABBLERS.
Make old buggies run like new. Quick sellers. Very profitable for agents. Exclusive Territory. Hardware Specialty Co., Box 535, Pontiac, Mich.



LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address COILED SPRING FENCE CO., Box 449 Winchester, Ind.



GOLDEN Opportunities!

EXIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

J. W. WHITE

Gen. Indus. Agt., Portsmouth, Va.
Seaboard Air Line Railway

Are you interested in the great and growing South? If so, send 25 cents in stamps or silver and receive the Alabama Times one year.

THE ALABAMA TIMES

is a large eight-page paper, and is published weekly. It will tell you all about the South. Send in your subscription to-day. Address

THE ALABAMA TIMES, Montgomery, Ala.

HOW TO BUILD INCUBATORS AND BROODERS



ACME COMPOUND WAFER REGULATOR and AUTOMATIC LAMP

Combined damper and flame regulation, saves $\frac{1}{2}$ the oil, will fit any machine. Write for catalog. H. M. SHEER CO. Dept. 38, Quincy, Ill.

PLANS FREE

A 10-year-old boy can do it with Peerless plans. Anyone can build successful machines and make money making them for others. These illustrated plans complete, showing every step of construction, are free with every request for our new Incubator and Brooder Supply Catalog. It tells all about the New

You Need It.

If you have only a few chickens;
If you are at all interested in poultry;
If you are breeding for fancy points;
If you cater to the market trade;
If you are in the business on large scale, you need

Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. a year, but we offer it **AT HALF PRICE** for a short time to introduce it to readers of Gleanings. Send only 25 cts. and get it a year; or, if you send us \$1 for a year's subscription to Gleanings in Bee Culture, we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.

Poultry Magazine,



Monthly, 50 to 100 pages, its writers are the most successful Poultrymen and women in the United States. It is

The POULTRY TRIBUNE, nicely illustrated, brimful each month of information on How to Care for Fowls and Make the Most Money with them. In fact so good you can't afford to be without it. Price, 50 cents per year. Send at once for free sample and **SPECIAL OFFER TO YOU.**

R. R. FISHER, Pub., Box 85, Freeport, Ill.

\$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size 8x11 $\frac{1}{4}$ inches) of valuable poultry, pigeon, and pet-stock reading, costing us thousands of dollars to procure. Also your name and address in the "Poultry breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

Poultry Item : : Fricks, Pa.

DO YOU RAISE CHICKENS?

If so, you will find The Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cts. a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

TO THE BEE-KEEPERS OF CANADA

WE ARE pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we are not able to offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers. Moreover, what we do list we propose to keep in large quantities, and will be able to ship promptly.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the **QUALITY**. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY

Deer Park

Toronto - Ontario - Canada

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

Root's Bee - supplies

You know what this means.

Four carloads of new goods on hand. Our business increased last year 100 per cent over 1904. This is proof that we are saving our customers money.

Why not let us do the same for you? **Low freight rates from Toledo. Large discounts.** It tells the story. Two per cent discount this month on bee-supplies. . .

Model Incubators. and Brooders

Made by Charles A. Cynhers. Poultry-supplies of all kinds. Eggs for setting and stock for sale. Our new eighty-page illustrated catalog describes all of these well-known goods. Sent free. Don't be without it. Don't delay. Send to day.

Griggs Brothers

523 Monroe St. : Toledo, Ohio

CENTRAL AND NORTHERN PENNSYLVANIA

**Distributor of Root's Goods from the
Best Shipping - point in this State.
WHOLESALE - AND - RETAIL**

I sell at catalog prices, and, with the low low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also rear Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

E. E. PRESSLER, WILLIAMSPORT, PENN.

SUPREME EXCELLENCE

is only another name for OUR Make of

BEE-KEEPERS' SUPPLIES

Have you ever used them? If not, give us a trial order this spring. We will do our best to please you. Our prices are as low as any; and if our goods aren't as we claim you'll not have to pay for them.

We have published the AMERICAN BEE-KEEPER for nearly sixteen years. It is the largest and best illustrated magazine of its kind for the price. Edited by two of the most experienced bee-keepers in America; monthly; 50c a year. Sample copy and our large illustrated price list of supplies free on application.

The W. T. Falconer Manufacturing Co.
Jamestown, New York

Dadant's

Foundation

It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!
No sagging; no loss.
Twenty-eighth Year.
We Guarantee Satisfaction.
Wax Worked into Foundation.

~~~~~

## Bee-supplies of All Kinds

~~~~~

Beeswax wanted at all times.
Send for Our 1906 Catalog.

~~~~~

**Dadant & Sons, Hamilton, Ill.**

## New Goods-Big Stock

New Warehouse, Root's Goods,  
Prompt Shipment, Low Freight.

### Everything for the Bee-keeper at Savannah, Ga.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. . . . .

## BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog sent free. Correspondence solicited. .

## HOWKINS & RUSH

124 West Liberty Street

**SAVANNAH - - GEORGIA**

# GLEANINGS

## IN BEE CULTURE



*Prof. H. A. Safford*

THE A. I. ROOT CO.  
MEDINA, OHIO.

Eastern Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter



## Our New Manager at Washington, D. C.

Mr. H. G. LaRue is now the manager of our branch at 1100 Maryland Ave., S. W. Mr. La Rue is a bee-keeper of considerable experience. He is also a graduate of one of the best business colleges in Ohio. Our customers are assured of prompt and satisfactory treatment. Freight and boat rates from Washington to the South are very low.

### The A. I. Root Company

1100 Maryland Av., S. W.  
Washington, D. C.

## Bee-Supplies

For Southern

Bee-Keepers

I have been over 20 years in the bee-supply business, manufacturing hives and fixtures, and raising bees and queens. With all this experience and the excellent facilities I have, I am able to fill your orders promptly, and give absolute satisfaction. Though I make my own hives I carry a complete stock of The A. I. Root Company's manufacture. Just specify "Root's Goods" and you will get them.

### Bees and Queens

I breed with scientific, intelligent methods, from the best imported and Long-tongued stock. Cheap queens may be had elsewhere. My stock is worth every cent of the price. You will be pleased with it. I GUARANTEE IT.

### 64-page Catalog

of Supplies and Bees sent free. Tell me you saw my ad. in GLEANINGS.

**J. M. JENKINS**

**WETUMPKA : ALABAMA**

## MISSISSIPPI

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders.



## Bees and Queens

from Select Stock

Correspondence Solicited.

**GEO. A. HUMMER,**  
**BRAZELIA, - MISSISSIPPI**  
Shipping-point, Macon

## Now Ready

To book your orders for bees for May and June shipment.

### Our New Stock of Goods

has arrived, and we can fill orders for eight and ten frame Dovetailed or Danz hives and sure s. also the new **METAL-SPACED HOFFMAN FRAME** on short notice.

Send for price list of Bees, Queens, and Hives.

**W. W. Cary & Son,**  
**Lyonsville, Mass.**

NORTHEASTERN & NEW ENGLAND

## BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

**J. B. Mason, Mechanic Falls, Maine**

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

**C. H. W. Weber,**

Headquarters for

# Bee - Supplies.

**Distributor of Root's Goods Exclusively, at Root's Factory Prices.**

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

## QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

**C. H. W. WEBER,**

Office and Salesroom, 2146-2148 Central Ave.  
Warehouse, Freeman and Central Avenue.

**Cincinnati, - Ohio.**



## Honey Market.

### GRADING-RULES.

**FANCY.**—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

**A No. 1.**—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled, the outside of the wood well scraped of propolis.

**No. 1.**—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

**No. 2.**—Three-fourths of the total surface must be filled and sealed.

**No. 3.**—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

**PHILADELPHIA.**—The old lots of comb honey are about cleaned up in this market, and the market is ready for new goods. There are not enough sales to give quotations. Some old extracted honey is selling as follows: White, 6 to 7; amber, 5 to 6. Beeswax, firm at 29. We are producers of honey, and do not handle on commission.

WM. A. SELSER,  
May 18. 10 Vine St., Philadelphia, Pa.

**MILWAUKEE.**—The present condition of this market on honey is favorable, looking forward to the new crop as the remnants of old crops of two or three years ago are being worked off; and by the date new crop may be ready for market we think there will be a demand that will make sales lively, and results acceptable to those interested. The continued demand is only for fancy comb and perfect cured extracted, either white or amber; and defective qualities, if sent out or offered, are refused, which, in such cases, causes delays in any satisfactory settlement. The consumption of real nice conditioned honey seems not confined to any special season — always to be desired at a fair value; hence we feel justified in encouraging the production of choice honey; and it is appreciated in this market — equal to any other or better. We can quote fancy 1-lb. sections, 16 to 18. Beeswax, 26 to 30. A. V. BISHOP & Co.,  
May 17. 119 Buffalo St., Milwaukee, Wis.

**BUFFALO.**—The condition of the market continues about as last quoted. No fancy A No. 1 nor No. 1 honey offered in our market. Price is 15 to 16, and good stock would sell on arrival; off grades are selling slowly. Much of the trade would rather not buy any than not to have pure white. Some No. 2 white, mixed, and buck-wheat is for sale, and brings a good price for what we can sell; not much call for extracted. Beeswax very scarce at 30 to 32. W. C. TOWNSEND,  
May 25. Buffalo, N. Y.

**CHICAGO.**—We are having very little call for honey, either comb or extracted. Fancy comb is bringing 15, other grades from 10 to 14; extracted, white, 6½ to 7; amber, 5 to 6. Beeswax, 30. R. A. BURNETT & Co.,  
May 18. '199 South Water St., Chicago, Ill.

**DETROIT.**—Very little honey in market, and demand is light; but prices are ruling rather high. Comb honey, A No. 1 and No. 1, 16; extracted, 7 to 7½, with very little demand. Beeswax, 28 to 30c. No prospect of any change until new crop is in. M. H. HUNT & SON,  
May 26. Bell Branch, Mich.

**ATLANTA.**—New honey is arriving more freely, although the demand keeps up with supply. We quote: fancy white comb, 13½ to 15; A No. 1, 12 to 13; white, in cans, extracted, 6½ to 7; amber, in cans, 5½ to 6. Bulk comb in cans, 9 to 10. Beeswax, 28 to 30.  
JUDSON HEARD & Co.,  
May 22. Atlanta, Ga.

**TOLEDO.**—There is very little demand for comb honey at this writing on account of the heavy receipts of strawberries. Very little demand for extracted honey for table use. Amber extracted honey in barrels brings 5 to 5½c; cans the same. Beeswax is more plentiful, and we are paying 28c cash, 30c in trade.

GRIGGS BROS.,  
May 19. 521 Monroe St., Toledo, Ohio.

**ST. LOUIS.**—The honey market is about in the same condition as quoted in our last. The demand for comb as well as extracted honey, however, has fallen off considerably. We quote: fancy white comb, 14c; No. 1, 12½ to 1; amber, 11 to 12. Extracted California, light-amber, 6 to 6½; Spanish-needle, 6½ to 7; Southern, in barrels, 4½ to 4½; latter quotation for new; in cans, 5 to 5½. Beeswax, for prime, 29; all impure and inferior, less. R. HARTMANN & Co.,  
May 21. 14 So. Second St., St. Louis, Mo.

**NEW YORK.**—There is still some demand for comb honey, mostly for fancy stock, which is selling at 14 to 15; off grades in no demand, and prices are irregular — ranging from 8 to 12c, according to quality; sufficient supply to meet the demand. Extracted is in fair demand, mostly for California, of which there seems to be abundant supply of all grades. We quote white 6½ to 7c; light amber, 6; dark, 5 to 5½, according to quality and quantity. Beeswax scarce and firm at 29 to 31. HILDRETH & SEGELKEN,  
May 20. 82 Murray St., New York.

**DENVER.**—Market on choice white comb honey is active; off grades and partly candied not wanted. We quote the following prices: Strictly No. 1 white, per case of 24 sections, \$3.30; off grades No. 1, \$3.00; No. 2 and partly candied, \$2.40 per case. Extracted, 6½ to 7 per lb. We are in the market for beeswax at 24c, delivered here, for average yellow wax.

THE COLORADO HONEY-PRODUCERS' ASS'N,  
May 10. Denver, Colo.

## BEE-SUPPLIES.

We handle the finest bee-supplies, made by the W. T. FALCONER MFG. Co., Jamestown, N. Y. Big Discounts on early orders. Let us figure with you on your wants.

MUTH SPECIAL DOVETAIL HIVES have a honey-board, warp-proof cover and bottom-board. Think of it. Same price as regular styles. Send for catalog.

**The Fred W. Muth Company, Cincinnati, Ohio**  
51 Walnut Street

**KANSAS CITY.**—The market here on fancy white comb honey is \$3.25; extracted is slow at 5½ to 6. New honey would sell well.

May 19. C. C. CLEMONS & Co., Kansas City, Mo.

**FOR SALE.**—Fancy California light amber, in new 60-lb. cans, 6c; fancy water-white alfalfa, 7c; Wisconsin basswood in 250-lb. barrels, 7½c; sample, 8c.

E. R. PAHL & Co.,  
Broadway and Detroit St., Milwaukee, Wis.

**FOR SALE.**—Thirty 5 gallon cans of clover honey. Single can, 7½ cts. per lb.; two or more at 7 cts.  
C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

**FOR SALE.**—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.  
O. L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

**FOR SALE.**—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.  
HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

**WANTED.**—Comb, extracted honey, and beeswax. State price, kind, and quantity.  
R. A. BURNETT,  
199 South Water St., Chicago, Ill.

**WANTED.**—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.  
GRIGGS BROS., Toledo, Ohio.

**WANTED.**—Comb and extracted honey. State quality, quantity, and price.  
JUDSON HEARD & Co., Atlanta, Ga.

**WANTED.**—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.  
HILDRETH & SEGELKEN,  
265-267 Greenwich St., New York.

**WANTED.**—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.  
EVANS & TURNER, Columbus, Ohio.

**WANTED.**—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.  
THE A. I. ROOT CO., Medina, Ohio.

#### JELLY-TUMBLERS AT REDUCED PRICES.

You can double your money from your honey crop by using Jelly-Tumblers of correct style, as containers and keeping your market supplied. No other glass so economical. Write for quotations.

OREL L. HERSHISER,  
301 Huntington Ave., Buffalo, N. Y.

#### The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

**A GOLD MEDAL**

at the World's Fair,  
St. Louis, 1904.



**UP-TO-DATE,  
STRONGEST,  
COOLEST,  
CLEANEST.**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

**Every Thing Guaranteed "Root Quality."**

**ALL THAT IS CLAIMED.**—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Platteville, Wis.

**SURPASSES ALL OTHERS.**—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."  
Grant Stanley, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

**F. DANZENBAKER, MIAMI, FLORIDA**

## Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free.  
The Southern Fruit Grower, Box 1, Chattanooga, Tenn.

## POULTRY DOLLARS COME EASY.

Our large 52 to 112 page beautifully illustrated magazine, best printed and edited poultry journal, makes it easy to add dollars to your income by keeping a few hens on a town lot or make a success on a large scale, covers every thing. Contains information that will put you in comfortable circumstances if followed. **POULTRY SUCCESS** one year, 50 cts. Large illustrated poultry book free to annual subscribers. Three months' trial, 10 cts.  
**POULTRY SUCCESS CO., Springfield, Ohio.**

## KEEP YOUR EGGS

all summer while prices are low, and sell next winter at a good profit. Write for our plan; it will interest you.

T. T. POULTRY CO., Springfield, Ohio.

## GET RID OF LICE.

For 25 cts. we send formula that never fails to exterminate lice. Costs less than 8c per lb. to make. Guaranteed. Used by many leading poultrymen.

T. T. POULTRY CO., Springfield, Ohio.



# Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

**E. R. ROOT**  
Editor

**A. I. ROOT**  
Editor Home Departments

**H. H. ROOT**  
Asst. Editor

Department Editors:  
**DR. C. C. MILLER,** **J. A. GREEN,** **PROF. A. J. COOK,** **J. E. CRANE,**  
**LOUIS H. SCHOLL,** **G. M. DOOLITTLE,** **W. P. ROOT.**

**J. T. CALVERT,** Business Manager

**A. L. BOYDEN,** Advertising Manager

Circulation 30,000. Reaches every State and 60 foreign countries.  
 Established in 1873. Sixty-four pages. Semi-monthly.  
 Published by The A. I. Root Company, Medina, Ohio, U. S. A.

Terms---\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.

**Postage is Prepaid** by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

**Change of Address.**—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

**Discontinuances.**—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

**How to Remit.**—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

**Agents.**—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

## Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

**Paris, France.** E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

**Kingston, Jamaica.** HOOPER BROS., 20 Orange St. *Per year, postpaid, 5 / 6.*

**Goodna, Queensland.** H. L. JONES. Any Australian subscriber can order of Mr. Jones *Per year, postpaid, 5 / 6.*

**Dunedin, New Zealand.** ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 6 / .*  
 Other names will be added from time to time.

**THE A. I. ROOT CO., Medina, Ohio, Publisher.**

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....  
 Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY.....STATE.....

DATE.....If you want Gleanings discontinued at expiration, check here ( )

# 500 COLONIES

of bees will be under the charge of the editor of the Bee-keeper's Review the coming season—100 colonies at home and 400 in the wild picturesque region of Northern Michigan. A brother of the editor is moving to this region this spring, where, aided by his boys and the Review editor, he will manage a little over 400 colonies for the production of extracted honey. Over 300 colonies will have to be moved there, some by wagon and 100 by rail, accompanied by the editor.

The locations have already been selected, and the Review for May devotes several pages to an account of this initial trip north, giving views and descriptions of that region, showing how to select the most desirable location, the difficulties to overcome, etc.

Next will come the moving of the bees, the establishing of the apiaries, the building of the honey-houses and the cellars, the extracting of the honey, etc. The editor of the Review, accompanied by his camera, will be in the "thickest of the fight," and all will be faithfully described and profusely pictured in the Review.

Send \$1.00 for the Review for 1906, and what back numbers there are left of 1905 (some seven or eight issues now) will be sent free.

If you would like to see the Review before subscribing, send ten cents for three late but different issues, and the ten cents may apply on any subscription sent in during the year.

**W. Z. Hutchinson, Flint, Mich.**

## HERE'S YOUR CHANCE

to win a prize by doing a little work in  
obtaining subscriptions for Gleanings  
in our Second Subscription Contest.

Last contest EVERY contestant that sent in more than ONE subscription obtained a prize. It will doubtless be so in this contest, so that besides the regular commission you will receive a prize that will more than pay any effort made.

### Twenty-five Prizes!

|                                             |               |                          |                          |
|---------------------------------------------|---------------|--------------------------|--------------------------|
| (Variety of queen to be winner's selection) |               | Fourth Prize .....       | 3.00 queen               |
| First Prize .....                           | \$10.00 queen | Fifth Prize .....        | 2.00 queen               |
| Second Prize .....                          | 7.50 queen    | 6th to 15th Prize .....  | One cloth-bound A B C    |
| Third Prize .....                           | 5.00 queen    | 16th to 25th Prize ..... | One Junior Corneil smoke |

### Conditions!

- FIRST.—That subscriptions to be entered in this contest are to be obtained as results of work between February 15 and July 1, 1906.

SECOND.—To be eligible to any one of the first fifteen prizes, contestant must have at least five yearly subscriptions, or their equivalents, to his credit.
- THIRD.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

FOURTH.—That subscriptions can be sent in any time, but must be plainly marked "For Second Subscription Contest."

CUT HERE

## Gleanings in Bee Culture

Subscription Contest Department.

Date .....

GLEANINGS IN BEE CULTURE, Medina, Ohio:

*Please send agents' terms and enter my name as contestant in Second Subscription Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions and agree to them.*

Name .....

P. O. ....

I can use ..... sample copies of Gleanings. State .....



## CONTENTS OF THIS NUMBER.

|                                                  |     |                                               |     |
|--------------------------------------------------|-----|-----------------------------------------------|-----|
| <b>MARKET QUOTATIONS</b> .....                   | 706 | Honey as a Food.....                          | 740 |
| <b>STRAY STRAWS</b> .....                        | 717 | The Differences of Opinion on Frames.....     | 741 |
| <b>EDITORIAL</b> .....                           | 717 | Cabbage-palmetto Trees of Florida.....        | 742 |
| Prospects for the Season.....                    | 717 | How Many Colonies Shall a Man Keep?.....      | 742 |
| Death of J. C. Acklin.....                       | 718 | <b>HEADS OF GRAIN</b> .....                   | 743 |
| Caucasians for Queen-rearing.....                | 718 | Wire-cloth Separators.....                    | 743 |
| Getting Bees for Stocking Nuclei.....            | 719 | A Plan for Requeening an Apiary.....          | 743 |
| Prof. H. A. Surface.....                         | 719 | Curved Alighting-boards.....                  | 744 |
| Field Day of Bee-keepers at Jenkintown.....      | 720 | Alexander's Bee-hat.....                      | 744 |
| <b>FANCIES AND FALLACIES</b> .....               | 721 | Moving Bees.....                              | 744 |
| <b>PICKINGS FROM OUR NEIGHBORS' FIELDS</b> ..... | 722 | Early-reared Queens.....                      | 744 |
| <b>GLEANINGS FROM THE PACIFIC COAST</b> .....    | 723 | Foundation Stretching.....                    | 745 |
| <b>BEE-KEEPING AMONG THE ROCKIES</b> .....       | 724 | Horizontal vs. Vertical Wiring.....           | 746 |
| <b>CONVERSATIONS WITH DOOLITTLE</b> .....        | 726 | How to Divide and not Lose Bees.....          | 746 |
| <b>GENERAL CORRESPONDENCE</b> .....              | 727 | What can be Expected from Buckwheat.....      | 747 |
| Alexander and His Critics.....                   | 727 | Manipulating Hives instead of Frames.....     | 747 |
| Honey Market, Condition of.....                  | 729 | Ants.....                                     | 745 |
| Appliances to Adopt if I were to Start Anew..... | 730 | A Metal Side and End Spacer Combined.....     | 748 |
| How to Use a Sectional Hive.....                 | 734 | Plain Section in Colorado.....                | 748 |
| Bee-keeping in Pennsylvania.....                 | 734 | Combs Melting Down in Hives Painted Dark..... | 748 |
| The Control of Swarming.....                     | 735 | An Error Corrected.....                       | 752 |
| The Alexander Cure for Black Brood.....          | 736 | Inbreeding.....                               | 747 |
| Some Fancy Honey.....                            | 737 | <b>A YEAR'S WORK IN AN OUT-APIARY</b> .....   | 749 |
| An Apiary in South Florida.....                  | 738 | <b>OUR HOMES</b> .....                        | 753 |
| Shade.....                                       | 738 | <b>SPECIAL NOTICES</b> .....                  | 762 |

## INDEX TO ADVERTISEMENTS.

|                                     |     |                               |            |                                        |         |
|-------------------------------------|-----|-------------------------------|------------|----------------------------------------|---------|
| <b>Banking by Mail.</b>             |     | G. Routzahn.....              | 769        | <b>Honey-buyers.</b>                   |         |
| Savings Dep. Bank Co.....           | 757 | Grant Anderson.....           | 771        | See page.....                          | 706-707 |
| <b>Bee Smokers.</b>                 |     | Henry Alley.....              | 770        | <b>Household Specialties.</b>          |         |
| T. F. Bingham.....                  | 763 | E. E. Mott.....               | 769        | Best Light Co.....                     | 761     |
| F. Danzenbaker.....                 | 707 | G. W. Gates.....              | 771        | Cleveland Desk Co.....                 | 776     |
| <b>Bee Supplies.</b>                |     | Henry Shaffer.....            | 773        | Joseph Horne Co.....                   | 761     |
| A. H. Reeves.....                   | 771 | H. G. Quirin.....             | 770        | <b>Machinery.</b>                      |         |
| A. G. Woodman Co.....               | 766 | H. C. Simpson.....            | 771        | Electric Wheel Co.....                 | 761     |
| C. H. W. Weber.....                 | 705 | H. M. Parker, Jr.....         | 773        | Lyons Engine Co.....                   | 759     |
| C. M. Scott & Co.....               | 766 | H. A. Ross.....               | 769        | Medina Concrete Co.....                | 758     |
| D. Cooley.....                      | 768 | H. H. Jepson.....             | 771-773    | F. E. Myers & Bros.....                | 761     |
| Fred W. Muth Co.....                | 706 | J. L. Strong.....             | 773        | <b>Miscellaneous.</b>                  |         |
| Frank W. Prothero.....              | 768 | J. W. Taylor.....             | 770        | Alabama Times.....                     | 776     |
| Geo. E. Hilton.....                 | 767 | J. W. K. Shaw & Co.....       | 771        | Best Gate Co.....                      | 760     |
| G. B. Lewis Co.....                 | 714 | Jas. W. Bain.....             | 771        | Hammond's Slug-shot.....               | 758     |
| I. J. Stringham.....                | 713 | J. B. Case.....               | 773        | Hardware Specialty Co.....             | 761     |
| J. H. M. Cook.....                  | 713 | J. E. Chambers.....           | 773        | Home Correspondence School.....        | 757     |
| Kretschmer Mfg. Co.....             | 766 | J. R. Rambo.....              | 770        | Seaboard Air Line R. R.....            | 776     |
| Lathrop Mfg. Co.....                | 767 | John M. Davis.....            | 773        | The Deming Co.....                     | 757     |
| Leahy Mfg. Co.....                  | 769 | Mennie & Fenton.....          | 773        | Chicago House-wrecking Co.....         | 761     |
| Marshfield Mfg. Co.....             | 713 | Malan Brothers.....           | 769        | Ideal Specialty Co.....                | 776     |
| Minnesota Bee Supply Co.....        | 769 | M. D. Whicher.....            | 772        | T. T. Poultry Co.....                  | 631     |
| M. H. Hunt & Son.....               | 712 | Robert B. McCain.....         | 772        | <b>Publishers, Agricultural-paper.</b> |         |
| Page & Lyon.....                    | 765 | R. O. Cox.....                | 771        | Farmer's Call.....                     | 763     |
| The Root Co.....                    | 768 | Roselawn Apiary.....          | 772        | Southern Fruit Grower.....             | 631     |
| The Root Co., Syracuse, N. Y.....   | 712 | S. Valentine.....             | 763        | <b>Publishers, Bee-journal</b>         |         |
| The Root Co., St. Paul, Minn.....   | 765 | The Jennie Atchley Co.....    | 773        | A. I. Root Co.....                     | 708-709 |
| W. T. Falconer Mfg. Co., Back Cover |     | Victor-Knolle Apiary Co.....  | 773        | Geo. W. York & Co.....                 | 713     |
| Walter S. Powder.....               | 764 | W. H. Laws.....               | 772        | W. T. Falconer Mfg. Co., Back Cover    |         |
| York Honey & Bee Supply Co.....     | 767 | W. T. Lewis.....              | 769        | W. Z. Hutchinson.....                  | 709     |
| Orel I. Hershiser.....              | 631 | W. T. Crawford.....           | 771        | <b>Publishers, Poultry-paper.</b>      |         |
| <b>Bees and Queens.</b>             |     | J. P. Moore.....              | 768        | R. R. Fisher.....                      | 776     |
| A. E. Titoff.....                   | 772 | J. W. Griffin.....            | 771-772    | The Poultry Gazette.....               | 776     |
| Bee & Honey Co.....                 | 768 | L. H. Robey.....              | 772        | Poultry Item.....                      | 776     |
| Best-the-bee man.....               | 763 | I. C. Miller.....             | 773        | Ohio Poultry Journal.....              | 776     |
| B. C. Terry Co.....                 | 773 | W. H. Rails.....              | 771        | Poultry Success.....                   | 631     |
| Chas. Koeppen.....                  | 772 | <b>Bee-books.</b>             |            | <b>Seeds and Trees.</b>                |         |
| D. J. Blocher.....                  | 695 | A. J. Cook.....               | 767        | Hart Pioneer Nurseries.....            | 758     |
| Daniel Wurth.....                   | 773 | George W. York.....           | 713        | <b>Wants and Exchanges.</b>            |         |
| Doolittle & Clark.....              | 771 | <b>Comb Foundation</b>        |            | See page.....                          | 774     |
| E. A. Simmons.....                  | 770 | Dadant & Son.....             | Back Cover |                                        |         |
| E. E. Lawrence.....                 | 772 | Gus Dittmer.....              | 765        |                                        |         |
| F. J. Colahan.....                  | 770 | <b>Fences.</b>                |            |                                        |         |
| F. A. Lockhart & Co.....            | 771 | Brown Fence and Wire Co.....  | 761        |                                        |         |
|                                     |     | Coiled Spring Fence Co.....   | 761-776    |                                        |         |
|                                     |     | Page Woven-wire Fence Co..... | 757        |                                        |         |

# ADVERTISING TALKS

BY THE AD. MAN.

June—the first summer month—the opening of the summer season for advertisers. What is the outlook for a good season for you? Are you one of those advertisers who hibernate during the warm months and then come back into the field in the autumn? Don't you find it hard to get a new start each year? May be you have never figured how much cheaper and more effective it would be for you to keep your name before the buying public the year round, and then when the real season—the time when the need for your goods is greatest—comes, make a little harder effort to interest prospective buyers? If this is the month when a farmer is using his plow or seeder or drill, this is the month when he will decide to buy a new one. Ask a farmer if he is going to buy a new implement; and if he says yes, ask him what make, if he can tell you. He will not wait until next spring, when he sees your ad., to decide. Now is the time when he is investigating—watching how your drill works on his neighbor's farm. Now is the time when your name should be ever before him.

One of the most remarkable companies in the United States is the Chicago House-wrecking Company, Chicago, Ill. This company has bought and wrecked every World's Fair since and including the Chicago Exposition of 1893. They have also bought, many times, immense stocks at sheriffs' and receivers' sales all over the country. Of course, you will see that, buying in this fashion, they secure an almost unlimited amount of any line of goods. In fact, there is hardly an article of any description for the home or farm, that is not listed for sale in their large catalog. We are very glad that our readers can now secure this catalog free of charge by answering the ad. of the above company on page 761, in this number of GLEANINGS. The Chicago House-wrecking Company has a very high credit rating, and we sincerely believe that they will take good care of all orders received from our readers.

The special State issues which we are getting out occasionally mean more value to advertisers than we are asking pay for. We work constantly and carefully to increase our circulation, and many active bee-keepers are being added each day. Several plans which we have already tried have resulted in great steps forward, and just now the 50,000 mark does not look very far distant.

## Building fences this spring?

Getting along pretty late now, and your time will soon be taken up with other matters. A good strong fence, whether it be around your field or around your dooryard, is always an ornament and an investment. The looks of a farm and the character of the farmer are easily judged by the condition of the farm fences. A good strong fence costs but little more than a cheaper one, and in service it will pay great returns on the investment. There is a 32-page catalog issued by the Coiled Spring Fence Co., Box 448, Winchester, Indiana, which you should have. It contains much valuable information on the fence question. Settle the question

for yourself early. You will be glad that you did so, a little later on.

## SQUARE-DEAL ADVERTISING.

There is no one who deserves a "square deal" more than an advertiser who risks his money by purchasing advertising in a publication where only a careful trial will prove whether or not his choice has been a wise one. There is an element which enters here, and which corresponds in a way to the "square deal" from the publisher's standpoint. When an advertiser appropriates a sum for an ad. in a publication, especially a publication reaching an agricultural class, and after his ad. has appeared once, stops it and awaits the rolling-in of orders, he has made a mistake in his method of investment. The chances for a paying success from one advertisement in any paper are very small. Any experienced advertiser will back this assertion.

Figure this out for yourself. Turn to some new advertisement in your farm paper—in this issue of GLEANINGS; then, to satisfy yourself that this is a new ad., get two or three back numbers of the journal and see if this ad. has not appeared before. Many times you will be surprised to learn that the first appearance of the ad. was unnoticed. This introduces the reason why one-insertion advertising does not pay.

There are places where familiarity may breed contempt; but in advertising, nothing but familiarity will breed success.

Every publisher owes it to the advertiser to give the very best counsel resulting from the benefit of his own experience in the preparation of paying copy. The chances are that he can almost always tell from the information whether or not the proposition would appeal to the readers of his journal. Any publisher who will comment favorably on a proposition which has been submitted to him, when he really feels that this will not be a lasting success, not only harms the advertiser but himself as well.

One-time advertising pays neither an advertiser nor the publisher; and the conservative advertiser who finds that advertisements appear but once in a publication should make a very careful investigation before giving such a journal a trial.

Have you sent for a catalog of the Lyons engines? The time is fast approaching when you will wish you had some sort of an engine to help out on your farm or in your apiary.

The Lyons Engine Company manufacture a gasoline-engine which we believe to be of the highest quality. If you are interested in this subject, do not let another day pass before you send for their complete catalog. This book is nicely illustrated, and gives much valuable information on farming with power. See the Lyons' advertisement on page 759.



# Root's Goods in Michigan!!

Our prices are identical with those of The Root Co. We carry several carloads their goods in stock—hives, sections, foundation, smokers. Every thing for bees.

We can save you time and freight expense in getting your supplies—and they are Root's goods, too.

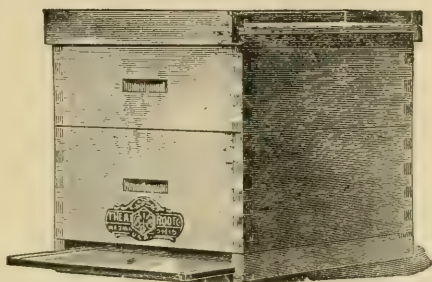
The Danz. hive—the comb-honey hive, is one of our specialties. We would like to tell you more about it if you are interested.

If you are just beginning with bees, we would like to mail you our booklet, "Outfits for beginners." Our catalog goes with it.

The goods you want now, you want "in a hurry." For Root's Goods "in a hurry" send to

## M. H. HUNT & SON, BELL BRANCH, MICH.

# DANZENBAKER HIVES



In this connection wish to say that my ten colonies (in Danzenbaker hives) wintered perfectly on summer stands with no other protection than a super of dry sawdust over them, and are building up nicely, although some of them covered only about three frames in the fall. *Score one for Danzenbaker hives.* (Signed)

JAMES M. SOWARDS, Pikeville, Ky.  
May 10, 1906.

The Best  
Comb-honey Hive  
Made or Used

The Best  
for Wintering  
in Our Locality

## THE A. I. ROOT CO., SYRACUSE, NEW YORK



**This Offer Good Until July 1st Only !**

**DOOLITTLE'S  
QUEEN-REARING  
BOOK**

**For Only 25 Cents**



**When taken with the Weekly American Bee Journal for One Year at \$1—making \$1.25 for both.**

(Book bound in Leatherette cover, otherwise same as the cloth-bound book, which is \$1.)

This offer is open to any body, either new or old subscribers, but the latter when accepting it must send enough to pay their subscriptions a year in advance, if they are in arrears now.

Mr. Doolittle's book tells in detail just how he rears the best queens possible; also gives **His Methods of Comb Honey Production.** Every bee-keeper should have this book. (126 pages.)

**OUR STANDARD-BRED ITALIAN QUEENS**

are unexcelled. Reared by best queen-breeders. Prices—1 Untested, 75c; 3 for \$2.10; or 6 for \$4.00. Orders filled in rotation. Better get your orders in **NOW** for June delivery.

The Weekly American Bee Journal one year with Untested Italian Queen—both for \$1.50. And to all such who order, and who are **NEW** subscribers, we will send **FREE** all the back numbers of the Bee Journal since Jan. 1, 1906, **so long as they last.** We have quite a few full sets left since Jan. 1. First come, first served.

Sample copy of the Weekly Bee Journal free on request, or a **Trial Trip** of 3 months (13 copies) for only 20 cents, to a new reader. Better order now, as there are lots of good things appearing in its columns every week.

Address,

**GEORGE W. YORK & CO.**

334 Dearborn Street, CHICAGO, ILL.

## Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

**J. H. M. COOK, 70 Cortlandt St., New York**

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar, by mail.

## I. J. STRINGHAM

OF 105 PARK PLACE

## New York

furnishes every thing a bee-keeper uses. Strong colony of bees, with tested Italian queen, in Dov'd hive complete, \$8.75; in a chaff hive, \$9.50. Three-frame nucleus, with Italian queen, \$4.25. Silk-faced bee-veil, 40 cts. postpaid. Italian queens, \$1 00. Catalog of bee-supplies free.

Apiaries, Glen Cove, Long Island.

## WISCONSIN BASSWOOD FOR SECTIONS

We make them and the very best of **Dovetailed Hives**, **Shipping-cases**, and a full line of **Bee-keepers' Supplies** always on hand. We make very prompt shipments. Let us hear from you.

**Marshfield Mfg. Company**  
Marshfield, Wisconsin



# Hundred Cents on a Dollar

## is what You Get if You Order Lewis Goods

### FRAMES

The frames you sent me were duly received, and they are the best, finest, and nicest frames I have ever had.

H. P. Wilson, Bathgate, N. D.

Received my 100 brood-frames in fine shape, and I am well pleased with them. They are the best I have ever put together.

D. S. Haag, Rock City, Ill.

I find frames, fences, covers, hive bodies and bottoms perfect, and made of the finest lumber I ever saw supplies made of.

D. M. Landenslayer, Mackeyville, Pa.

### PROMPTNESS

I would like to thank you for your prompt way of doing business in such a season as this when every one is excited.

E. W. Coe, Aug., 1903, Clarence, Ia.

I wish to acknowledge receipt of the goods ordered from you and thank you for your promptness in sending them.

Claude L. Madison, Alden, Ill.

### RESPONSIBILITY

Remembering how well you did with me over 22 years ago on some hives I bought, I hope we may come together again on a small deal.

Leopold Moller, Fremont, Neb.

I thank you for thirty years of friendly dealings.

C. Theilman, Theilman, Minn.

Don't worry about us not handling your goods. I have used and sold your goods for 15 years, and consider them the finest beware made.

J. Enyhart & Son, McFall, Mo.

I am well pleased with your way of doing business, and satisfied with all goods received from your factory. Can say that they are much better than I can get any place else.

J. F. Nolte, Redfield, Ia.

I received goods o. k. It is a pleasure to deal with a firm like yours.

H. Luke, Burlington, Wis

### PACKING

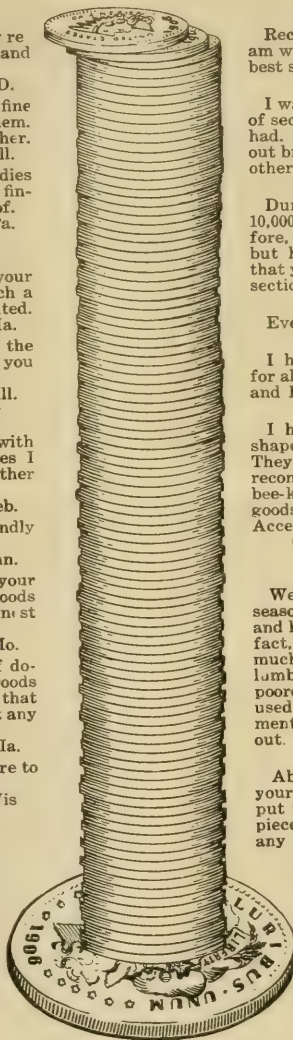
We think your policy of packing goods in first-class shape and a specified number to the crate is a winning card.

The Chas. H. Lilly Co.,  
Seattle, Wash.

I consider your freedom from mistakes quite wonderful considering the number and variety of pieces in the various lines of goods you carry.

W. C. Gibson,

National Home, Milwaukee, Wis.



### SECTIONS

Received my sections in fine shape and am well pleased with them. They are the best sections I have ever put together.

Arthur Strampe, Paulina, Ia.

I want to say that I consider your make of sections the nearest perfect I have ever had. I have folded packages of 500 without breaking one, and I can not say that of others I have used.

George Brown, Deerfield, Ia.

During the last four years I have bought 10,000 sections from three other firms. Before, I had used yours for several years; but have decided, after a thorough trial that yours are the best and most perfect sections in every way that I've ever used.

David Foote, Riceville, Ia.

Everybody wants Lewis Sections.

A. W. Swan, Centralia, Kan.

I have used your supplies exclusively for almost 14 years, especially the sections, and I don't want any other kind.

C. H. Harlan, Mora, Minn.

I have received those sections in good shape, and I am well pleased with same. They are all right in every way. I shall recommend your bee-supplies to other bee-keepers. I think you make better goods than any other firm in the world. Accept my thanks.

Geo. B. McDaniels, Grand View, Ia.

### HIVES

We note that the Lewis goods for the season of 1906 are finer than ever. Hives and hive parts are without any knots. In fact, they are so nice that we are very much surprised, as we supposed that, as lumber got scarcer and higher, necessarily poorer grades of lumber would have to be used. We are receiving many compliments on the Lewis goods we are shipping out.

A. G. Woodman Co.,  
Grand Rapids, Mich.

About two months ago I bought 25 of your eight-frame Dovetailed hives and I put these together without losing a single piece. I find these hives to be better than any other I have ever used. Although I have a gas-engine and good tools I can buy your hives cheaper, and more accurately made.

E. K. Meredith, Batavia, Ill.

Your hives look as if they had been sandpapered after they are nailed up. I have just finished nailing up 40 two-story hives, and they are as nice as could be.

L. B. Smith, Rescue, Tex.

## Nearly 15 Million Sections, Thousands of Hives

Now on Hand in the Warehouses of Our Agents  
and Ourselves Ready for Prompt Shipment. . .

## G. B. Lewis Co., Watertown, Wis.

# GLEANINGS

## IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests  
 Illustrated : Semi-monthly : One Dollar per Year  
 Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

JUNE 1, 1906.

No 11



G. M. DOOLITTLE, in shaking a swarm, is careful to avoid deluging the bees with nectar, p. 652. Some others, perhaps especially Colorado bee-keepers, think this deluging an important part of the process. I wonder which is right.

PROFESSOR COOK says, page 646, that all wasps are our good friends. Across the water bee-keepers make a special effort to combat them, the books of Cowan and Cheshire giving directions to destroy their nests. But I suspect that on this side we don't have their wasp, *Vespa vulgaris*.

L'APICULTEUR thinks American sections should be replaced by a French article, and advises a trial of pasteboard sections strengthened by removable tin corners. [At present prices, even with basswood timber constantly advancing, that material will be cheaper than pasteboard, especially if we would include the tin corners, which, we will say, can be used over and over again.—Ed.]

THE GERMAN CENTRAL UNION of beekeepers numbers 39,809 members.—*Muenchener Bztg.* [Nearly 40,000 members! Of the half-million bee-keepers in the United States, we ought to have at least one organization that would equal the strength of the one mentioned, at least, if not considerably surpass it. When the National Association reached a membership of 2500 it seemed big.—Ed.]

SPEAKING of close division-boards, p. 643, the editor says, "I would go further, and

nailed the strip on the top edge also." I never saw that before, but I feel sure that upper closing is more important than anything lower down. [Our Mr. Pritchard, who has charge of our north yard, says he does not want any strips on the bottom but believes that some on the ends and tops are very important—the top especially.—Ed.]

M. DUVAL-TREPIED, as reported in *L'Apiculteur*, by neglect put away one extracting-super in the fall without having it cleaned out by the bees. After the following harvest, upon uncapping the combs an odor of fermented honey was at once noted. An examination showed bubbles of air or gas in the sealed honey, and the taste of the honey left no doubt as to fermentation. The fermentation was attributed to the atoms of honey left in the cells by the extractor.

E. W. ALEXANDER, p. 649, says to replace finished sections as fast as five or six can be found in a super, so as to help against swarming. But he limits the number of supers to two. Now, I don't understand that it is the presence of finished sections that inclines to swarming, but the absence of working room; so if I leave a super on until most of the sections are finished, and yet add enough more supers so that my bees have more working room than his, will that not be better? In this locality, in a good flow, the bees will finish all but the corner sections of the super without darkening them, and I think the honey is better.

WM. M. WHITNEY writes that, in using the groove-and-wedge plan of fastening foundation, in some instances the wedge did not hold the foundation, and says: "The trouble in every instance coming under my observation was caused from the groove not being cut deep enough to let the wedge down the full depth, which was remedied by dressing off the thin edge, or bottom of the wedge. I think the groove should be cut deeper than is the present practice." [When we first put out the groove-and-wedge plan



we did not make the groove for the wedge as wide as now and have been doing for some time past. This may explain the apparent conflict of experiences.—ED.]

FOR SOME REASON putting weak colonies over strong ones in spring has not been a howling success with me. I tried it again this year in only one case—a very weak colony over a strong one, no smoke used. Within 24 hours the whole business in the upper story was slaughtered, queen and all. Was it the hybrid blood? [Right you are. You stick to those naughty hybrids or mongrels. Mr. Alexander keeps nothing but the very best gentle leather-colored Italians, and here is where the difference lies. Our Mr. Wardell reports that the plan gives excellent satisfaction. He considers it one of the best tricks of the trade that was ever given in a bee journal.]

POLLEN is not generally assessed at its true value, even by bee-keepers. Many a pound of good pollen is allowed to be wasted or spoiled when the bee-keeper would not for a minute allow the same weight of honey to go to waste. But I protest against accusing the bees of the same lack of judgment. A footnote, p. 640, says, "They will gather pollen when they can not get any thing else . . . when nectar comes in they will spend all their energies in the storage of honey." In early spring the proportion of pollen to honey is larger, as at that time nearly every thing gathered is used up in brood-rearing. Later on an excess of honey is gathered for winter stores, and yet I never saw so heavy a flow of honey that the bees did not do their daily stunt on pollen. [Perhaps my language, taken literally, apart from every thing else, may be a little strong. But I was assuming that the bees already had the hives well filled with pollen; then when a flow of nectar would come on they would gather no pollen because none would be needed. Am I not right under these conditions? I grant that some stray bees will be taking in pollen, even in the height of a white-clover or basswood flow; but is it not a fact that at such times there is no pollen, or at least not enough to take care of the brooding going on in the hive? —ED.]

DESIRING to test the correctness of Mr. Doolittle's belief that there is no loss of heat from the brood-nest when an empty story is put over a colony, I experimented. May 7, in the morning, I put an empty hive-body on No. 66, and covered it, fastening a thermometer to the inside of the cover, having another thermometer outside. An hour later it was 21 degrees warmer in the hive than outside. At 9:35 it was 17 degrees warmer in the hive; at 11:15, 21 degrees; at 12:15, 22 degrees; at 1:40 P.M., 13 degrees; and at 5:10, 9 degrees. [You do not state any conclusions, doctor; but the inference is that, inasmuch as there was a difference all the way from 22 to 9 degrees between the inside and outside temperature, therefore there must have been a loss of heat from

the only source of heat—the ball of bees in the lower hive. Or, to put it another way, you would infer that the crust of bees did not hold all the heat because some of it escaped into the upper hive. Perhaps Mr. Doolittle meant that the brooding heat of the cluster of bees would be the same, no matter what the outside temperature was; and that, in order to keep this heat up, the cluster would either have to contract or eat more honey and thus generate more heat. Possibly bees have other means of raising their own internal temperature; but that would not prove that the outside crust of bees would confine the heat. I give it up, and will turn you over to the "tender mercies" of Doolittle.—ED.]

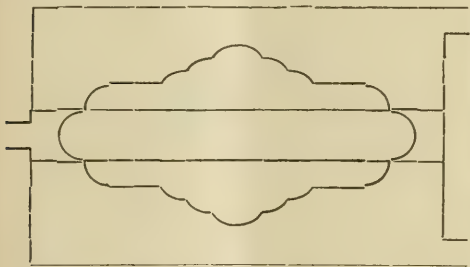
I GLAD TO SEE the exact figures for the time of a queen's maturing, from so experienced a hand as G. M. Doolittle, page 647. If three days be allowed for an egg to hatch, his time from the laying of the egg to the emerging of the queen is from 15 days to 15 days 4 hours. Formerly 17 days was taught, and 16 days is still given by some authorities. Fifteen is the time in this locality. [In view of the reported different experiences, it may be possible that the difference in climatic conditions may account for the delay in queens hatching. I have been running an incubator lately, or trying to, and I got 47 chicks out of a possible 130. It took 22 days for most of them to hatch. I am told that some of them ought to have come out on the 20th day. But my incubator man tells me that I kept the temperature too low at the start. Is it not possible that the bees are not able in all localities to control the temperature around the cells, especially some seasons of the year? If so, this would account for the difference in the recorded experiences.]

As I know you will inquire about the fate of those chicks, I might say that I have 6 left. As nearly as I can determine, the temperature in the brooder was not right. I shall try it again, and then later on, perhaps, try artificial incubation of queen-cells and brood. If I do, I will see if there is a difference in the times of hatching when the temperature is below normal slightly.—ED.]

J. RIDLEY has sounded a much-needed note of warning, page 651. Neither are his local conditions exceptional. Those of Mr. Alexander are exceptional, very. I believe Mr. Alexander is a good bee-keeper, and a good man; but if there is any thing like a general attempt at following his teachings it will only be at a loss. [And yet, doctor, we have a large number of favorable reports from those who have followed the Alexander teachings—as much so as from any correspondent who ever wrote for these columns. You will not forget to consider that Mr. Alexander as well as myself have both stated the peculiarities of his locality. His honey-flow is considerably later than most of us have. It is of a different character, and his bee range is decidedly different in that the bees can fly further than they can in

most localities in quest of nectar. Mr. Alexander perhaps assumes that his reader will "read between the lines" more than he does; that is, he assumes that he will take into careful consideration the surrounding conditions as he has given them at different times. Take, for example, Doolittle's non-swarming articles. One must have a locality that will give a surplus of combs filled with honey after the main or general honey-flow; and that locality must have a yield from fruit-bloom much stronger than most of us have or the bees can not be kept "rich in honey."—ED.]

A. K. FERRIS comes to the aid of the editor, p. 670, and wants to get me out alone. All right, Bro. Ferris, I am ready for you. I call your attention to two points. First, in that little picture, No. 1, p. 670, the compartments are about as far as you could get from the right proportions. It may be that, in a construction of that kind, bees ought to cluster just as you picture it. I don't know; I never tried it. But I will try to show you just how my bees do cluster in a hive with three compartments, for I had 50 such hives made, using full-sized frames, and have had experience with hundreds of nuclei in them. Here is a picture drawn to scale if the printer follows copy:



"What was the second point?" Oh, yes! the second point is that a nucleus *doesn't* always cluster near the entrance. Now wait till I catch you out alone. [In your three-compartment mating-hive you have shown the central compartment a good deal smaller than the two outside ones. If you made each division the same size, would you not get a difference very much like that shown in the Ferris diagram? Your bees must be different from ours if they do not show a strong tendency to cluster directly over or toward the entrance. In very warm weather it would not make very much difference.—ED.]

THE EDITOR, p. 641, says, "Honest, now, don't you find yourself clinging to the old, true, and tried more than you once did? Peer again into the archives of memory." I peered. Not getting a very clear view, I tried to find out from my assistant, and asked, "Don't you think I am a little more conservative about trying new things than I used to be?" In a rather listless way she replied, "Yes, I suppose so; why?" "Oh! I just wanted to know." Then she added, half meditatively, "I don't think there is

much improvement, though, I must confess." So I suppose I have improved at least a little. [Your assistant is not a good judge, because she is more conservative than you; but is it not a fact, doctor, that you clung tenaciously to the old T super with loose T tins when all the younger fry had abandoned them in favor of either the section-holder or wide frame? Then you never liked the plain section or shallow hive. You are in good company; but that company are mainly those who got used to the older style of goods. I grant that, for one of your years, you have a young heart, and that you like to try new things. But I repeat, don't you find yourself clinging to the old, true, and tried just a *wee bit* more than you once did? But you ask how about your assistant. I do not know, for when we meet face to face we very often get into an argument and I—I get the worst of it. While we are on "speaking terms" there are some subjects we now studiously avoid. For example, we don't discuss whether holes in hives should be stuffed with rags to keep bees from getting out, nor yet whether there should be "weeds and things" around a bee-yard.—ED.]



#### A VISIT FROM THE EDITOR OF THE RURAL BEE-KEEPER.

WE had a call recently from W. H. Putnam, of the *Rural Bee-keeper*, of River Falls, Wis. He had just been in attendance at the White Class Advertising banquet held in Chicago on May 22, and before returning was taking a tour among the bee-keepers. He left here for Flint, Michigan, where he expected to see the editor of the *Bee keepers' Review*. Mr. Putnam gets out a good bee-paper, and its editor is doing what all editors of bee-papers ought to do—visit bee keepers. We wish Mr. Putnam every success.

#### PROSPECTS FOR THE SEASON; POSTAL-CARD REPORTS CALLED FOR.

OUR bee weather has been ideal. Hot days and cold nights, with every now and then a shower, has made every thing smile, including the clovers, which are just beginning to show their faces.

We are all expectant as to what the harvest will be, and for that reason I hope our readers all over the country will send us postal cards with one or two sentences on, and no more, telling us what the prospects are, and how clover looks. *Don't, don't*



*write long letters.* At most, put only one or two sentences on a postal card. It is a tremendous job to review a big pile of correspondence.

If you are writing about other matters be sure to put your bee report on a special slip of paper or card so that our mailing clerk can separate them.

#### A. I. R. WORKING WITH BEES AGAIN.

You will see by the editorials signed "A. I. R." elsewhere that we have our senior editor working among the bees again. As we are short of help I pressed him into service by telling him that we wanted him to help our Mr. Pritchard to make up 50 baby nuclei and drive back to the north yard. Do not forget to read his story, as it is told with his old-time enthusiasm.

#### DEATH OF J. C. ACKLIN.

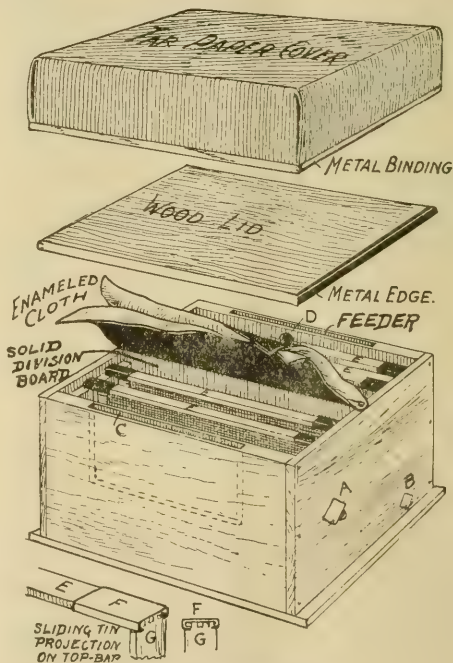
JUST as we go to press we have received sad news of the sudden death of J. C. Acklin at the hospital. No particulars have been received at this writing. Mr. Acklin was one of the most prominent bee keepers and supply-dealers in the Northwest. He was a lovable man, respected by all who knew him best. His business will be handled by Mrs. H. G. Acklin, as formerly. Further particulars given in next issue.

#### CAUCASIANS FOR QUEEN-REARING, GETTING BEES FOR "TWIN HIVES," ETC.

I HAVE mentioned elsewhere that I took a daughter of our Caucasian queen, reared last fall in our Medina apiary, up to my place in Michigan. This Caucasian daughter produced pretty well-marked Italians, indicating that she was crossed with an Italian drone. Well, her bees left at Medina not only started a great lot of queen-cells after their queen was removed, but they have been kept starting grafted cell cups ever since, and are now at it to-day, six weeks since the queen that was taken to Michigan was removed. Mr. Pritchard, who has charge of our basswood apiary, says they are the best colony of bees he ever had to make use of every grafted cell cup; and not only that, they are so gentle to handle that he never uses a smoker nor a veil; and I noticed that in his hurry he crushed several bees besides. It seems too bad to injure or mutilate bees that are so good-natured they do not resent it. I know about the plea that a man's time is worth more than the life of two or three bees in a colony of 40,000; but for all that, I would have all my hives and implements so it would not take a good deal of time to avoid injuring even a single bee, especially when I had one of these nice gentle colonies that are such good honey-gatherers.

Let me now digress a little. Just a week ago yesterday, May 18, we purchased, ten miles out in the country, forty colonies of bees. We are to have just the bees and combs—no hives. On the day I have mentioned we further transferred the bees into two-story eight-frame hives, putting the

brood-combs all into the upper story, above a perforated zinc honey-board, and the queen and bees all into the lower story, on frames of foundation. Yesterday (just one week after this transferring), Mr. Pritchard and I went out with the automobile, carrying 24 twin nucleus hives. Our plan was to put bees enough into each little twin hive from this out-apiary. I said that it would be a big half-day's work. My companion thought that, with the arrangements he had made, we could do it in two hours. Now, please note that we did not have to hunt any queens, for they were all below perforated zinc\* in the lower stories which were not molested. We just had to take combs from the upper story, and shake off the bees into 24 little hives—two compartments in each hive, re-



TWIN NUCLEUS HIVE.

member. The little hives were first distributed through the apiary, one placed at the side of each full hive. The covers were removed so as to have every thing in readiness; then the enamel-cloth covering was turned back, and a tin tunnel with square bottom (just such as we used to use when we sold bees by the pound) was placed over one compartment of the nucleus hive. A little smoke was puffed into the entrance to drive the bees pretty well into the upper story; then I loosened the cover while a little smoke was puffed in so they would not sting too bad. Mr. Pritchard picked out the first

\*The queen excluding zinc honey-boards fulfilled their office so well that only one queen in the forty hives was found in the upper story, and she might have been put in there by some mistake when the transferring was first done. This is a better report from our perforated zinc than I expected.

comb, covered with bees, of course. I quickly took out a second; and just as soon as he could shake the bees off into the tunnel I shook the bees off from my comb, putting the contents of two combs into one compartment.\*

Before the bees could fly out, the enamel-cloth flap was thrown back, the tunnel placed on the other side, and two more combs shaken the same way, shaking the bees from four combs in each top story. I then replaced the empty combs, spaced them correctly, and put on the cover. By this time Mr. Pritchard had the next hive open and ready. I said I did not know but we could get through a hive in five minutes. This would take two hours for taking the bees from the 24 hives. But that was theory. I did not think practice could come out as rapidly. Well, what do you think? In just one hour and a quarter we had our bees all in the little boxes, and we might have got home long before Ernest expected us, in good shape, had not two of the nucleus hives got loose and fell out in the road. It was really too bad to see the little fellows tumbled into the dusty road, and really touching the way they tried to rub the dust out of their eyes, wondering why they had been abused in that way. As the mishap occurred when we were less than a quarter of a mile from the apiary, a boy was sent back with some combs of hatching brood in one little hive. He managed to catch enough of the flying bees, including the dusty fellows, to fill one little hive, so only one hiveful was lost.

I believe this is about the most rapid work in an apiary I ever did, even if I am 66 years old.

One reason why we were in a hurry was that Mr. Pritchard had at the basswood apiary, of which he has charge, forty or fifty virgin queens just hatched or hatching out, and something had to be done quickly to get a place in which to put these young queens. Now, the automobile was not only a big help in going ten miles and back so quickly, but it was away ahead of a horse in enabling us to run right up into the very center of the apiary; and when the mishap occurred on the road, there was no worry about the horse getting stung. This old automobile that I use myself does not represent much capital, for I do not suppose it would bring \$200, and may be not more than \$150 in any market. By replacing the parts that have become worn out it is doing service practically as well as it did when it was brand-new. It is now being put to pretty constant use during the fourth summer.

#### GETTING BEES FOR STOCKING NUCLEI.

Last winter when on the island I fussed quite a little to get the adhering bees for my twin boxes. But they would go back home, and frequently start robbing, until finally I told Mr. Shumard to take the boat

and bring me some bees from his apiary, a mile and a half across the water. As soon as I used those bees brought from a distance my troubles were all ended. When they took a flight they came right back to their hives because there was nowhere else to go; and they did not teach others to rob. That is one reason why we went away some distance to get bees to stock the little hives. — A. I. R.

PROF. H. A. SURFACE, PRESIDENT OF THE PENNSYLVANIA STATE BEE-KEEPERS' ASSOCIATION.

THE President of the Pennsylvania State Bee-keepers' Association is Professor H. A. Surface, who is also the State Zoologist of Pennsylvania; Professor of Zoology in the Pennsylvania State College; Ornithologist of the Pennsylvania State Board of Agriculture, and Corresponding Secretary of the Pennsylvania State Natural-History Association; Fellow of the American Association for the Advancement of Science, etc. While his original published matter on insects, birds, and other forms of animal life, averages considerably more than one page of printed matter each day, and he travels hundreds of miles per month delivering lectures and attending to public duties in the Keystone State, and has a daily mail which for some years has averaged more than fifty letters per day, and devotes some time to investigations and making collections, as well as teaching zoology in the Pennsylvania State College, he finds some time each week to spend among his bees, which he says is his only recreation and pleasure, besides that sacred time of only a few hours per week which he has the opportunity to pass with his charming wife and interesting family, consisting of a boy and two younger daughters. By the way, Mrs. Surface proved herself a musician of rare ability at the recent meeting of the Pennsylvania State Bee-keepers' Association by captivating the audience with her delightful instrumental and vocal music. She was one of the best-known schoolteachers in Cleveland, Ohio (nee May Bleasdale).

Professor Surface's career has been quite varied, as his preparation for his life-work has taken him to different States and educational institutions. He was born on a farm near Waynesville, Warren Co., Ohio, where he worked until he entered the Lebanon Normal School, going next to the Ohio State University, where he received the degrees of "B. S." in 1891 and "M. S." in 1892. He was then made Assistant in the Department of Geology of the Ohio State University, and also on the Ohio Geological Survey. In preparing the World's Fair exhibit and in other duties he traveled over the Buckeye State until the editor of *The Ohio State Journal* referred to him as "The Stanley of Ohio." He next went to the University of Illinois for special studies in Zoology, and then for two years was Professor of Natural History in the University of the Pacific, California. He received a

\* There were no combs nor frames in these compartments. These were put in at the same time we gave them virgin queens after they were placed at the mating-yard.



Fellowship in Zoology in Cornell University, Ithaca, N. Y., where he also taught vertebrate zoology, then for two years devoted his time to the Directorship of Nature Study in the Ithaca public schools. In 1900 he accepted the Chair of Zoology in the Pennsylvania State College, which he is now about to resign in order to devote all his time to his State work at Harrisburg, in which he has been engaged over three years.

In his apiary, which was on the grounds of the State Experiment Station at State College, but has very recently been moved to his new home at Harrisburg, he has all the various races of bees that are to-day kept on the American continent. By the use of queen and drone traps he keeps the different races absolutely pure, or effects such crosses as he desires. He is thus testing them, as well as certain select mated crosses, side by side, in the same region, and the results will be of interest and value to all bee-keepers.

Mr. L. R. White, B. S., who is one of Prof. Surface's scientific assistants at Harrisburg, was recently elected Secretary and Treasurer of the Pennsylvania Bee-keepers' Association, and they are preparing a complete card catalog list of all the bee-keepers of that State, as referred to elsewhere.

Professor Surface has also charge of the Agricultural Zoological Museum in the new capitol building at Harrisburg, and in this are being placed exhibits of various honeys, honey-producing plants, specimens of various races of bees, apiarian supplies of all kinds, including different kinds of hives and tools, and all possible journals and books on bee-keeping. He has recently prepared an illustrated lecture on bee-keeping, and gives this at farmers' and teachers' institutes and elsewhere. He and Secretary White are also giving public demonstrations of methods of transferring bees from old boxes to modern hives, and also demonstration in methods of handling and manipulating bees. He is also doing his full duty as a member of the Press Committee of the National Bee-keepers' Association, and we may soon expect to see results of great benefit to the 28,000 bee-keepers in the Keystone State.

THE BIG FIELD DAY OF THE MEETING OF  
BEE-KEEPERS AT OUR JENKINTOWN API-  
ARY NEAR PHILADELPHIA ON  
JUNE 26TH.

THE field-day demonstration work given at our Jenkintown apiary last September gave such general satisfaction to so many of our eastern readers that we decided to have another one, this time holding it near the close of the white-clover honey harvest, when actual demonstrations can be made showing the various manipulations practiced by expert bee-keepers just as they are conducted by themselves in their own yards in their everyday work.

Last year there was an attendance of between 300 and 400 bee-keepers—as large a number as was ever gathered together in this country at any one place, of persons in-

terested in bees, if I mistake not. Our people in the East, from the advices already received, feel that possibly there will be 1000 bee-keepers present this year. We have issued invitations to Doolittle, Alexander, Pratt, Phillips, Coggs, Lyon, Bigelow, Morrison, and other prominent bee-keepers, to attend this meeting and show some of the "tricks of the trade." If Mr. Alexander is sufficiently recovered from his illness he will give personal demonstrations of how he does his work. Mr. Doolittle, if he can get away, will do likewise, and so will all the rest whose names have been mentioned. An opportunity will be given, in an informal way, to ask questions at each step of the work. While in one sense of the word this will be like a convention, yet it will be entirely different in that the *actual things* described in the bee-journals and at conventions will be shown step by step with bees in a bee-yard. For example, E. L. Pratt, or Swarthmore, will show some of his difficult stunts that others have failed in performing, such as cell-forming, grafting, forming nuclei with a teacupful of bees, etc., etc. Others will show the different methods of shook swarming, how to hold the frames, how to avoid stings, how to open the hive, how to clip queens, how to put them up for export and domestic mail, besides a lot of other manipulations too numerous to mention. A. I. Root, as well as one or two other members of the Root Company, will be present to help in the work. Mr. W. K. Morrison, lately from the tropics, where he secured two very fine colonies of stingless bees which produce large quantities of fine honey, will be on hand to show these bees, explain their peculiarities, possibility of domesticating them in this country, how to handle them, etc.

In a word, we hope to make it one grand field day where bee-keepers can get together and visit, ask questions and see how others handle bees. They will, no doubt, form in little groups around some Gamaliel of bee fame, at whom they can fire questions and get direct replies by word of mouth. This meeting will differ from a regular bee convention, as there will be little formality, but an unconventional conclave of kindred hearts and souls to meet and show each other little tricks we have learned.

Those who come will be our guests.

While, unfortunately, the date set will be in the busy season, yet in order to demonstrate properly all the different processes it must be held at a time when there will be no robbing, when the hives may be opened up for the accommodation of a dozen bee-keepers at a time if need be.

There will be lunch at noon; and supper in the evening will be furnished, free of cost to all who come and are provided with badges which will be furnished. See announcement on another page with particulars. Reduced railroad rates will be announced later. Those who desire to stay over night can be accommodated at the rate of \$1.50 to \$2.00 at nearby hotels.



PURE ITALIANS VS. HYBRIDS FOR COMB HONEY; A CRUMB OF COMFORT FOR DR. MILLER.

I believe it needs no expert to show that there has been a good deal of improvement in GLEANINGS in the last few years, both in quantity and quality of reading given. But few things have interested me more than Stray Straws, especially the "scrap" between the editor and Dr. Miller. The editor usually at first seems to get the better of the doctor; but while we bee-keepers are standing around with our hands in our pockets enjoying the sport, the doctor shakes him off and comes out of the "scrap" good naturedly smiling, and none the worse for the scrimmage; and we cheer him, I suppose, because we naturally sympathize with the under dog.

Now, while it is not usually good policy for a third person to interfere when two are scrapping, I am tempted to express my opinion in regard to the use of pure Italians or grade bees for producing honey. Many years ago I should have thought just as the editor does to-day, that nothing could surpass pure-bred Italians for storing honey; but later I came to the conclusion that the grade, or hybrid bees, as they are often called, were quite as good.

Thinking I might be mistaken in my conclusions I sent to a prominent queen-breeder, one who had given a good deal of care to improving his stock, and bought one of his choicest queens, paying several dollars for the same.

I did not care to breed from her extensively until I had tested the ability of her queen progeny to produce good stock for business. I confess I was somewhat surprised to find that her workers, as well as those colonies whose queens were reared from her, and mated with my old grade drones, proved most excellent workers, decidedly ahead of my old stock as it seemed to me. Indeed, I knew I was not mistaken, as the difference was so marked. Then I said to myself, "If a cross between a choice pure queen and my grade drones will make such a decided improvement, surely the pure Italians of the best strains must be still better. So I sent for a choice queen of that strain that has since become known as "Superior stock," and much advertised by Mr. Hutchinson, that I might get a cross between two choice strains of pure Italian bees; and I succeeded in getting what I wanted, and found them very choice honey-gatherers and comb-builders; but, alas! they did not come up to my expectations, for not one of them was

equal to some of those colonies whose queen had mated with my old grade drones. To say that I was disappointed is putting it very mildly. I wrote to the breeder from whom I purchased the first queen mentioned above, telling him my disappointment. He replied that my experience was not exceptional, for it was a fact that, for the production of honey, the pure-bred bees would not equal a cross between them and black or hybrid drones, as he had found from such crosses in his outyards.

Facts are stubborn things to butt up against. I have but little doubt that an inferior strain of pure Italian queens crossed with black or hybrid drones would give bees less productive than pure-bred bees from some better strain; but a cross between our best strains of pure Italian queens and black or grade drones, I am satisfied, will give larger yields of honey than it is possible to secure in any other way. I wish it were otherwise, for I like the pure bees much the best, as they are so much nicer to handle, and withal so handsome that it is a constant pleasure to work them.

My present practice is, so far as I can, to breed from the best pure queen I can find, and pay no attention further. My own yards and my neighbors' furnish enough black and grade drones to give vigor to my stock.

#### A FOUNDATION-STAY.

I have found a single upright thin strip in the center of the brood-frame, placed at right angles to the foundation, ample protection against sagging, and would much prefer it to wire, but have found no cheap way to fasten to top and bottom of frame.

#### THE LIFE OF WORKER BEES IN THE HARVEST.

Dr. Miller quotes Dzierzon on the age of bees, showing that it does not exceed six weeks. I remember very well how, forty years ago this season, I removed a queen from a strong colony of black bees and introduced a pure Italian queen. Of course, the last black bee had hatched by the 25th of the same month. The first week in September, as I remember, the black bees were nearly all gone, when I observed the Italians of the hive pounced on what remained and killed them—for what reason I can not tell; but I was satisfied from that time that, during the working season, we might safely say that six weeks is the limit. V. Buttel-Reepen is quoted in the same *Straw* as saying that, "In rich forage the bee lives often only two or three weeks." It seems to me that there must be some mistake here. By rich forage I suppose an abundance of honey is meant. My experience has been that bees live much longer when honey is abundant in flowers than when the yield is very light. In a season of scarcity, although there may be a large amount of brood in the hive, the colony will not become strong enough to cast a swarm; while if honey is plentiful they are soon running over with bees.

Again, new swarms, made when honey



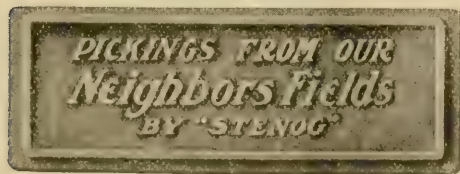
is scarce, dwindle away so fast that, before young brood begins to hatch, the old bees are half or two-thirds gone; while if honey is plentiful the colony keeps its strength much better.

#### COLOR OF HONEY.

Are you sure, Mr. Editor, that those bees that gather amber alfalfa honey found no other flowers to work on? Were there no weeds among the alfalfa, no plants growing along the irrigating-ditches or on the deserts within a few miles? How does that sound—amber alfalfa honey?"

I had an interesting experience last season. The clover honey during most of the season was very white and fine, but that gathered late was dark. I began to wonder if honey gathered from clover late in the season was dark like sugar made from maples late in the season. On tasting it, it seemed to be pure clover honey, only the flavor as well as color was a little off. But when I came to pack I found some where the lower edge of the comb was quite dark, and on tasting I was able to detect a very perceptible buckwheat flavor, which showed that the whole cause of the darker shade of honey was caused by a very slight mixture of buckwheat honey. I do not remember to have had buckwheat stored in my surplus-receptacles but three or four times in the past forty years. Does the darker or amber colored alfalfa have the same flavor as that which is white?

[Since a "third party" has "butted" into this scrimmage I respectfully invite a "fourth party" to help me. It is not fair for two big fat men to jump on to one poor little editor. If I am to be "knocked out" I'd like to have company. Regarding the amber alfalfa, I feel quite positive that there was nothing else from which the bees could gather nectar. The soil and climate are sufficient to account for the color, I think.—ED.]



Mr. R. V. Murray, of Cleveland, the GLEANINGS artist, sends the following verse which comes in very properly just now:

Let us, then, be up and doing;  
Thrift comes to those who strive;  
The bee that gets the honey  
Doesn't loaf around the hive.

*Apicultura Moderna* is the name of a new bee-journal published in Bucharest, Roumania. The issue before me is the fourth. This is the first bee-journal I have yet seen in the Roumanian language, and we are glad

to welcome the new exchange. In size it is just like GLEANINGS, but contains only 24 pages. Judging by the headings, the journal is well filled with matter of an up-to-date character.

A writer in a French journal suggested, a few months ago, that in handling queens or cages containing queens the hands should be rubbed over thoroughly with beeswax, as that will prevent any odor from the hand adhering to the cage. He says there is something about beeswax that attracts a bee's attention very strongly, and seems to deprive the bee of its bad temper. I was reminded of this suggestion by the article on introducing-cages in last number.

Paul Schonfeld, whose name has been so long identified with advanced bee-keeping in Europe, and whose fame in that line is about on a par with that of Dzierzon, died on the 7th of April. Like Dzierzon he was a native of Silesia. By profession a clergyman, he drifted over into apiculture owing to some unhappy experience with a man who had charge of his bees. The dispute caused Mr. Schonfeld to resolve to take care of his bees himself, and fortunate it is for the world that it thus turned out. His crowning work from a literary point of view was his *Investigations into the Anatomy and Physiology of the Bee*. Like Langstroth he made the world his parish, and blessed it, by so doing, for all time to come. I am indebted to the *Leipzig Bee Journal* for the above.

I glean from the other German bee papers that father Dzierzon himself is fast failing in health, being now in his 96th year; hence we may expect that great luminary will soon be below the horizon.

I had made some arrangements to translate the following article, but deferred doing so on account of three new departments now occupying the room that Pickings formerly did; but as Mr. Greiner has made a translation of his own, and perhaps a better one than I could, as he is a regular *Deutscher*, I make place for it here, as I consider it as valuable as any thing else I could find.

#### THE EFFECT OF HARD WATER ON WAX; BY P. NEUMANN.

Bee-keepers will have made the discovery that cakes of wax often have a grayish, spongy sediment at the bottom. What may be the cause of this? *Maandschrift vooñ Bejenteelt* gives the following explanation: Wax is not a chemical combination, but a mixture of different ingredients in varying quantities which may be again separated one from another by boiling in alcohol. The principal ingredients are myricin and cerin. There may be also a high per cent of cerolin present. These three ingredients may be separated in the following manner: Cerin and cerolin will dissolve in boiling alcohol, but myricin does not. Filtering the hot solution, taking care all the while that it does not cool off during the process, there will remain upon the filter the myricin as a grayish matter. When the filtered portion is cooling off, the cerin separates from the cerolin, as it does not dissolve in cold alcohol.

When myricin is heated in water for a long period, a separation and uniting with the water occurs. As a result we have myricil alcohol and palmitin acid. The lime which is present in hard water favors and hastens this separation, and unites with the palmitin acid, forming a lime salts which does not dissolve in water. This is the chalky and spongy part on the under side of wax

cakes as we often find it. *Wax should never be melted in hard water. Only soft water or steam should be used for that purpose.*

When soft water is not at hand, about one to one and a half teaspoonfuls of sulphuric acid may be added to the hard water. This will cause the lime to settle to the bottom.

To destroy ants, a French bee-keeper says it is not a good plan to put obnoxious substances on their hills, as that only drives the insects to another place. Take a common flower-pot, holding, perhaps, half a gallon. Plug the bottom, and smear the inside with any sweet substance that ants are known to like. Invert the pot on the ant-hill; when the ants have swarmed up the sides of the pot, dip it in hot water.



#### ORDERS OF INSECTS—CONCLUDED.

In our last article we considered the general characteristics of bees and their congeners, the wasps, ants, etc., and also gave some interesting peculiarities of these highest of insects. As this is the order of our pets of the hive, I will speak more in detail of the various families of this order.

##### HYMENOPTERA.

The horntails are large wasp-like insects with a sharp hard tail-like spine at the end of the body, hence the name, "horntails." This is really their ovipositor, a sort of auger which they use to bore into wood when about to deposit their eggs. In this way they deposit in the hardest maple. The larvæ are borers, and thus we have our boring insects in three orders—beetles, three families; moths, two families; and these horntails. These are not numerous, and so do much less harm than the others. One, *Tremex columba*, is large, and sometimes it is found with its auger so firmly in the wood of shrub or tree that it is easily captured.

##### THE SAW-FLIES.

These insects are very interesting. They possess one or two wondrous saws at the tip of the body. These, like the sting of the bee, are a modified ovipositor, and, like the sting, have a marvelous nicety of finish. The finest needle, of most perfect finish, when magnified, shows great roughness and imperfections; but not so these saws. They are of polished smoothness, and exquisite in form and finish. They are really saws, and are used to cut a groove for the reception of the eggs. The larvæ of these are leaf-eaters, and are to be numbered among our worst insect pests. Some, like the dreaded pear and cherry slug, have a viscid covering, hence the name, "slug." Of course, the real slugs belong with the snails, and

are not insects at all. These slugs have from 18 to 22 legs, the number varying with the species. No other larvæ have so many legs, so it is easy to identify the larvæ of this family. Caterpillars usually have 16 legs, never more. Like caterpillars and leaf-eating grubs (*Coleoptera*) these are destroyed by use of the arsenites, Paris green, etc.

##### THE GALL-FLIES.

I have already described these interesting insects, which, as we have seen, are principally injurious to the oak.

##### THE PARASITES.

I have also sufficiently described the colossal benefit which we receive from the four families of parasitic *Hymenoptera*. In California several very destructive scale insects are wholly held in control by these beneficent parasites. We have even done most wisely in importing very valuable parasites from such far-off countries as South Africa, and have thus received incalculable benefit.

##### THE COW-KILLERS.

In California and other warm parts of our country we often see red or whitish hairy, ant-like, wingless insects which are known as cow-killers. Probably their very severe sting gives the name. They nest and rear their brood in earthen burrows. They are usually banded with black. The males are much like the females, except that they are winged. They are predaceous, and often kill bees, though they are too few to do serious harm. I figure these in my "Bee-keeper's Guide."

##### THE ANTS.

These are the brainy insects, and are in the insect world what man is among vertebrates. Their social habits remind us of bees, and they are fond of honey. Their development, anatomically, functionally, and their wondrous habits, more than rival the same in bees, though they can never compete with bees in exhibits of any such incomparable fabric as the immaculate honeycomb. Their slave-making habits, their agricultural proclivities, and their marvelous strength and industry, challenge our sincere admiration. The one in Florida, that works such havoc among bees, is illustrated in the last edition of my book. We can keep them from our houses by the use of strings dipped in corrosive sublimate, and can kill them in lawn or apiary by the use of bisulphide of carbon.

##### THE WASPS.

There are many families of wasps, and many are social like the bees. They are predaceous, and, like the parasites, do us great good. The paper-making wasps discovered the art of making paper of wood pulp long before man made the discovery. Their paper nests are much like the comb of bees, only they are horizontal, not vertical. Many of the solitary species nest in earthen burrows, in hollow plants, in mud cells. Like bees, the male wasps illustrate parthenogenesis, or agamic reproduction.



Some are very large, can sting powerfully, but are not wont to use this formidable weapon unless disturbed. I am sure we may regard the wasps as man's good friends.

#### THE WILD BEES.

While the large hairy showy bumble-bees and the equally large though less hairy carpenter bees are social like the honey or hive bee, yet most bees are solitary. In habits they remind us of the wasps, but they feed their larvæ, which, like most larval hymenopterns, are quite helpless, wholly on pollen, while wasps feed their young on other insects. The benefit to man from bees as pollinators of flowers is beyond computation. Our valuable red clover would seed not at all except for cross-pollination wrought by bumble-bees.

Berlin, Prussia.



#### LOOK OUT FOR EARLY SWARMS.

There is cleome on the desert this year. This means that the bees that have access to it, if they were not too weak on the start, will swarm early and often.

#### SWEET CLOVER.

For several days I have been staking our cow out in the alfalfa pasture in order to give her a little green food. It would hardly be safe, you know, to let her run loose and eat her fill. Yesterday I tied her to the fence. There is a sprinkling of sweet clover all along this edge of the field. What did the misguided creature do but pick out and devour every stalk of sweet clover within reach before she would touch any of the alfalfa! Surely she ought to have known better! Those who hold that sweet clover is not a fit food for stock are invited to labor with her and convince her of the error of her ways.

#### EXPERIMENTS.

Doubtless you have in mind some experiments you would like to make in order to test some theory you have formed or heard of. This is right. It is by such experiments, by theory put into practice, that we can gain the most accurate knowledge. Along with this goes the knowledge that is gained by the observation of conditions that arise without pre-arrangement. But do not make the mistake of supposing that experiments or observations that are confined to only two or three colonies are of any great value. Conditions in bee-keeping vary too

much for that. We often hear of experiments that have been made by selecting two colonies of apparently the same strength, and assuming that the different results reached are due to the different conditions under which they have been placed. But if you take two colonies apparently exactly alike, and keep them under conditions as exactly alike as possible, there will often be a wide difference in results. To make an experiment of any value, it should be tried on a number of colonies, say on a row clear through the apiary, excluding any that are plainly much above or below the average. Then, to make it really conclusive, it should be repeated for several seasons.

#### CLEOME LUTENS.

On page 438 a subscriber inquires what kind of cleome we have that blooms in June. This is the yellow cleome, *Cleome lutea*, which begins to bloom here about the last of April. Unlike the purple cleome, which grows mostly in the creek bottoms and upper mountain valleys, seeming to prefer a cool and well-watered location the yellow variety is seldom found anywhere except in the desert or uncultivated lands of the warmer valleys. Unless there has been a great deal of rain or snow during the winter or early spring, the seed does not germinate at all but lies dormant in the soil, waiting for favorable conditions, and sometimes there will be but little or none of it for several years. But when there has been enough rain or snow so that the soil is stored with a sufficient amount of moisture it springs up so thickly that sometimes for miles the desert looks as though it were covered with a carpet of gold. In places where the soil does not dry out easily, or where it receives water from irrigation, it may grow to a height of two feet or more, and bloom nearly all summer. Ordinarily, unless there are frequent rains it gets to be only twelve to eighteen inches high, and dies in two or three weeks after it begins to bloom. As the blossoms open in succession it may remain in bloom a long time if it does not dry out, and under favorable conditions it may yield a great deal of honey. Last year a small apiary that I moved to the cleome-fields averaged nearly a super of honey to the colony, while those in the alfalfa and sweet-clover districts gave little or no surplus. The honey is rather dark-colored, but the flavor is pronounced good by most people. The greatest value of cleome lies in the fact that it fills in the gap between fruit-blossoms and alfalfa, thus stimulating brood-rearing to the utmost, and getting the bees into fine condition for the harvest of white honey.

#### STARTERS IN BROOD-FRAMES.

A very common way of using foundation here is to use a strip about three inches wide. Swarms are hived on these and they are used wherever a comb is to be built.

This usually results in a comb that is unfit to rear brood in its upper part, on account of the stretching of the foundation and the consequent elongation of the cells. The queen may sometimes lay in these, but they are generally used only for honey-storing. This results in a double loss—first, by restricting the space available for brood-rearing, already small enough in an eight-frame hive; second, and this is by far the more important, by always maintaining a strip of honey between the brood and the super, which tends to discourage the storing of honey above. The same results follow, in an increased degree, when full sheets, unwired, are used under like circumstances, and to some extent when wired horizontally, with the wires loose. Out of several hundred empty combs which I bought this spring, but very few are fit for brood-rearing in the upper fourth. To use such combs for brood-combs is apt to result in serious loss.

These facts, which I have observed for a number of years, have led me to use foundation in the brood-frames in only two ways—first, as a narrow starter, not over an inch wide; second, in full sheets carefully wired. I once thought that I could not afford to use any thing but full sheets of foundation; but I have been compelled to change my mind by finding that I could not get the best results in honey-production except by hiving swarms in a contracted hive with only narrow starters. Too much drone comb built, did you say? Well, sometimes. But I can sort those combs out, use them for extracting-combs, cut out the patches of drone comb and replace with worker, or even melt them up into wax and still come out ahead.

#### LIGHT-WEIGHT SECTIONS.

Mr. G. C. Greiner has given us some valuable and interesting articles on the section question; yet on page 213, while fully cognizant of the fact that the tendency is toward selling all articles by the piece rather than by weight, and admitting that this tendency is likely to increase, it seems that he can not get rid of the unfortunate old idea that there is such a thing as a "one-pound section." A one-pound section by size, he calls it. Will he be so good as to tell us what the size of a one-pound section is? It is almost universally agreed and admitted by practical honey producers and dealers that the sections in general use do not weigh a pound, and that it is impractical to have them of any definite fixed average weight, year after year. Then why foster this idea of "one-pound sections" by such talk? Apparently Mr. Greiner has had no experience with more than one size of section, and he assumes that any section that falls much below his maximum in weight is necessarily defective. Thus he says, "A one-pound section of honey that weighs four ounces less than a pound can be of two kinds. It is either from two-thirds to three-fourths built out, and all finished capped honey, or it is

all built out and very little capped, and yet may contain quite a little loose honey." Furthermore, he says of such sections that "they could not be shipped on account of their frailty. A good share of them would be broken from the wood in transit."

Now, I want to say that I have produced tons of honey in sections  $4\frac{1}{4}$  square that did not weigh over 12 ounces to the section. So far from its being impossible to ship them without breakage, I was so uniformly successful in shipping them without damage that it was a great surprise to me, when I came to buying honey of others, to find their heavier sections very much more damaged in shipping than mine. For years I had customers who bought my honey with the distinct understanding, specified in nearly every order, that the sections were not to average over twelve ounces each. One man who bought a great deal of such honey of me to sell again by the case frequently complimented me on the good condition in which it always arrived, no combs broken.

I received, only two or three weeks ago, the gold medal awarded me for the finest display of honey at the St. Louis World's Fair in 1904. The award was made on ten cases of honey, 24 sections to the case, each case weighing exactly 19 lbs. net. Besides receiving this award I was informed that one of the principal honey-dealers in the United States said that it was the finest lot of honey he had ever seen.

All of the honey of which I have been speaking was in sections  $4\frac{1}{4}$  square, seven to the foot in width, regular bee-way style, and built between tin separators. I prefer sections of this width because they are so much more uniformly well built out, more uniform in weight, making them more acceptable to both retailers and consumers; and last, but by no means least, because I think I can get more honey by using them. It does not by any means follow that the man who buys a twelve-ounce section of honey is either cheated or deceived, nor even dissatisfied. He buys a box of honey. If the dealer is wise he will not create or countenance the impression that he is getting a pound of honey. A pound of honey of equal quality would cost him more money. The dealer, in fixing his selling price, seldom knows or cares any thing about the market price of honey per pound as quoted in the market reports. In most cases his selling price is based on the cost to him; and if we will give him honey on which he may calculate his percentage of profit with the same ease and certainty that he can on most other articles he will usually be glad to buy by the case instead of by weight. With most grocers it has become a practical necessity to sell by the piece.

[Mr. Green does not differ so much from Mr. Greiner as he does from Dr. Miller. Say, my good doctor, it does me good to see Mr. Green jab you in the ribs. Feel sorry for you? Ye-s-s-s, but you can stand it. —Ed.]





## FINDING QUEENS, ETC.

"Is this Mr. Doolittle?"

"Yes. What may I call you?"

"My name is Miller. I live in Pennsylvania, and I came to see you about finding queens, and to have a little talk with you about how I can manage my bees during the swarming season. But how it rains!"

"Yes, we are having lots of rain again this spring, and, what is worse for the bees, lots of cold; been but very few days since the bees were set from the cellar that they could fly, and it is now May 14."

"Then you are worse off than we are, for our season has been about an average one thus far. I have been trying to find my queens to clip them, but do not have good success. Can't you tell me how to find queens? I am a beginner with the bees, and take GLEANINGS. It seems to me if you could only tell me how to find a queen as plainly as you tell about other things in your 'Conversations' I could find a queen at once."

"Well, it is hard work, often, for the expert to find a black queen; but with all of the other races there is not much trouble, and especially with the Italians. If you jar the hive too much, or use too much smoke, so that you set the bees to running, it will be very difficult to find the queen of any race. Why it is more difficult to find a black queen is because black bees have a greater habit of running and stampeding off the combs than any other bee that I know of; and why it is easier to find an Italian queen is that her color is generally different from the worker bees, and, also, because it takes much abuse to start these bees so they will appear any thing but natural on the combs."

"Well, I guess part of my trouble was that I jarred the hive too much. I use the Danzenbaker hive, and the end sticks and springs seem to stick in the hive as if they grew there."

"Your bees may use lots of propolis, thus causing things to stick. But if this is the case you will have less trouble the next time you open the hives. Where things are badly glued in any hive, it is best, in opening the hive the first time in the spring, to pry all the fixtures loose, then close the hive for an hour or two, when by using care you can open it up, almost without a jar or any disturbance to the bees."

"That is something I had not thought about, but I know it is so, now you mention it, for the next time I opened the hives I did not have so much trouble."

"It is always best to take an empty hive

or a light box of the same size of the hive with you when you go to find queens, as it helps very much in the matter, giving you a chance to look the combs over twice, nearly or quite as quickly as you would once, did you have no empty hive or box along in which to set each frame in order, as you take them from the hive."

"That is right; tell me just how you do it."

"Having your lighted smoker, empty box or hive, and a stool or box of convenient height for a seat, go to your hive and open it as carefully as possible. Having the hive open, you are next to put down your seat so you can sit with your back to the sun, this allowing the sun to shine on your work and at the same time keeping your eyes in the dark, so that you can see things twice as well as you would under other circumstances. Now carefully remove the first frame from the hive on the side next to you, and hastily look it over for the queen. If she is not seen, set this comb in your comb-box, putting it on the furthest side of the box from you."

"Why should I put it over there instead of next to me, as it was in the hive?"

"So that, when you come to putting the combs back in the hive, you can look them over for the queen, should you not find her the first time over, with the same chance of finding her that you had at first. Having the first frame in the box, lift the second one from the hive; but instead of first looking on the frame you are now lifting, glance at the side of the frame next to you, still remaining in the hive. If you do not see her there, then look on the side of the frame you have in your hands, that is away from you."

"What is that for?"

"As a rule, the first thing a queen will do, when the strong sunlight strikes the comb she is on, is to run around to the dark side of the comb; and as soon as you lift the second comb from the hive, there is enough empty room so that the sunlight can strike on the combs, and you see the whole of the 'face' side of the comb next to you. If the queen is on this sunlit side of that comb, you will see her very easily as she starts on her way to go around to the dark side of the comb, when you will at once set the frame you have in your hands in the box, and pick up the frame she is on before she can have time to leave it. If you do not see her, you may know that she is on the opposite side of the frame you are holding in your hands, or else in the hive."

"Ah! I begin to see."

"After you have gotten started in this way it is of no use to look at the side of the comb next to you, after you have taken that frame in your hand. Simply look on the side of the comb next to you which remains in the hive, as soon as you raise each frame; and if you do not see the queen, then look on the opposite side of the frame you are holding in your hand, setting each in the box, one after the other as they come from

the hive, putting the first one in on the side of the box furthest from you, and setting the next one up to it, and so on, till you find the queen or all of the combs are out of the hive and in the box."

"That is simple."

"Yes; and if you failed to find the queen, and do not see her on the sides of the hive after all the frames are out, turn the box of combs and bees so that the sun will strike on the combs the same as it did when they were in the hive, and commence to put them back in the hive from the box, looking at them in the same way for the queen that you did before, you having just as good a chance to find her this time over as you did at first."

"What proportion of the queens hunted for do you find in this way?"

"I find nineteen out of every twenty looked for before the combs are all in the box; and the twentieth one, before the combs are all back in the hive again."

"What! don't you ever miss finding any queen?"

"Perhaps once in two or three hundred such hunts I fail to find the queen. But it is a rare thing to fail, and I can generally find a queen much sooner than I have been telling you this. The knowing how to have the light just right, and that the queen will always be between the 'dark' sides of the combs, will help all to find queens quicker and easier than they have been doing if they have paid no attention to this matter."

"Well, I thank you much; but before I go I wish to ask you about turning the parent colony one way and the other after swarming, as you spoke of in GLEANINGS, p. 521."

"Oh! that is the Heddon plan of preventing after-swarms."

"I don't care a fig whose plan it is, I want to know about it."

"All right. When a colony swarms, put an empty hive in its place and hive the swarm into this empty hive, putting the supers from the old or parent colony over the hive the swarm is in. When all are settled, place the parent colony about a foot away, and a little back from the hive the swarm is in, allowing it to remain thus for five or six days, when you will pick it up and carry it where you wish a colony to stand, and leave it there. This causes all the flying bees to return to the swarm, and so weakens the parent colony that they will destroy all queens but one, which prevents all after-swarming, and gives an increase of only one colony for each old one in the spring."

"But I do not want any increase. I want to let my bees swarm naturally once, then put the swarm in a new hive on the old stand, and get all the bees of the parent colony in with the new swarm, just as fast as I can, as they hatch out, so I will have no increase; then when all are out I can put the parent hive away."

"In that case all you will have to do will be, at the end of five or six days from the time when the swarm issued, to set the parent colony over on the other side of the

hive, setting it in about the same position relative to the hive the swarm is in that it occupied before this last moving. This will put all the flying bees in with the swarm, and stop after-swarming, the same as if you had carried the parent hive several rods away. In five or six days more, set this parent colony back on the other side of the hive again, and so keep on till all the brood has emerged, at which time you will shake all the bees off their combs in front of the hive containing the swarm, smoking the swarm at the entrance so they will not kill these young bees you are now shaking in."

"What about the queen-cells? Shall I cut these off?"

"The bees will tend to this matter, and destroy all but one of these cells or the queens which emerge from them. This is the part the plan was invented for, mainly, as it does away with all hunting for queen-cells."

"But what about the one queen they allow to remain?"

"Unless you have a choice in the queens (the one with the swarm and the one that the parent colony raises), you need pay no attention to the matter. One of them will be killed after the bees run into the swarm. As a rule, however, it might pay to hunt out the old queen and kill her a day or two before you are to shake the bees off their combs, providing you are sure the young one is laying, when the young one will be mistress of the now one colony."

"I see. Good by."

"Just a moment. What are you going to do with the beeless combs?"

"Store them away for future use."

"You know you will have to fumigate them or the larvae of the wax-moth will spoil them."

"I had not thought of it; but now I know I will."



#### ALEXANDER AND HIS CRITICS.

What Constitutes a "Fairly Good Locality"?  
Is it Best to Allow the First Honey to  
Fill the Brood-chamber?

BY E. W. ALEXANDER.

In answer to Mr. Byer's criticism, page 217, of some of the articles I have written, I must say that I was not aware that a whole lot of my teachings through the columns of GLEANINGS were not adapted to the majority of localities. If Mr. Byer had told whether he produced comb or extracted



honey it would be easier to answer him on some points; but in regard to what he says concerning this location I can say that it never was considered any more than ordinary until we commenced to have the large yields of surplus of the past few years. Before black brood destroyed nearly all the bees in this location there were several parties who kept from twenty to a hundred or more colonies in this vicinity, and on inquiry I find they seldom got more than 40 or 50 lbs. surplus per colony, and frequently not half that amount. Before I came here I kept bees in five different counties in New York, three of which were better localities for surplus honey than Delanson has ever been.

Now, as it has become almost a byword among some bee-keepers, "Alexander's fairly good locality," it may not be out of place for me to describe what I consider a fairly good locality. It is this:

Any place, after June 1, that will furnish a harvest for 35 days, sufficient for one colony of Italian bees of a good honey-gathering strain to gather a surplus of 100 lbs. of extracted honey, is what I call a fairly good location, and is as good a locality as this is; and all that we have been able to secure more than that has been done by adapting certain methods which the majority of bee-keepers have known but little about until recently.

Now as to the number of colonies that this or any other fairly good location can furnish a good surplus for. That is a problem that no one has ever been able to solve. I know that this location has furnished and can furnish a surplus of just as many pounds of honey per colony for 750 colonies in one yard as it ever did for a less number, and I think the same will yet be proven true of any fairly good location.

In regard to breaking up good colonies just previous to the main honey-flow, I can say that I have never advised any one to do this except where *increase was preferred to surplus honey*. I have always advised doing every thing possible to build up the colonies so that they will not only be strong in bees but have their hives well filled with brood in order to keep them strong during the whole honey-flow. Either make the increase long enough before the harvest to enable all colonies to become strong in time for it, as can very easily be done in a buckwheat location, or make no increase until the harvest for surplus is over.

In regard to the part of my article in Jan. 1st GLEANINGS, page 26, which Mr. Byer calls a "stunner," I wish to say if he had ever produced much extracted honey he would have learned the necessity of having his hives well filled with honey, and a large percentage of that capped before he put the extra hive of combs on top to extract from. Although we always put a queen-excluder between the hive and extracting-combs, it is no uncommon thing for us to have many of our colonies short of stores in the under hive before the season is over, and we usually

take off the extracting-super several days before the close of the harvest, in order to give the bees a chance to fill their hives again for winter. With a good young queen in the hive below, it makes but little difference how much honey there is in the under hive unless it is capped, and even then the bees will carry a large part of it above. So I repeat, see that your hives are well filled with honey before you put on your super of empty combs to extract from.

As to the quality of our extracted honey I think I have given all the evidence on that line that any *reasonable* party can ask for.

In regard to Mr. Byer's experience in a locality where his bees got a little buckwheat surplus, it is strange he does not know it to be a fact that, in any harvest where bees get only a little surplus, they will fill up the brood-nest with twice the honey, and cap it over, that they will in a good harvest, providing they have a place above to store it.

I have never advised sacrificing a full brood-nest in order, as Mr. B puts it, to have the brood chamber "plugged with honey." I will admit I took it for granted that, if the hive contained a good young queen, as I have always advised, there would be at least one-half or more of the combs filled with brood. I can see wherein it would be better for the inexperienced if I were a little more explicit sometimes; but to the man of experience I hardly expect him to catch at these omissions, although I sometimes take it for granted that they know more than they seem to know. If Mr. Byer's theory were true in regard to bees storing a larger amount of surplus in two extracting-supers than one, then certainly we all must miss it very much when we don't put on several supers at once, both for extracted and comb honey, in order to secure a large surplus.

No, Mr. Byer, you are away off on that point, and you should know that bees work much better when we give them only enough room so that they are a little crowded and can keep their surplus-apartment nice and warm.

It can not be possible that you have not seen the importance of contracting our hives and supers in order to secure the best results.

#### LEAVING THE WELL-BEATEN PATH, AND THE CONSEQUENCES.

In regard to the wisdom of cautioning beginners about leaving the "beaten paths too far, and following what may in their localities turn out after all to be a phantom," I wish to say that, when I was a boy, a very small minority of bee-keepers left the well-beaten path of setting their best colonies over a brimstone-pit in order to get a little honey, and adopted the more humane way of cutting a little out of the sides of their hives in order that they might save their bees for another year; and I could never see any phantom about that. I can well remember, many years ago, of a small minority that

left the well-beaten path of box hives, and in their place adopted movable-comb hives. There was no phantom about that either. Also a small minority that left the well-beaten path of keeping black bees, and in their place keep only good strains of Italians—no phantom about that. Yes, and a small minority that left the well-beaten path of squeezing their honey through a bag, and in its place adopted the improved honey-extractors of to-day. No phantom about that; and it has so happened that a small minority at one time left that well-beaten path of producing their surplus comb honey in coarse hemlock boxes holding 15 or 20 lbs. apiece, and adopted the nice attractive section of the present day—no phantom about leaving that beaten path, that I can see. I might continue to cite many more cases where a small minority have left beaten paths in all lines of business and become the leaders of progress. History shows us, in thousands of instances, where minorities have been in the right, and were a target for the arrows of critics who only followed in their wake and drifted with the masses.

In conclusion I will say that I expect to be criticised as long as I represent a small minority of bee-keepers, especially while my ideas and experience become a part of GLEANINGS, and through that journal they go to many parts of the world, and are read by tens of thousands of bee-keepers.

Delanson, N. Y.

#### WHAT IS TO BLAME FOR THE PRESENT STATE OF THE HONEY MARKET?

The Manufactured-comb-honey Story from the Standpoint of a Traveling Man who is also a Bee-keeper; Exhibitions of Bees and Honey.

BY GEO. SHIBER.

There has been considerable discussion of late in GLEANINGS as to why the honey market is so dead, and the demand seemingly decreasing. The market price is no better the past fall and winter with, apparently, but half a crop. Of course, there is a reason for all this; and that is what we should all like to find out. Everybody has a theory. Some think the manufactured-comb honey story is the cause; more think this the reason, may be, than any other one thing. There are other theories, but we will not consider them just now. We will let them crop out in the course of this article.

Let us consider the question in all its bearing. For a number of years I have been "on the road" selling goods at wholesale to grocers; and, being a producer of honey as well, it has given me an exceptionally good chance to dispose of my own crop at good prices. I have never had enough to supply my demand yet. It has given me a good chance to study the honey question with the retailers.

Now, then, honor bright, how many or

what percentage of the people, retailers and consumers, believe that comb honey is manufactured, or that there is something crooked about its production? Well, I will try to be conservative; and from my experience I would say fully ninety per cent! As a corollary, then people ought to believe that eggs, potatoes, peaches, apples, etc., are manufactured; but we know they do not. Why, the city-bred man, the most ignorant of agriculture, would smile at the idea, and why? Because they have been educated on the chicken question by reason of the great poultry shows held in every city and small town in the land; and the more they hold the shows, and the more people engage in poultry culture, the higher goes the price of their products. What would poultry-keepers think of some smart reporter printing a story about manufactured eggs? None of the poultry journals would give it any notice at all unless it was a passing laugh, and people would keep on eating eggs.

It's astonishing the number of poultry shows held in the United States in a single season. The smallest towns are having them. Within fifty miles of my home, the past season, shows were held in Corry, Pa.; Salamanca, N. Y.; Olean, N. Y.; Dunkirk, N. Y.; Bradford, Pa., five shows. Suppose, as Mr. Morrison says, we could have a few bee shows next season—what would happen? And, by the way, a bee and honey show with a large class of the different varieties of bees on exhibition in commodious cages would cap the climax over all shows. One or two hundred colonies and nuclei would create more talk and comment among the public and newspapers than the dog, horse, or poultry shows, because of its very novelty, and the honey-bee would receive pages of free advertising, that it is entitled to. Then let the newspapers print comb-honey lies. No one would swallow it. Then they would stop printing them. Comb honey has to be sold on its looks and appearance. It has to carry its own story with it to the consumer. The only trade-mark or brand to identify it is its own white face, as the commission man will not allow any name of producer upon it—just the bare white wood—nothing in its appearance to refute false assertions about it—a thing not so likely to occur if it were plainly marked with the name of the producer and location of apiary.

This country is the greatest market in the world. I mean for every thing except honey. If there were one pound of honey consumed a year per capita, that would mean about 75,000,000 pounds. I have not got the statistical number of pounds produced in the United States by me; but look at what a market we ought to have. I can not see any way to obtain that market except through education; and education, in my opinion, can be the most cheaply obtained from the show.

I can conceive how a colony of bees might be exhibited on the eight frames only, no hive-body being used at all. Simply suspend the eight or any number of frames upon a



horizontal frame, this to be placed inside of a wire-cloth cage; then people could see the whole inside of the hive, practically. I believe that we can refute comb-honey lies until the end of time, and it will make but little difference as to increasing its sale. You see, a letter to an editor who has printed a canard almost seems to take the semblance of a petition, or, if you please, a half-apology to the editor for asking him to contradict himself. Editors are human, and they don't like that sort of thing, considering the fact that the canard itself made "mighty interesting reading" for the ignorant public, and the petition *doesn't* make "mighty interesting reading."

A good many think so many new bee-keepers being made is the cause, or one of the causes, why honey is not more in demand; and it has been hinted, in one of the journals, that a great effort was being made by a large supply house, giving a very rosy hue to apiculture in its advertisements. I presume The A. I. Root Co. was the party the writer had in mind, or one of them, for I have seen its advertisements in the farm papers. It is claimed that this advertising makes more bee-keepers, thereby depressing the market. Now, I for one don't believe that it does depress the market. I believe The A. I. Root Co. ought to be commended by the larger bee-keepers for thus increasing the number of bee-keepers. Why, the more bee-keepers we have, the more mouths there will be to tell the truth about honey, even if the proprietor of that mouth owns but one colony of bees. I believe if it were not for the many small bee-keepers (and they are not so frightfully numerous yet, either) that more people would believe the comb-honey stories. The public wants all the honey, and more, that is produced; but it wants the satisfactory knowledge that what goes down their throat is the simon-pure article, and there you are back to the old question again.

I remember that, a year or so ago, a fellow traveling-man and I were taking a rather long jump on the train (traveling quite a long distance), when we got to talking about bees. He said he was very fond of honey, as was his family; but he had read and heard so much about honey being made by machinery, and that there was something crooked about it (there you are again) that he had not bought any in some time. Well, we had, he and I, a heart-to-heart talk about the habits of bees, and, of course, the production of honey. That it had its effect is certain; for when I saw him a few weeks ago he said he had been buying comb honey now *by the case* instead of by the section, and said his family consumed about fifty pounds last year.

Randolph, N. Y., March 21.

[Your ideas seem very sound. I *know* that the manufactured-comb-honey stories are believed by a larger percentage of the public than most bee-keepers have any idea of.

I have never been able to see why the

mere fact that bee-keeping is recommended as an occupation should have any thing to do with the honey market. If the market is injured at all by the small producer I should say that the one to blame is the man who keeps bees in the old-fashioned way, and who will sell honey in any kind of shape, at any kind of price, because he is not up to the times and knows nothing concerning either modern methods or prices. It certainly does the industry good rather than harm to get hold of such a man, and teach him modern methods. Why is not the market value of the poultry products lowered because of the amateurs who are encouraged to go into the business?—ED.]

#### IF I WERE TO START ANEW, WHAT STYLE OF FRAMES, SUPERS, AND AP- PLIANCES WOULD I ADOPT?

Standard Eight-frame L. Hives with Hoffman  
Frames and Beeway Sections Preferred;  
the Opinion of a Veteran of the East  
and the West owning a Thou-  
sand Colonies.

BY M. A. GILL.

[Perhaps it would be well to state that Mr. Gill was not among the original number selected to discuss this subject, else it might appear that he was chosen because of his endorsement of the eight-frame Dovetailed hive and the short-top-bar Hoffman frame, originally put out by the publishers of this journal. As Mr. Gill is a man of large experience we are glad to have him join the number. What he says will be an encouragement to the user of standard goods obtained at *any* factory.—ED.]

*Dear Mr. Root:*—Your remarks with regard to what kind of appliances to use if just starting in bee-business interests me to such a degree that I feel like writing my personal experience and ideas upon that subject.

I will say, first, I have been a constant subscriber to GLEANINGS for twenty-six years, and have always been an admirer of the Roots and Root's goods, but not to the extent that I wanted *every* thing they made just because they offered it for sale—for instance, your old Clark smoker and your old (so-called) Simplicity hives with their beveled corners and edges, with a flimsy slatted honey-board to go under those half-inch T-tin supers, and covered over by an outer shell. Those hives should have been named "Complexity;" and what an abomination they were as compared with your modern Dovetailed hive and supers, and your new Corneil smokers!

You know there are many writers who, for some unknown reason, have always tried to down the Langstroth hive and Hoffman frames, and have blamed manufacturers for their being so universally in use.

Now, is this not a left-hand compliment to practical bee-keepers who should, and I believe do, know what they want, and will insist upon having what they want, irrespective of what the manufacturers have offered in the greatest bulk upon the open market?

I have never seen the time when I could

not buy some outlandish fixin's to handle bees in if I chose to; and is it not a fact that the reason there are more Dovetailed (or plain Langstroth) hives with Hoffman frames in use is because the practical beekeepers require them, and not because you would any sooner sell them? And is this not the case why you sell more eight-frame hives to comb-honey men than ten-frame, because the practical comb-honey men demand them, and not because you insist on putting them upon the market?

In my thirty years of experience with bees I have handled them in nearly every kind of hive or receptacle known to the craft, from a coyote-hole to the divisible brood-nest; and I want to say that, for handling bees in large numbers, and producing comb honey alone, there is no hive that gives me the pleasure and profit that the simple eight-frame Dovetailed hive and Hoffman frame with short end-rests do.

There are a few other hives and systems that a man could handle on a large scale, and keep all of the ten commandments; but there are some in which I think it would be an utter impossibility. I won't name any of them, for I don't want to tie the grass across any one's path to prosperity; for you know there are those who for years have expected to perfect a hive and system where they could touch an obscure button, and take a different-sized section from any one else, and out of a different hive from any other used, and put it on the market at a different price from what any one else could get; and to these people I think the horoscope of time still indicates a vast field of unexplored territory.

So, now, if I were just starting in the bee business, and wanted to take advantage of the market for carload lots of comb honey during the interim, and before the many inventors put their odd-sized sections upon the market at such high prices, which would be odd to us, I would adopt the old standard eight-frame Langstroth hive (Dovetailed), and with Hoffman frames with short rests.

I would also adopt the old  $4\frac{1}{4} \times 4\frac{1}{4}$  sections, because it doesn't take any talking nor explaining to sell even a carload of them.

The supers, such as are sent out for the Dovetailed hives, are not practical where one is doing much hauling around the country; the loose feature of the section-holders is never used, but it is a decided nuisance many times, and the  $\frac{1}{2}$ -inch-thick bottom slat is too light, and nearly always sags, cutting off the bee-space.

My supers are made by nailing a thin board, occupying the same place and space as do the end blocks to the section-holders; and to the bottom edge of these are nailed pattern slats  $\frac{3}{8}$  inch thick, which never sag. The pattern slats are sawed  $\frac{1}{8}$  wider than sections, so that when two are put together it takes just a  $\frac{1}{8}$ -inch separator; and when these supers are filled they can be hauled about or set down anywhere without rattling out their contents. This super is the only change I would suggest from the regular

goods offered by the trade. I would have every hive in a thousand just alike, and every cover and every super and hive-frame.

I see some one has offered you an appliance for working over Hoffman frames into loose hanging frames. Please don't accept his kind offer. Somebody might be tempted to do so, for every frame so changed is, to my mind, a step backward.

Now, I have not adopted these simple and uniform fixtures from any ulterior reasons, but have had their adaptability forced upon me by actual tests alongside of nearly every invention, and I have passed through as many periods of obstinate ignorance and experimentation as the average man; the same with regard to the choosing between the eight-frame and ten-frame hives. I surrendered to the eight-frame only after they had repeatedly outstripped the ten-frame, and then not willingly.

All this was after years of handling all the different frames such as the end-spaced standing frames, reversible, Heddon, V-shaped hanging, finger-spaced, etc., and I still have an apiary in old Wisconsin, of Watertown hives, with the top-bars dropped into a notch with no possible way of moving a frame except straight up. I don't know the inventor; but if I were on a jury to try his case I would convict him of malice aforethought; and yet that grand old veteran, Stachelhausen, prefers that frame, and our mutual and good friend Hutchinson has gone wrong on the frame question.

Why, if I *had to use* such frames and hives with my thousand colonies, and lacking the patience of the above-named gentleman as I do, I fear suicide would stare me in the face.

And now, Ernest, I would advise that you keep offering to the trade these splendid standard goods that you are now making; for in my opinion the man is yet unborn who will give to the world a better hive and system than the Langstroth-Root-Hoffman combination.

Longmont, Col.

---

#### HOW TO USE A SECTIONAL HIVE.

Why such Hives give a Greater Range of Management, and hence Better Control of the Bees.

RY R. C. AIKIN.

For years I have been an advocate of a large hive. I am also "in love with" the sectional or divisible brood-chamber hive. Most people, when we speak of a sectional hive, think of it as a small one, while we advocates of them claim their advantage to be in their adaptability. So, Mr. Editor, when I discuss the sectional hive, because it *can* be made into a very small brood-chamber that is no proof that I favor small hives. In many localities, and in the hands of many people, the ten-frame Langstroth hive is none too large. A hive that is just right at one time is not at another; and when it comes



to using a divisible-chamber hive it should be larger than the common styles in use.

My first experience, and it was not a very limited one either, both as to years and number of hives in use, was with a hive about a foot square and 14 inches deep. I even transferred from Langstroth frames to this. Then I used a little deeper frame, and later a shallower one only ten inches deep. The largest frame I ever used was about twelve inches wide, and fifteen deep; then this cut to ten, then the Langstroth frame.

After this I made frames  $4\frac{1}{2}$  deep and 17 long—have used some of them for several years, and still have one or two colonies on them in ten-frame chambers two sections to hive. Last of all I came to use my present frame, 16 long and 5 deep, 8 to the body, and as many bodies as necessary, as will appear later.

As to supers and their relations to the brood chambers, I have used all the way from 15 to 48 sections to the super. Before the days of tiering up we wanted a large upper surface over which to put section supers, as we used only one section deep. This called for a large hive laterally, and the ten-frame hive was the compromise as being broad enough to take a large super, yet not so very broad but that the bees did fairly well in wintering in it.

#### DEPTH, NOT WIDTH.

Since supers have been made to tier up, the tendency has been to use smaller ones. 'Tis well. A 28 or 32 section super makes a wide one, and naturally is not quite so well worked at the corners and ends. The 24 size is better, and gives us an opportunity to manipulate so as to have fewer unfinished sections. I consider, as already stated, that, in very many localities, a ten-frame Langstroth hive is not any too large. And, more than this, I expect to prove that even a larger hive can very often be made more profitable than a smaller one. An eight-frame is often too small.

Supers now are so easily and satisfactorily tiered that the old ten-frame Langstroth hive is no longer in demand simply for super-room surface; we place more supers over or under those already on, and get all the necessary storage room, and get it in better shape too. Bees will store surplus better in a pile of supers five or six feet high than in the same space less than half that high; and if they will store honey they will also brood in a like deep brood-nest. A colony between two studs in a wall where the space is but  $4 \times 14$  inches, and any depth, possibly to ten or more feet, will string up and down that narrow place and do well; but just lay that same room down on its side, and what can you get done in it? Yes, they will work in it building horizontally, and do fairly well in warm weather, but do not like to do so; and when winter comes the perpendicular hive is far ahead of the horizontal. I think but very few will dispute these conclusions—possibly no one will.

If my reasoning is correct, a hive may be made narrow and deep and yet conform to the habits and instincts of the bees, with no loss in results. I claim that a hive a foot square—yes, even so small as ten inches square, and deep enough to supply all the room a queen can use—will get just as much honey stored above with the same effort on the part of the apiarist as can be done in the same number of cubic inches in a wide shallow chamber.

One of the great difficulties in a very deep and narrow chamber is when storing begins at a time when the colony is not strong enough to get very far above the brood nest; they fill a considerable space over the brood until the store space yet above this is so far out they will not cross it to reach space above.

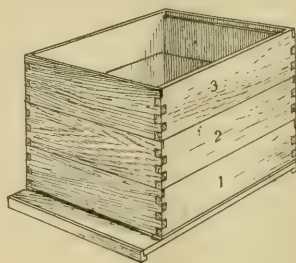


FIG. 1.

But such a condition does not or ought not and will not, with proper management, obtain. Take, for instance, my divisible-chamber hive. Suppose the colony winters in and occupies three sections up to the opening of the flow. Any honey in the hive is almost sure to be at the top in section No. 3. See Fig. 1. When the time comes to put the super on, place No. 3 on the bottom and you have the order 3, 1, 2, instead of 1, 2, 3, and two should have the bulk of the brood; and this alternating leaves brood clear up to the very top edge of the upper set of brood-combs. Put a super on this; and when it is filled, or nearly so, put another under. We keep on raising the full ones, or taking them off, and the bees are never required to pass up over a great space of honey to reach new store room. It is put close to the brood, always.

#### FACTS WORTH REMEMBERING.

Keep in mind now that we started with the hive three sections deep, and numbered from the bottom 1, 2, and 3. As the flow started we changed to 3, 1, and 2, putting brood at the top and brood and honey next the floor, with the middle probably brood and empty comb. Arranged thus you put a super on. Suppose there is one bait section in the center of that super. Suppose, also, the colony is strong, and can easily send a force to the super, especially since brood is immediately below that super. That honey in No. 3 is too close to the entrance, and must be moved, and will be in most cases. Following nature (instinct) they hike to the top of the hive with that honey, to get it

above the brood; they find that bait section, and there it is stored, super work started—a great gain. The moving of that honey makes more empty comb below; that stimulates the queen to lay to fill it, and there is another gain.

This is not dealing with the swarming problem. I am analyzing bee nature, getting before the mind *principles*. To understand principles, and have the necessary machinery (hives and appliances) puts the apiarist in control—makes him master.

Now if these statements are true, then much more can be accomplished. I have supposed a hive full of bees at the opening of the harvest flow; but if they are weak—so weak that they will not use that super with any sort of arrangement of the three sections of brood-chamber, all the brood usually will be in 2 and 3, with No. 1 empty dry comb, or possibly may have a little honey. We will try some more manipulation.

Take off the cover, smoke from above, and drive the bees down. You do not need to drown or suffocate them with smoke to do it; and when you are sure the queen has run down from No. 3, if she should have been there, lift it off; put an excluder on top of 2; over this your super, and on top of that No. 3. This puts brood both above and below the super, and plenty of empty brood comb in No. 1 at the bottom. If the colony has both 2 and 3 about half filled with brood, and many bees hatching, with some honey being stored, they will soon be drawing the foundation in that super and begin storing there.

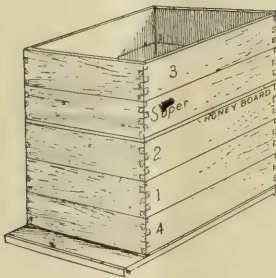


FIG. 2.

Under some conditions that super may be left there until filled and finished, such as when the brood-combs of 2 and 3 are comparatively new, and nectar free. If combs are old, or if much pollen is being stored, it should be changed as soon as they get nicely started on the foundation—at least as soon as storing begins in it. No. 3 may be removed to a new stand for a nucleus, or to help some weaker colony, or placed at the bottom, where much of its stores (it would have been getting much of the daily gathering as the bees hatching leave empty cells) will be moved up to the super. I have had many supers started in this way in colonies that would not have touched them if put on top, but they would have filled jam full the brood-combs, and loafed or swarmed.

#### USE OF LARGE BROOD-CHAMBERS.

Go back again to the hive as it stood at the beginning of the flow arranged 1, 2, 3, and well filled with bees and brood. Take a fourth brood-section and arrange the hive 4, 1, and 2; on this put an excluder; next a super and No. 3 on top, Fig. 2. No. 4 should be filled with either dry comb or foundation. If starters only it will be largely filled with drone comb. As each section of this hive has the capacity of four Langstroth frames you now have a sixteen-frame capacity—twelve below and four above the super. Now I will tell something most bee-keepers do not know. Listen!

That set of dry combs below *will not* interfere with storing in the super. Instinct almost compels the storing of honey *above* the brood, so it goes into No. 3 in Fig. 2, and into the super. The queen having plenty of laying room *below* her present brood-nest keeps right on with business, and again swarming is much reduced if not entirely prevented. If the swarm conditions are so strong that even this will not prevent their swarming, make the arrangement 4, 1, super, 2, and 3, always keeping the queen below and the excluder over her but under the super. In extreme cases, as very strong colonies with rapid flow, or where it would seem they will still prepare to swarm with the above arrangement, put two supers in between 2 and 3, or take 3 entirely away and make it 4, 1, supers, 2.

#### THE SECRET OF IT.

All colonies should have a large brood-chamber, especially when there is any likelihood of a notion to swarm; and in that chamber the brood should be at the top with empty brood-comb below. When time to put the supers on, you can have almost any amount of brood above a super, temporarily; but where the queen is, there should be only a limited amount; but, most important of all, is that the brood-chamber have its brood up close to the super, and empty brood-comb between that and the bottom and entrance.

In a rapid flow, *nectar* will be dropped into empty comb below the brood; but there it is *rarely* left to ripen or be sealed. They elevate it the very first chance, and put it above the brood. So true is this, that, with a sectional hive, where it is so easy to get a chamber of brood, one almost solid full of brood just under the super that, even with two sections of dry combs (eight Langstroth-frame space) placed *under* this brood, super work will still go on nicely above when once they have made a start there.

The reader can now see how it is so much easier to control swarming in a sectional hive. Also how easy to get the super work started. Those chambers of brood put above can be used to start new colonies, strengthen weak ones, be placed over a super on another colony to get them into the super, etc. Increase is under control as well, and no easier way can be found to make new colonies or nuclei than with these extra chambers of brood.



## EXCLUDING HONEY-BOARDS.

Every hive composed of two or more parts to the brood-chamber should have an excluding honey-board. When a queen is put below she must stay put. Again, when brood is above a super, sometimes cells will be started there, the further removed from where the queen is the more likely to have cells built. With a large and properly arranged brood-chamber below, and brood away up over two or three extracting-chambers, often one may have young queens mated, though I do not recommend this. There is too much bother lifting these chambers off and on with the other necessary work. I call attention to the fact more to show what *may* be done, which gives us a clue to a better understanding of what is necessary in management to obtain control and get results.

## APPLYING TO REGULAR HIVES.

These principles may be used in the manipulation of the regular eight-frame Langstroth hives by using them two-story. A two-story eight-frame hive in which the colony was given the second story *underneath* at or before the removal of the last super, and so left that way until the opening of the next honey-flow the next summer, will get enough more bees to store enough more honey to pay the cost of that extra chamber in just one fairly good season. And while this is being done the apiarist has had less labor and attention to bestow upon them.

When the flow does start, the extra chamber may be used to make a new colony, as with the regular sectional hive.

But so large a chamber as an eight-frame Langstroth is too large to put over a super; but we can take one chamber away, and the queen with it, to a new stand, leaving her main force on the old stand; and if the flow is strong enough, or if bait combs are used, the colony can be made to work the super while cells are maturing. Before the cells are *ripe*, all but one must be removed. Ripe cells and piping queens will demoralize a colony and stop honey-gathering almost beyond any other condition.

A large sectional brood-chamber with the individual sections small; the horizontal measure of the hive, both its width and length—no more than is necessary to get a 24-section super on it nicely—these are the main features in the most easily managed hive. By a system of alternating, etc., as described herein, lies the road to control of swarming and best results in honey.

Loveland, Col.

## BEE-KEEPING IN PENNSYLVANIA.

BY PROF. H. A. SURFACE.

Pennsylvania is an empire in her extent and resources. Few States in the Union have greater diversity of soil, elevation, climate, and drainage systems. This means that her productions, both natural and cultivated, are various; and as the plants differ widely, so are the possibilities for success-

ful bee-keeping varied. In the northern part of this State is the great buckwheat region where the bee-keepers have the opportunity to market all of the white-clover flow, and also get an abundance of honey from the later buckwheat-fields for the cheaper trade, domestic purposes, and winter stores. In the southeastern portion of the State the great fall flower, producing an abundance of honey and pollen, is the Spanish needle (*Bidens*), locally called "yellow flower," wild chrysanthemum, and fall flower. Along certain streams of the State the basswood is to be found in abundance, yielding first-class honey, and in some portions of the commonwealth the black locust or yellow locust is planted in large groves, especially along the lines of the Pennsylvania Railroad, and these trees are now large enough to yield considerable honey in their season. Pennsylvania was rapidly becoming known as a fruit-producing State before the San Jose scale cast a temporary blight over her prospects in this direction; but, thanks to successful use of boiled lime-sulphur wash, the scale is held in good control, and the fruit-blossoms will again have their due influence in building up colonies preparatory to the white-clover yield, which is practically to be found all over the State.

The chief plants for the bees are (in order of blooming), the elm, soft maple, poplars, alder, willows, peach, plum, cherry, pear, and apple; raspberry, blackberry, locust, basswood, the mints, white clover, alsike; alfalfa where grown; buckwheat, the Spanish needle, goldenrod, and the asters. In the southern portion of the State, and in the mountain regions, a fine-flowered aster is the most important late-blooming plant, providing winter stores.

This State has many prominent bee-keepers, such as E. L. Pratt, the famous queen-breeder, of Swarthmore; F. G. Fox, who has made famous records in his fields of extracted honey; W. A. Selser, of Philadelphia, who has charge of the famous exhibition apiary of the A. I. Root Co. at Jenkintown. Mr. Selser is the largest individual bottler of extracted honey in the United States, having five wagons, and driving as far as Boston, selling his bottles in five of the principal eastern cities—New York, Philadelphia, Boston, Baltimore, and Washington, putting it up in the small sizes, principally 10 and 15 cent size, and a small percentage of the 25-cent size. In this way he puts up an aggregate of 50,000 lbs. of honey, using two carloads of glass bottles. Besides these persons mentioned, there are many others.

Among the active local bee-keepers' societies in this State is the Philadelphia Bee-keepers' Association, which is one of the largest and most active and successful known in any country; the Potter County Bee-keepers' Association, and the Harrison Valley Society, which are in the northern part of this State, and are doing good work there for the man who cultivates the acquaintance of the little "busy bee."

Although the Pennsylvania State Association is only two years old, it is doing good work, and already reaping results. The writer was made its President at the organization meeting in Williamsport in the spring of 1904; and, although he has asked to be released from the duties of the office, the Association re-elected him at the recent annual meeting held at State College, and also elected Mr. L. R. White as Secretary and Treasurer. Mr. White is one of my scientific assistants in my office at Harrisburg; and from the vantage point of a State office these two persons are trying to help all Pennsylvanians interested in bee-keeping, and to build up the State Association, but they need further help. They are now engaged in making a complete card catalog or list of all bee-keepers in Pennsylvania, giving the following facts for each person; 1. Name and address; 2. Number of colonies; 3. Kind of bees; 4. Kind of hives; 5. Amount of comb honey produced in 1905, in 1904, in 1903, and in 1902; 6. Amount of extracted honey produced in 1905, in 1904, in 1903, and in 1902, and the number of colonies each season that were engaged in the production of the above-mentioned; 7. What periodicals or journals on bee-keeping are taken? 8. Chief honey-producing plants, with date of blooming of each; 9. Membership in State, national, and local bee-keepers' associations.

All persons in Pennsylvania who keep bees or know bee keepers are requested to furnish Mr. White with such information, and in return for this the publications which the State is issuing upon these subjects will be sent. The State Association has just prepared in bulletin form the papers presented at its first annual meeting, and these will be sent free to all its members, who have also recently arranged to buy their supplies in a co-operative manner, and receive a special discount that is granted only to the members. They are also working toward legislation at the next session of the legislature for checking the foul brood which is starting in some parts of the State, and for otherwise protecting the interests of bee-keepers.

The president has just erected a wire enclosure, of 30 feet cube, for mating, crossing, and testing with certainty in the manner he desires, the different races of bees that are in his apiary, representing all races now kept on the American continent. Good results are expected from this work, and these will be published first in the President's annual address, and afterward in the reports of the Association, which are to be sent to members. The membership in the Pennsylvania State Bee-keepers' Association is but one dollar a year, and this includes membership in the National Association without other charge, and also the publications of both the State and National Association free. All persons interested should write to Secretary L. R. White, Box 756, Harrisburg, Pa.

I have just obtained a demonstrating-tent for giving demonstrations of methods of

handling bees at fairs, farmers' institutes, bee-keepers' meetings, etc.; also I have had a full set of lantern-slides made by the Root Co., for illustrated lectures on bee-keeping, first of which was given at the annual convention of the Pennsylvania State Farmers' Institute Workers, at Clearfield, Pa., on May 30, 1905.

Harrisburg, Pa.

### THE CONTROL OF SWARMING.

Using High and Low Double Stands Alternately Across an Apiary to Secure Individuality of Location.

BY E. F. ATWATER.

In the production of fine comb honey in a locality subject to poor flows, short flows, or very cool nights, the bee-keeper who puts a super on a hive containing the average progeny of one queen, especially if bred in a small brood-nest, is not "taking advantage of his advantages."

As the flow opens, take one hive of each pair and shake a large share of its bees into its neighbor, having the younger queen, and add the super or supers to hold the immense force.

If you prefer to follow Aikin and Stachelhausen, using the forced-swarm method on practically an entire yard, without waiting for preparations for swarming, then shake the bulk of the bees from both colonies into one hive, with the younger queen, on either seven frames of starters and one frame of brood and honey, or six starters and two frames of brood and honey. With this management I have not found a queen-excluder to be necessary. If you prefer the plan usually used by Mr. Gill and myself, you must inspect each brood-nest every six days; and, if queens are clipped, never more than nine days; and when queen-cells are found, shake as above. In this or any modification of the forced-swarm method, always have the pairs of hives seven to ten feet apart. This makes a yard cover more ground than is otherwise desirable; but if the pairs of hives are nearer, the bees of the forced-swarm will too often drift into nearby hives, leaving the forced swarms too weak for good results.

Here is where many fail, for at this time bees are readily accepted anywhere, and a nearby hive containing a normal colony must look more like home than the empty hive on the old stand.

If you have not enough room to arrange a yard as above described, there is another plan which is fairly satisfactory. Your first pair of hives is to be on a low stand; then as much room as you can allow; then a pair of hives on one of those Callbreath-Root stands, 12 or 18 inches high, and so on, with high and low stands alternately across the yard. This arrangement gives each hive and each pair of hives a distinct individuality of location greater than can be secured in any other way in a very limited space. The



forced-swarm method, with inspection of each brood-nest every six days during the swarming season, is a great step in advance over older methods; but I may say, quite positively, that we shall yet control swarming with as good or probably better results, without inspecting the brood-nests during the flow, and, quite possibly, without compelling any of the colonies to build a new brood-nest if we so desire. Nor do I think that we must adopt a non-swarming hive, but that a satisfactory method, adapted to any hive, will soon be developed. Perhaps ten years or even five will see the problem mastered. But if any one develops such a method only to keep it to himself, and to gloat over his less fortunate fellow bee-keepers, I should prefer that his "gloat" be refused admission to the columns of our journals as of interest to none.

Meridian, Idaho.

#### THE ALEXANDER CURE FOR BLACK BROOD NOT RECOMMENDED FOR FOUL BROOD.

Foul Brood Sometimes Disappears Without Treatment.

BY WM. W. CASE.

Please go a little slow on the Alexander treatment for foul brood, or I terribly fear you will sow seed that will give you a very unsatisfactory crop at harvest time. I will not say that, under certain conditions, the treatment will not be effectual; but I do say, and say emphatically, that, under such a reign of foul brood as we have and have had here, the treatment will fail in nearly all cases. The treatment will sometimes effect a cure at certain seasons of flow, and will be entirely ineffectual at others.

The treatment is not new. I do not claim nor wish to claim it as originating with myself, although I used it some ten or twelve years ago—in some cases successfully—in others (and by far the most of them) not, and have not and will not attempt any further experiments in that line.

Taken in anticipation of a heavy flow of buckwheat, or any other honey that contains a large per cent of acid, it will sometimes effect a cure; but frequently, under such conditions, foul brood will disappear of itself and never reappear, especially if there is little or no honey in the brood-nest; but you may set it down as an absolutely sure thing that if, at the beginning of such flow, there is any appreciable amount of clover or basswood honey, which will for ever hold infection, in the brood-combs, colonies treated *a la* Alexander will show reinfection, frequently in a very short time after such treatment.

Only a few years ago, when foul brood was at its height here (it is now on the wane, and losing much of its former virulence in obedience to the laws governing nature's balance), in conversation with a fellow bee-keeper concerning foul brood he said, "Pooh! foul brood is nothing. When I see bad

brood I just requeen;" but in less than six weeks afterward he came to me in despair as to what to do with his "rotten apiary."

Until that time he had never known what real foul brood was; and when he came face to face with the genuine article his theories fell flat.

The whole trouble is, there are too many experts and theorists who have never seen real foul brood in their lives, although I do not say that this is true of Mr. Alexander.

Both the microscope and experience show that foul brood is caused by a virulent germ—an active, living principle, destructive to life in the larval form of *Apis mellifica* at least, and that this virulent germ, this active principle, has got to be eliminated from all honey fed to the larvæ, otherwise the disease is bound, sooner or later, to reappear, and there is nothing whatever in the Alexander treatment to destroy this germ life in the honey stored in infected combs unless it may chance that the larvæ are fed on honey freshly gathered, that in itself is destructive to *Bacillus alvei*, as seems to be the case with buckwheat. (Any one doubting the effect of buckwheat honey on the economy of the bee has but to visit an apiary in a buckwheat flow and witness the ferocity in general of the bees, and endure the agonizing stings then offered in good faith and "heaps a plenty.")

From observation and experience I do not believe that any form of treatment will or can ever be trustworthy that will allow any honey from an infected brood-nest to be in possession of the bees when young larvæ are being fed by the nurses. Such a theory is not scientific, neither is it borne out by common sense nor the results of practice; and if local conditions render it efficacious at Alexander's apiary it is exceedingly doubtful whether such conditions exist elsewhere.

Frenchtown, N. J.

[Mr. Alexander never recommended his special treatment for any thing but black brood—the disease which, during the last few years, has manifested itself in New York. The bacteriologist of the Department of Agriculture, Washington, D. C., as well as those at Cornell University, have shown there is a marked difference between the foul brood of Ohio and Wisconsin, and the black brood of New York—or, rather, that there are two brood diseases. Strangely enough, the black brood of New York, according to the bacteriologists, is the *Bacillus alvei* of Europe. The regular foul brood which we have had in this country they find to be something else. What Mr. Alexander was talking about was the same foul brood that probably exists in Europe; and it will be remembered that Mr. Samuel Simmins, in his book, gives a description for the treatment of this same disease, that is not unlike the treatment recommended by Mr. Alexander.

It must be remembered that Mr. Alexander never claimed that his treatment would

cure the foul brood which has been found in Canada, Wisconsin, Ohio, and Cuba. When questioned about it he did not know what effect it would have on that disease. But the suggestion was made by me in a footnote, that *possibly* the treatment might apply to the foul brood with which we are familiar.

I offer this explanation as it may harmonize differences in experience. For the present, at least, those who have the regular foul brood of the United States had better not waste any time on the Alexander treatment unless they can isolate the colony or colonies where it will do no harm to the other bees.

You are exactly right when you describe the conditions in the midst of a heavy buckwheat honey flow. One must really see it

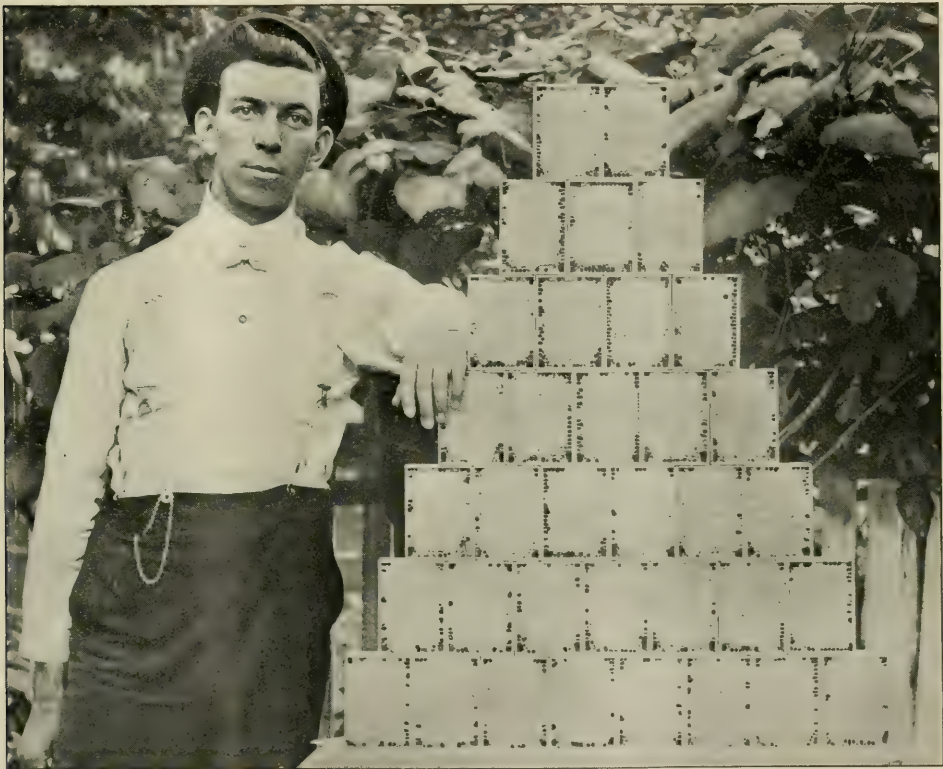
### SOME FANCY HONEY.

Winter Cases for Ten Cents Apiece.

BY C. F. ECKLER.

I send you a picture of myself beside some of my first honey. This colony produced 70 lbs. of comb honey in 27 days, all from white clover. I wintered 25 colonies, and did not lose one. I have them in ten-frame Dove-tailed hives, as I like them best. I made me some winter cases of store-boxes. They cost me 10 cts. a case, and I packed them in planer-shavings. They answer nicely. I looked at my bees on the 27th of March, and I found lots of brood and eggs, and more honey than I expected. I call the honey in the picture No. 1.

Hegins, Pa., April 1, 1906.



SEVENTY POUNDS IN 27 DAYS, ALL FROM CLOVER.

to be able to comprehend it fully. But how do you *know* that buckwheat contains more acid than other honey? Why should it be more potent in curing any disease? A *rapid* flow of honey from *any* source (and buckwheat is a rapid yielder of honey) would check almost any disease—black or foul brood—and sometimes cure it altogether. I should say it was rather the *strength* of the flow than the *character* of it.—ED.]

[Unfortunately a photo never does a pile of nicely filled sections justice. The unsealed cells always show black, which, in contrast with the white, makes the unfinished portions seem much more prominent than they really are. Comb honey in a photo never really looks fine unless nearly every cell is sealed. I do not speak of this by way of criticism of the picture above, but would only draw attention to the fact that



this honey is really better-looking than it appears here.

Very serviceable winter cases can be constructed out of drygoods-boxes; but one must be sure to have dry covers, using building or roofing paper, or something of the sort.—ED.]

### AN APIARY IN SOUTH FLORIDA.

A Locality where Swarming Began Feb. 14.

BY R. ADDISON.

I have an apiary of 22 colonies, a picture of which is shown herewith. It is situated under a scuppernong grapevine.

Swarming commenced Feb. 14—eleven to date. I hope it is over. All young queens have made a successful flight, and are laying. Last season many queens were de-

stroyed in the same fashion, with a grapevine running on trellises overhead. But in our northern climate he soon saw that it would be better to have a shade that would protect the bees only in the heat of the day, giving the hive the full benefit of the morning and afternoon sun. With a small trellis on the south side of the hive, not over six feet high, this result is accomplished very nicely.—ED.]

### SHADE.

Its Advantages in Apiaries; Apiaries Protected from the Wind.

BY E. H. HANSELMAN.

My bee-yards are protected from chilly winds by groves of red-oaks, the out-yard being completely hemmed in on all sides. People often ask me whether so much shade



A SOUTH-FLORIDA APIARY.

stroyed by mosquito-hawks. The honey-flow seems to be promising. I have taken off two supers to date. I hope you will interest some of the veterans of South Florida to help us beginners.

Loughman, Florida.

[It will be noted that in this small bee-yard here shown, Mr. Addison has driven stakes into the ground, then sawed them off to a level to accommodate the bottom-board of the hive. In a climate like that of Florida, such a hive-stand is very serviceable and convenient, as well as cheap.

Here, again, shade is a great convenience if not important. The old bee-yard that A. I. Root had was shaded a good deal after

is not detrimental to the bees, to which I always have an emphatic no. If my bee-yards were located in the open I should not want any shade at all, as there is always a little breeze to keep the bees cool and combs from melting. But in my case the wind is nearly shut off from all sides, and on a hot day there would be a tendency for bees to loaf and comb to melt, especially if there are frames in the hives filled with full sheets of foundation. I have often noticed that, on a hot day, bees in the shade work better than those standing in the sun. It keeps the bees in the hives a little longer in the morning, while if they were not shaded they would fly out before the air in the open is sufficiently warm, then get chilled and die.



A COOL, COMFORTABLE PLACE TO WORK ON HOT DAYS; 1ST-PRIZE PHOTO, CLASS A; APIARY OF E. H. HANSELMAN, AUGUSTA, WIS.



Of course, I don't wish to be understood as saying that the shade is very dense, for then it surely would be detrimental, but only enough to shade them a little in the morning and during the hottest part of the day; and right here I wish to say that the colonies partly shaded average a little better than those not shaded; and it is quite a treat to ourselves as well, after working hard, to take a rest in the shade on a hot day, and I think the bees appreciate it too.

Augusta, Wis.

[A short time ago Mr. E. W. Alexander made the statement that he had noticed that those colonies that were in the shade did not do as well for honey production as those out in the open. In view of what is stated above, there might *appear* to be a

As Mr. Alexander's bees are exposed it follows that these two men quite agree.

But there is something very attractive, cool, and inviting when a bee-yard is protected on the exposed sides from the prevailing winds, and has a nice shade over it to shield the operator as well as the individual hives during the heat of the day. It would be a pleasure to work in a yard like that shown here.

Mr. Hanselman would never have occasion to be ashamed to entertain distinguished visitors at this yard, as it looks so nice, neat, and clean; and after all it does not cost very much more to have a yard look right than to be disorderly. One or two of the Root Co.'s yards are not models of neatness; but we are endeavoring to make them all attractive, and even park-like.—ED.]



A FAMILY THAT CONSUMES THREE POUNDS OF COMB HONEY EVERY DAY IN THE YEAR.

conflict of statement between two good authorities. But the lay of the land and the prevailing wind exposure has much to do with the matter. Mr. Alexander's bee-yard is situated on top of one of those high hills that are so numerous in that part of New York. I do not remember the exact elevation, but it is some 150 or 200 feet above the level of the valley below. If there were any wind stirring at all, the colonies in his yard would be sure to get the full strength of it. Therefore it follows that *combination* of wind and shade would be too much of a good thing.

You will note that Mr. Hanselman says that, if his bee-yards were located in the open, he would not want any shade at all.

#### HONEY AS A FOOD.

Prevents Doctors' Bills; an Average of Three Pounds of Comb Honey Eaten a Day for Years.

BY J. E. GAUL.

Seeing the letter of A. C. Armstrong on p. 299, I thought I would send you my family's honey-record, year in and year out. There are in my family myself, wife, and eight children. We have comb honey on the table three times a day and 365 days in the year, and we easily average a 1-lb. section to the meal, or three a day. The children are all healthy and hearty, and ready for their three meals a day, and we have

never paid five dollars on a doctor's bill for the whole eight. Their ages range from 17 last November to five this April. I will send a photo entitled "Under the Kieffer Pear-tree." It shows the whole family, including the pet sheep. The boy at the extreme right tried to get the little dog in too. You can see just a part of its back by the chair-leg. The sheep moved its head.

Marienville, Pa., March 15.

[It is said the proof of the pudding is in the eating of it. If any one doubts the value of honey as a food and as a health-giver, he will only need to study this picture of the Gaul family.]

We send congratulations and our best wishes; and as a slight token of our good will we are sending GLEANINGS five years with our compliments. If there is any other family that can show as good a record it will give us pleasure to duplicate this offer. The only condition is that such family is to send us a photo—one that is clear and sharp—so that we can use it in GLEANINGS.

We believe it to be our duty to preach the doctrine of eating honey in preference to any other form of sweet; and the editor hereby offers his sincere congratulations to both papa and mamma Gaul for their bright happy healthy-looking lot of children. Certainly our beloved President would have no fault to find with the size of this family.—Ed.]

## THE DIFFERENCES OF OPINION ON THE FRAME QUESTION.

### A Device for Holding Frames While Nailing.

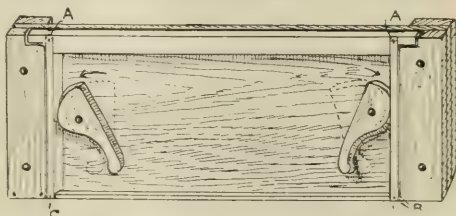
BY J. A. BEARDEN.

It may seem to some that the subject of frame-hives has been discussed almost enough; but as frames play so important a part in our bee-keeping I for one say let's have the best frame, hive, etc.; and if Mr. A has a better one than mine, tell me why and I will try for myself. Now, Mr. Alpine McGregor, on page 1127, takes the editor to task for recommending the Hoffman frame, and he seems to think that The A. I. Root Co. has been endorsing a curse, and hints almost that Editor Root knew better than he did that such was the case.

Now, I am no lover of the Hoffman frame myself; but that is no sign that the other man would be like me, and I am glad that he is not; for who would strive for any improvement in almost any line if it were not for opposition and competition? I am of the opinion that bee-keeping offers more range for differences of opinion than almost any other pursuit, as no two men handle bees alike, neither are the bees alike, nor the flora all of a kind; the seasons are unlike, and last, but not least, is this: Some men know it all—almost. I don't like criticism that is too flagrant; but be kind, and slow to condemn; "for what I once loved I now hate" is coming to us every day, or at least

it is so with me, not only in a spiritual but in a bee-keeping sense.

I should much prefer the Hoffman to Dr. Miller's nail-spaced frame; but that is Dr. Miller's job, and I do not doubt they are the best for his locality. I haven't a new frame to offer, but wish to suggest another way of holding frames while nailing. Let us look at Mr. A. J. Wilhite's article on page 1132 for a moment, and see if my way is not better. The editor of GLEANINGS thinks such a board is not necessary; but I don't agree with him; but here it is. Take a good smooth board one inch thick, and cut the same to a width of  $9\frac{1}{4}$  inches, and  $21\frac{1}{2}$  inches long. Now put a cleat on each end of this board, or, rather, the side of the board at each end, of  $1\frac{1}{2} \times 2$ -inch stuff, having four of these



NOTE.—By putting a cleat on both sides of the board it will stand alone on edge to nail, as I nail through the face of the top-bar into the end of end-bar at A, nail crosswise at B, and also at C, through bottom into end B.

cleats, each as long as the board is wide, less  $\frac{3}{8}$  inch, which allows the top-bar projections to extend out on the ends of these cleats. Now take four  $\frac{3}{8}$ -inch carriage-bolts and bolt these cleats on the side of the board at each end, placing the two inch side of the cleats next to the board. This leaves a space of  $17\frac{1}{2}$  inches between the cleats on the inside edges, and put these cleats with the lower end even with the bottom edge of the board. Now make a couple of wooden cams, and bolt with  $\frac{1}{4}$ -inch machine-bolts on the face of the board, just far enough from these end-cleats on the inside so that, when the cam is loose, a frame end-bar can be dropped in edgewise between the edge of the cam and edge of the end-cleat, then tighten the cam and set the board up on a work-bench on edge, and you are ready to nail through the top-bar into the end-bar; but if you don't nail that way, then you must make your end-cleats 1 inch or  $1\frac{1}{4}$  inches shorter, so you can nail through the end-bar into the top-bar—see drawing.

### BINDER TWINE FOR TRANSFERRING.

I have done quite a lot of transferring bees from box to frame hives, and I am like Mr. J. A. Green as to wrapping strings around and around the frame. I don't like that at all, nor do I want wire either. The best thing I have found is binder twine cut into such lengths as will reach around the frame well and tie; as it is strong it can be drawn taut, and the bees seem to cut it out better than cotton twine if you should happen to be too busy to take it off at the proper time.

Harms, Tenn.



[The editor does not object to having his opinions assailed. If he can not stand a little criticism he had better step down and out of his position. But there is a kind of criticism that might better be modified; for, instead of correcting, it stings and antagonizes. One who criticises in this spirit, to pay back a score or "to get even," never helps but retards progress. Honest criticism should be made for the sole purpose of correcting a mistake or fault.

I have long ceased to think that one frame could be adapted to all localities and to all kinds of men. Personally I have preferred the regular Hoffman frame with shortened top-bars for our locality; and most of the boys who come to work for us, although prejudiced in favor of some other frame,

palmetto trees is good to eat cooked, the same as cabbage, and that is what Mr. Poppleton is after with ax in hand. The palmetto-leaves fell right and left, and we secured three cabbage-heads and brought them home with us.

West Groton, N. Y., Feb. 24, 1906.

## HOW MANY COLONIES SHALL A MAN KEEP?

The Question of Handling Men.

BY HARRY LATHROP.

On page 372 of the *Bee-keepers' Review* for December, Editor Hutchinson answers a letter of mine on the subject of his advice to bee-keepers to keep more bees. I feel



AMONG THE FLORIDA PALMETTO-TREES.

gradually grow to like the Hoffman; and when they go elsewhere that seems to be the frame they adopt. The new metal-spaced Hoffman, so far as they have tried it, they like even better.—ED.]

## CABBAGE-PALMETTO TREES OF FLORIDA.

BY D. H. COGGSHALL.

Last January Mr. Wm. A. Selser kindly invited my wife and me to go with him up to White City through what I call one of the jungles of Florida, and I inclose a picture of Mr. Selser and Mr. O. O. Poppleton harvesting cabbage in this jungle. Mr. Selser is a little timid, so he hid behind one of the cabbage-leaves. My camera tells it to you better than I can.

I might say that the heart of cabbage-

that he has treated me very fairly in his reply, and, to tell the truth, I don't think he could treat any one any other way if he tried. I wrote that letter just to stir up the giant and see what he would say. I think I have the laugh on him because he practically admits that his advice is good because "only a few will take it any way." In his last talk, page 20 of this journal, Mr. Doolittle comes out squarely against the custom of booming the bee business and always giving the inexperienced public the rosy side. I think he has hit the nail square on the head; but probably this thing will go on in the future as it has done in the past, and people will learn only by experience that bee-keeping is no easy road to wealth.

There is one phase of the question that has not been mentioned that I know of. That is the question of a man's ability to stand

the work after greatly increasing his plant. When a man increases to the extent of hundreds of colonies, as advised by Editor Hutchinson, it becomes not so much a question of bee-keeping (handling bees), but one of handling men. There is many a competent bee-keeper who can care for a certain number of colonies and do the work properly, but he can't employ profitably hired help in the apiary; and if he tries to do too much alone he may end up by taking the wooden-overcoat route to another country.

I could and would increase my apiaries if I could secure and hold competent help, but it is a hard thing to do. I think one of the Cogshalls, after many years of experience, has said that this is the great problem. Take the officers of The A. I. Root Co., for example. They are not occupying their positions because they are skillful bee-keepers, but because they can handle men. That is the test of a man's ability to increase his business greatly. Such ability will come only by practice, and I have launched far enough in that direction to know that it entails trouble and vexation of spirit. The man who has just what bees he can handle properly himself is liable to be as happy as the next one.

I am not writing this to block the game, but only to call attention to the fact that increase of colonies means increase of work, and, beyond a certain point, requires outside help.

Bridgeport, Wis., Jan. 17.

[Mr. Lathrop has struck at the real solution, and the only solution, of the successful management of many bees or many apiaries. When one goes beyond 300 or 400 colonies or three or four yards, he must then employ a competent man. If he can't find one he must select raw material and train one. Possibly his choice of man is unfortunate. Perhaps he himself is a poor trainer. In either case he suffers. Where one can't get good help he had better by all means keep the number of his bees down to a point where he can take care of them without slighting his work. It should be understood that *competent* bee help is hard to get. The best men find it more profitable to work for themselves.]

The same principles apply in the management of *any* business. If an employer can not get along with his men, is a poor judge of human nature in his selection of men, is arbitrary in his management, he is liable to run his business into financial difficulties. The old adage, "Don't bite off more than you can chew," is a very homely way of saying the same thing.

In this connection I might state that an acquaintance of ours made a grand success off from a single acre of onions. He cleared over \$1000. This so elated him that he purchased or leased ten more acres, employed help, and endeavored to secure a proportionately large crop from the ten acres. While he himself was a good workman he couldn't manage his men, and the whole venture

proved to be a most ignominious failure. Instead of making ten or fifteen thousand dollars, as he had planned, he was several thousand dollars "in the hole," but a sadder and a wiser man, and in just the right frame of mind to appreciate the saying of Josh Billings, that "Experiens teeches a good skule, but the tuishun comes pretty hi." —ED.]

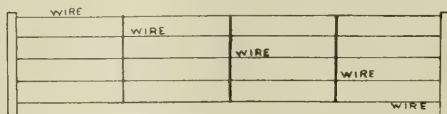


#### WIRE-CLOTH SEPARATORS; A MODIFICATION.

A few years ago, convinced that the bees hated to work in so close quarters as those given by sections nearly shut up by plain wooden separators, I purchased two kinds of wire cloth—one with four and the other with three meshes to the inch. I got them cut to suit  $4\frac{1}{2} \times 4\frac{1}{2}$  sections, and tacked them in place of wood separators. At the end of the season the four mesh pieces were badly lined with propolis, just to make one believe that the bees wanted an even face like wood separators. Some had no propolis, but, still worse, were fastened to the honey.

Such experience brought me back to the plain separator, which I have since discarded for our present frame.

Now, when, March 1, page 278, I read the words appropriated to Mr. Betsinger, my old wire-cloth device came anew to my mind, but with an idea of an improvement in the



way of the following as seen in the cut. As you will see, the wood of our present fence is simply replaced by strong wire, which forms a regular fence.

F. BENOIT.

Notre Dame des Neiges, Canada.

[A fence could be made, substituting wire of about No. 8 gauge for the wooden slats; but I feel pretty certain that the honey built on either side of it would be badly ribbed. I do not understand that you have tried this wire separator built in the form of a fence.—ED.]

#### A PLAN FOR REQUEENING AN APIARY.

I have 35 stands of cross hybrid bees which I wish to requeen from queens of my own raising to improve both stock and temper. I wish to do this in a manner that will interfere with the honey crop as little as possible, and I have thought of trying the



following plan, which I submit to you for criticism:

Let the colonies come down to swarming-time, feeding where necessary. Just before the swarm is to issue, shake nearly all the bees on to starters in hive No. 2, taking frames of No. 1, with enough young bees clinging to them to protect brood, to a new stand, placing hive No. 2 on the old stand. Divide brood (in frames of hive No. 1 on new stand) into two equal parts by placing a queen-excluding board (such as is used in queen-rearing) between them. Place a ripe queen-cell in each division. When these cells have hatched, and the queens are laying heavily, remove the excluding-board, take out one of the queens and introduce her into hive No. 2, which has the old queen that I wish superseded. ED. WRAY.

Norton, Kan., March 1.

[I think the plan you describe would work satisfactorily.—ED.]

#### CURVED ALIGHTING-BOARDS.

I am sending you a picture of an alighting-board which is simply a short piece sawed from some very wide barrel staves. If sawed right, the angles will come just right to fit closely against the hive and



strike the ground so as to keep it from slipping. They can be used with hive near the ground, or ten or twelve inches high. I find them a very nice thing. C. S. BLACK.  
Ashby, Mass.

#### ALEXANDER'S BEE-HAT; MAPLE SAP FOR THE BEES IN SPRING.

I have seen in GLEANINGS an account of a new (?) bee-hat. I have used the same style of hat for over forty years, and consider it the cheapest and handiest hat in use. I have carried out sixty colonies of bees from the cellar. They have wintered well, and are carrying a good deal of sap from the maple-trees. Just take a knife and slit the bark so the sap will run out. G. BRIGGS.

New Sharon, Ia., March 8.

[The Alexander bee-hat is a modification of the one described in the first edition of Langstroth's bee-book issued in 1853. Mr. Alexander never claimed it to be entirely

original, although it is true that he made some important changes that made it a more practical working head-gear. It is an "ornery-looking" thing, but is cool and convenient, as Mr. Alexander's men all testify.—ED.]

#### MOVING BEES; HOW TO PREVENT THE LOSS OF FIELD BEES.

To avoid the loss of bees when moving a colony a short distance, leave the alighting-board in such a position on the old location that the returning bees can cluster on it, which they will do toward sundown. The cluster can then be carried back to the new stand. E. B.

Seguin, Texas, March 27.

[What is better than an alighting-board is an extra hive with one dry comb in it to catch the bees.—ED.]

#### A GOOD RECORD IN MOVING BEES, BY ONE OF THE LARGEST BEE-KEEPERS IN THE WORLD.

I am a little tired to-night from moving 100 colonies of bees, four in each chaff hive, a mile without any mishaps. I feel now like *patting* myself a little. In all the bees I have moved, I have not had \$1.00 lost by accident with team or men. This may sound braggy for a man who has the name of slighting things. I move from 200 to 500 colonies a year. All is well that ends well. Caution and experience will do it, and that alone. W. L. COGGSHALL.

Groton, N. Y.

#### EARLY-REARED QUEENS.

In *Stray Straws*, April 15th issue of GLEANINGS, Dr. Miller says that queens raised at his place before the middle of May turn out poorly, but he says he does not know why. Years ago, when we first engaged in the queen-traffic, we had similar experiences with very early queens. The doctor says the queens may appear nice, and look all right. Now, the trouble is not with the queens, but with the drones with which the queens mate. As a rule in most yards, early in the spring there are but few drones, and generally these which are on hand are puny, runty fellows raised by fertile workers or by drone-laying queens, the latter raising them in worker-cells. We have overcome this difficulty with early queens by watching the best colonies at our outyards, and inserting several frames of drone comb fairly well filled with honey (this must be done in the fall), then in the early spring at our first visit we generally find plenty of drone brood and sometimes drones already hatching. This we gather up, and sometimes get a whole hiveful of drone brood at each yard. This is hauled home at or to our queen-rearing yard, and distributed among such colonies as will harbor and take care of drone brood. By the time we have made several trips to each outyard, and gathered up the drone brood, things begin to get pretty noisy at the home yard, where

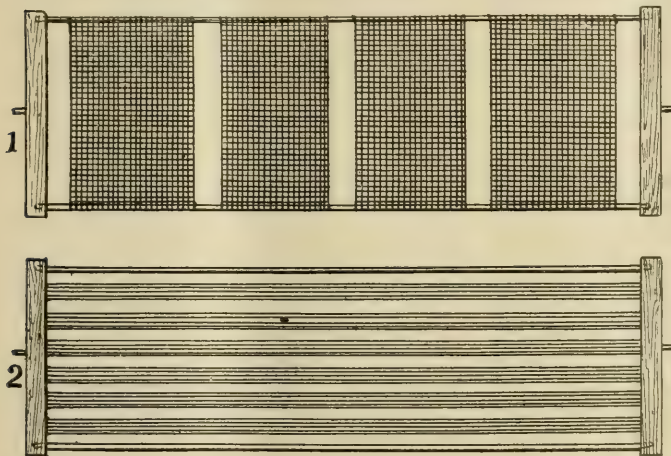
the queens are fertilized. In order to have our queens turn out all right, plenty of drones are quite necessary; and the more you have the better (especially in a queen-rearing yard). We have noticed when there are bushels of drones present in a yard the young queen becomes mated much sooner, and with fewer flights, which means less loss of virgins.

H. G. QUIRIN.

Bellevue, O.

#### MODIFICATIONS OF THE WIRE-CLOTH SEPARATORS.

Noticing that the matter of wire-cloth separators is being quite fully discussed in GLEANINGS of late, I take the liberty to submit two forms of separator which I hope to be able to test carefully the coming season. Referring to the adjoining sketch, No. 1 consists of two end supports of wood held together by  $\frac{1}{8}$  inch iron rod, which forms top and bottom-bars. Strips of netting wide enough to cover about  $\frac{3}{4}$  of the comb surface are stretched between these rods. This separator will not buckle, and the spaces will encourage the bees in filling the sides.



No. 2 is the same except that horizontal wires  $\frac{1}{4}$  or  $\frac{1}{2}$  inch apart are stretched as in wiring brood-frames. The illustration here is not quite correct.

Just how far apart these wires may be placed and yet serve the purpose I have yet to learn.

C. T. WILLSON.

Amenia, N. Y., March 26.

[Your separators are all right in theory, but it would be practically impossible to make the one of stretched wires, as some wires would have a tendency to be tauter than others. Even if this were not the case, the expense of making and the difficulty of shipping would be practically prohibitive. The same thing might be said of the other form, wire-cloth squares secured to the two top and bottom rails. If the strands of the wire were folded over, this would be a slow and tedious job. To solder them on the top and bottom rails would be equally expensive. —ED.]

#### BURR-COMBS IN DANZENBAKER HIVES.

When the Danzenbaker hive is crowded with bees, as when working for section honey, do the bees not occupy the space at the ends of the frames above the supporting cleat, building brace-comb and daubing with propolis?

F. H. JONES.

Westholme, B. C., Dec. 1, 1905.

[We have had no trouble from burr-combs being built back of the end-bars. No difficulty need be apprehended if the end cleats are used to close up the space; but we have never found it necessary to use them. —ED.]

#### FOUNDATION STRETCHING; ANTS, TO CONTROL.

I have an apiary of six hives, and a shed, about four miles from home. I wish to ask, why is it, if you put in worker comb, the bees sometimes change it to drone? What is the best way to get sections full? I have left sections in a hive six months, and the bees would not fill them. Dozens of cells are empty. We do not have foul brood in South Africa, but I hear that a man in Transvaal has imported some queens. In this case it will not be long before we shall have it. I for one will try to prevent bringing in the Italian bees, so as to keep the country free of foul brood. I have only three of your hives, which I intend to increase; but in this country, where it is sometimes 100 to 112 degrees and over in the shade, do you not think it would be better if I had ventilation on the cover, something like the English super-cleaner or bee-escape?

I have been troubled with ants in the hives.

What is the best means to keep them out? Would it be good to put some salt around the legs of the hives? Our honey-flow is from October to May.

A. W. OOSTERBERG.

Mount View, South Africa, Oct. 8, 1905.

[Worker foundation is sometimes worked over into drone comb because the foundation stretches in the process of building. Such elongated cells will be built near the point of attachment. In rearing queens, bees will sometimes reconstruct worker cells into drone, as they seem to feel the necessity of rearing drones.]

Your inquiry as to how to get sections filled out is one that requires a more elaborate treatment than we can give here. I may say briefly, however, that the honey-flow should be strong, and there should be a large force of bees working in the supers. As the season begins to ease up, give no more sections, but compel the bees to com-



plete the work that they have begun rather than new work in new sections. It is wrong in theory and practice to leave sections on the hive for six months, as it is presumed you would not have a honey-flow running continuously for that length of time. When the bees are not gathering honey beyond their daily needs for direct consumption and brood-rearing, they will not, of course, do any work in the supers.

You need have no fear that foul brood will be transmitted through the queens sent by mail. We have had no reports, so far as I know, of the disease being carried in that manner. When we had foul brood in our yard many years ago, for the purpose of experiment we purposely took queens direct from hives that were badly diseased, and placed them in healthy colonies; and in not a single case was the disease transmitted through the queen.

Doubtless in your climate it would be advisable for you to have a cover with ventilation between the two thicknesses, or, perhaps, better still, a shade-board projecting over the front and back of the hive, and pretty well over the south side. It would be better still to put the hives under a bushy overhead trellis, on the Arizona plan. For hot climates this is the best of any thing I know of.

In a locality as far south of the equator as yours, the projecting shade-board should, of course, be on the *north* side.

The question of the control of ants depends entirely on the species and the locality. In the northern part of the United States very little trouble is experienced; but in some of our Southern States, notably Florida and Texas, one or two species prove to be quite destructive. In the West Indies, South America, and the tropics, and very possibly in your locality, it may be necessary to put the hives up on trellises or posts smeared with tar.

Mr. W. K. Morrison, who visited us a few days ago, said he had often been compelled to close the entrances of his hives at night, and then open them in the morning. In this case a fine-mesh wire screen ventilator must be provided somewhere in the hive. We have asked Mr. Morrison to prepare an article or two on this subject, describing the ants of warm countries, and the means of holding them in check. This he will do later.—Ed.]

#### HORIZONTAL VS. VERTICAL WIRING; THE VERTICAL PREFERRED.

I have concluded that horizontal wiring for jumbo deep frames is somewhat of a failure. Another defect of wire is that it rusts out. The Dr. Miller splints of wood are rust-proof, but are too fussy to work with.

I think that your suggestion of wiring the foundation in manufacturing is the solution of the difficulties; but instead of using wire I would use light zinc splints, which could be used the same as wire. After the foundation is cut the zinc strips would be splints.

The zinc ribbon could be stamped the same as the foundation, and then imbedded in the same manner.

It may be possible to improve the manner of fastening foundation to the top of the frame. Instead of two saw-kerfs, make one  $\frac{1}{4}$  or  $\frac{3}{8}$  in. wide; turn the edge of the foundation  $\frac{1}{4}$  inch to a right angle; drop it into groove, and fill with strip or wedge. The outer edge of the groove could be made flaring, also one edge of the strip or wedge. When it is to be pressed to the bottom of the groove it should pinch the foundation, and be nailed at every splint or rib.

The wedges that you make for the double-saw-kerf manner of fastening are made (or were) too small. After seasoning they work loose, no matter how tight they were driven down.

I think that, with a perpendicular rib of fine flat zinc securely fastened at top, there would be no buckling, sagging, nor rusting out, caused by frost and dampness.

Basco, Ill., May 9. WM. FINDLAY.

[The zinc splints would be far too expensive. Very fine iron wire or wooden splints would be the only stay feasible. Our saw-kerfs for holding the wedges are made wider and deeper, and I do not think there will be any trouble now.—Ed.]

#### HOW TO DIVIDE AND NOT LOSE BEES.

In dividing a swarm, for introduction of new queen into one part, how many frames from the ten-frame hive do you advise carrying to the new stand? and is it best to leave the old queen in the old home or take her to the new one?

EDWARD F. BIGELOW.  
Stamford, Conn., May 11.

[A great deal will depend on the quantity and the stage of growth of brood in the various frames. Very young or unsealed brood should be left largely in the old colony, and most of the sealed brood with the old queen should go to the new hive or new location. Sometimes the division will be about a half in each hive, and at other times the division may give a couple more frames to the one than the other.

The object of using young or unsealed brood in the old hive is to make sure that it is not deserted by the flying bees, as it might be if put in the new quarters. Then putting the queen in the new location has a tendency to hold the bees somewhat. She will lay eggs no faster than the bees can take care of them.

In case the brood is largely young, very little sealed, and there are a good many young bees on the combs, pick out three or four frames, giving each frame a slight shake. This will dislodge the old bees in a greater proportion than the young. These latter will cling to the comb, and can be taken to a new location where they will stay.

When working on either plan put two-thirds of the bees in the new location, and a

good portion of the flying bees will go back to the old one; but when doing this, be careful not to make the division in cool or chilly weather. The brood left at home with two-thirds of the bees in the new location would be neglected and chilled, for the flying bees that were moved might not return until the second or third day.

If one has an outyard he can make the division just as he chooses, carrying the moved bees and the brood to another location one and a half or two miles away. Both lots will then hold their relative strength in bees.

But whenever dividing is practiced in the same yard one should always be careful to take account of the flying bees that will go back to the old location in 24 hours if the weather is warm. If there should be very few young bees in the hive at the time the division was made, one would have to figure that most of the bees would go back to the old stand.

Many more bees will stay in a new location if the entrances of the moved lot of bees be stuffed with grass so they will be confined three or four days. As the grass withers, the bees will push it away. The confinement of several days will cause them to mark their location so a much larger percentage of the flying bees will stay, although even then quite a lot of them will probably go back to the old stand.—ED.]

#### WHAT CAN BE EXPECTED FROM BUCKWHEAT; INBREEDING.

1. How many colonies will 60 acres of buckwheat support, or how much honey can be gathered from it?

2. In using a queen for a breeder, does it make any difference if her virgins are mated with her drones?

3. If so, what effect does it have on the progeny?

4. In selecting a queen to breed from, is it advisable to trap all of the drones from the other colonies?

WM. MAAG.

Dover, Del.

[1. It would be impossible to give an exact answer, as very much will depend on the locality, that is, soil and climate. In New York, especially the eastern portion, buckwheat grows much more luxuriantly, and yields much more honey per acre, than it does elsewhere in the United States. We may have several acres of buckwheat in Ohio, and the bees will work on it only a little while in the morning and a short time toward night. While this is true to a certain extent in York State, the plants seem to yield nectar longer, and consequently more of it. But there is such an immense acreage of buckwheat that there are times apparently when there are not bees enough to exhaust the nectar from the flowers.

To answer your question, it *might* take 100 acres of buckwheat to keep 25 colonies going in Ohio. In New York I should *guess* that the same acreage would take care of 50 or even 100 colonies.

Mr. Alexander could possibly answer this question pretty closely, as nearly all of his bee range is in sight, and he could count up the acreage and place that over against the number of colonies in one yard. If he regains his health sufficiently we should be glad to have him take up this question.

2. No; and on the other hand it is quite an advantage to use such drones; for in order to accentuate certain very desirable qualities, inbreeding has to be practiced to a certain extent. To prevent deterioration, this stock is then bred with other stock having the same or similar characteristics.

3. This question is already answered in 2.

4. Yes, indeed, if you would improve the quality of your stock; but in doing so you must make sure that there is a sufficiency of drones or many of your virgins will fail to mate. In order to get regular and successful mating there must be a good many drones in the yard—a good many times more than the number of queens to be mated. There may be a large number of drones in the yard, but only a few of them of the right age, and possibly only a small part of the ones of the right age in the air *at the time* the queen is out for a flight, and she may even then fail to find a mate. Sometimes it is not practicable to breed from the drones of some particular queen because it is difficult to get that queen to lay in drone-cells; and even when the queen does lay drone eggs the bees themselves may be indisposed to take care of them. Where many queens have to be mated in a large yard it may be necessary at certain seasons of the year to have drones from several queens, so this is a matter that hinges somewhat on the time of year. Any colony will tolerate drones in a good honey-flow; but after that time, unless that colony is queenless, has a virgin, or is trying to supersede, the drones will be unceremoniously pushed out of the hive and die.—ED.]

#### MANIPULATING HIVES INSTEAD OF FRAMES; THE ADVANTAGE OF THE HEDDON SYSTEM.

The handling of hives instead of frames is a subject that is not being discussed in the bee journals of late years. I have often wondered why bee-keepers were so slow to see the advantages of this system. There seems to be a sort of fascination about the handling of frames in a hive, especially among beginners. I well remember the time when I thought it necessary to go through my bees nearly every day, handling the frames separately to see if the queen was all right and that every thing was as it should be.

I soon found that this was not only a useless waste of time but a positive detriment to the bees, causing them to consume an extra amount of stores, often at a time when they could ill afford to store them.

Some twenty years ago I adopted the Heddon system of handling hives instead of frames, and there has never been a time since that when I have had any desire to go



back to the old tinkering system of handling frames. By this system more bees can be kept, or the extra time saved can be put to other and better use than to be wasted in the useless handling of frames.

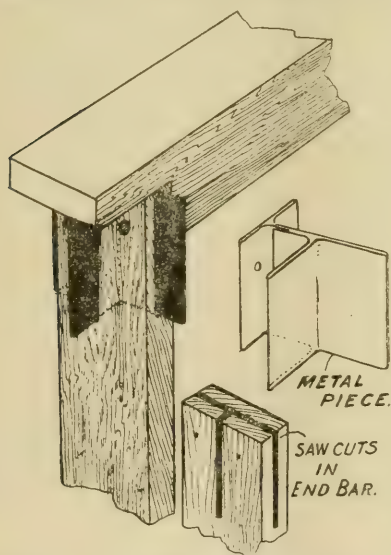
That this system calls for a radical change in hive-construction is perhaps the reason why it has not come into more general use among honey-producers.

But any implement or system of manipulation that does not help to cheapen the cost of honey production is not worthy of consideration by the honey-producer.

Birmingham, O., Feb. 22. J. E. HAND.

#### A METAL SIDE AND END SPACER COMBINED.

The mention of metal spacers in the Dec. 1st GLEANINGS revived a recollection of an attempt I made last season to accomplish something to that end; but I soon found that I lacked the mechanical ability and tools



necessary to accomplish the idea, though, perhaps, not a very brilliant one. I send by this mail a rather crude survival of the attempt aforesaid. I think that, with the use of a fine saw to make the kerf, and the tins made by the right implements known to the tinning trade, a neat and substantial frame would result—metal sides and ends.

It may not be new, novel, or practical; but it will at least compare favorably with some of the absurd things I see exploited by some.

JOHN HECKSON.

Washington, D. C., Dec. 6.

[Your form of spacer and its manner of insertion in the end-bar is not a bad one. There would be danger, however, that the knife-edge strips of tin would get bent out of shape, because one frame-spacer has to reach the whole distance from one frame to the other; while in the case of the Hoffman or metal-spaced Hoffman the projection reaches only half the distance.—Ed.]

#### UNFAVORABLE REPORT FOR THE FENCE AND PLAIN SECTION IN COLORADO.

Hold on, friend Ernest. Please remember that Mr. Crane is possibly good authority on his own location, and I notice that locality has only recently been taken seriously into consideration, and for this very reason it is not policy to sit still. As you called for reports, let it hit where it may, so here it is. By ordering early my fence and plain sections arrived in due time. I loaded up 20 supers; and when the time arrived I carried them out and placed them on just as they happened to come. That was a very good season, some hives filling 9 supers apiece; but I got only three cases of plain sections. The foundation was mostly drawn, so I said to myself I will put these 17 supers away and try again. The next year I got one case of plain sections. The remaining 16 supers would average about 4 ounces of honey per section, while that season several hives filled 8 supers apiece in beeway sections. The next season, with the same plain sections, I got 4 supers that were full of honey; but every section was fastened to the fence, so I cut the honey all out and burned the sections. But we were advised to put the fence at the sides of the supers for follower boards, so I fit up 100 supers in that way; but my bees absolutely refused to work next to the fence, so I made another bonfire.

F. D. ANDREWS.

Walsenburg, Colo.

[That's right. Let the reports come in, hit where they may.—Ed.]

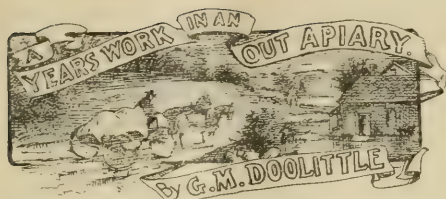
#### COMBS MELTING DOWN IN HIVES PAINTED A DARK-BROWN COLOR.

Some time ago there was some discussion about light and dark colored hives. In 1904 I had white, red, blue (dark and light), green, yellow, and dark-brown hives, and some not painted. In No. 35, with one super, seven sections melted; No. 39, with a super and a hive-body on top of that, melted some of the honey in the frames in the top hive so that they fell down. Both were dark brown. In 1905, No. 28 melted 17 sections in the top super, which were almost all sealed. The bottom super was about a quarter full at the time. So much honey ran down that it drowned a great many bees, and they dragged out about one quart of full-sized brood. That colony did not do any more work that season. One other started to melt, but I noticed it and gave it air. Now all of those hives were dark brown, and had dark-brown caps on them. My hives are the old-fashioned Langstroth, telescope caps, with room for two supers under the cap.

C. W. SAGER.

Belma, Wash., Feb. 12.

[It is my opinion that our friend Allen Latham would not find any thing in the foregoing that conflicts with the principles he enunciated in a recent article on dark color for hives. He did not claim that such hives should be out in the open, exposed to the sun.—Ed.]



## CHAPTER V.

## A SIMPLE AND RELIABLE PLAN FOR MAKING INCREASE.

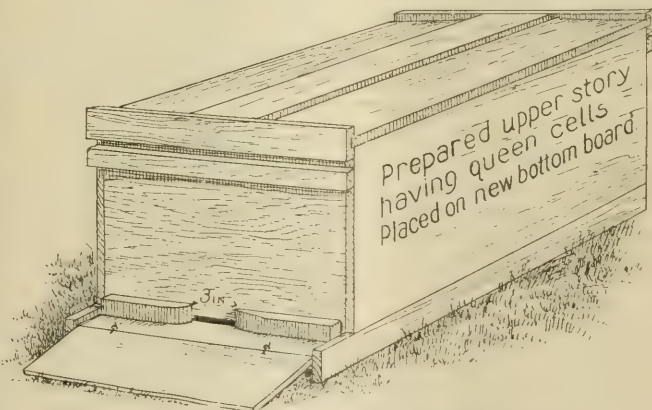
Just ten days have elapsed since I started on my fourth visit to the out-apiary, and I am getting ready to go again; but this time I am obliged to go with the horse, on account of its raining seven days out of the ten. So much rain has caused the roads to become almost impassable on account of the mud; and the almost constant rain at this time has caused the bright prospects of an abundant harvest of honey from white clover, which has been more plentiful than usual, to fade nearly out of sight. It does not rain this morning; but it is cool and cloudy, with a fine mist in the air. Such a day is not adapted to working with the bees to the best advantage; but it is necessary to go to-day, if I am to save those nice queen-cells, which are of much advantage to me just at this time. After a steady splash, splash, splash of the horse's feet in the mud for nearly an hour (as I can not drive "off a walk"), we arrive at the apiary.

Having put the horse in the farmer's barn I now proceed to place nine of the reserved bottom-boards, and as many covers on as many unoccupied stands, when I go to the hive having the brood from the best breeding queen that had the queen-cells with the little larvæ in them at the last visit, and, upon examination, I very luckily find that six of the ten combs have one or more fine, nearly ripe, cells on them. From one frame having four cells on, and two others having five, I cut two cells from each, and "graft" them into three of the frames having none, putting the frames back in place again. The clouds are now "breaking" in the sky, with the sun peering occasionally through the mist, which tells me I am to have a fairly good day for my work, after all—far better than I had even hoped for. I now take one of the frames having queen-cells on it, together with the bees on the same, and carry it to one of the hives having the tiered-up brood, taking from this a frame (bees and all) and putting the one with the cells in its

place. In all this work with tiered up brood, when changing the same from one hive to another I do not disturb the bees on them, as bees above a queen-excluder are, to all intents and purposes, queenless, so make no trouble by putting them in different hives. It is best generally to put the frame having queen-cells on it near the center of the hive, as this seems to give the better results.

Having the frame with queen-cells in the hive, I next take the frame of brood and go back to the hive having the cells, when it is put in the place left vacant there. In this way I keep on until the five colonies having upper stories of brood have a frame with queen-cells on it from the best breeder.

I now take off these five prepared upper stories, setting each on one of the bottom-boards previously placed where they are to stand, putting on the covers and adjusting the entrance to about three inches in length. The setting-off of these hives paves the way for using the other four frames having queen-cells on them in four more hives of brood, following the same plan in treating them which was used with the five now fixed on new stands, for the making of that many new colonies, so I have nine more colonies than I did when I entered the apiary an hour or so before. As the brood in these combs is all sealed now, and the bees on them are nearly all young bees, with more emerging every minute, there will be no setback to this colony from the bees returning to the colony they came from, as is generally the case with the most of the ways used in making colonies by the



ENTRANCE CONTRACTED TO THREE INCHES.

"setoff" plan. And this is the best, quickest, and easiest way of making colonies with which I am familiar; and this I say after using it for more than ten years, and after having tried nearly all the plans given by others.

If for any reason I wish a greater number of colonies than can be made as here given, and wish them for the purpose of taking care of beeless brood, I make as many as I think I shall need, during my third visit to the apiary, in the following manner: I take two



frames of emerging brood from the colonies having eight frames, and, instead of giving them to the colonies having the six combs of brood, as I told about in giving an account of that visit, I put them in a hive, after having brushed the bees off, together with two or three of the reserved combs—one, at least, of which should contain honey. The space left vacant where the brood was taken from, in the strong colony, is filled with two combs from the reserve pile, thus giving the queen in this colony room for more eggs. I now go to another of the stronger colonies and put a queen-excluder on it for the time being, when this prepared hive, having the two combs of emerging brood, is set thereon, where it is allowed to remain two or three hours, during which time the young bees come up from below sufficient to care for the combs and brood, after which it is placed on the stand I wish it to occupy. When I expect to make colonies in this way, if I have no laying queens thus early in the home yard I send south for them, if it is possible to get them from there. A queen-cell *will answer*, but the laying queen is much better.

By the way, full colonies can be made in this way at almost any time of the year when there is plenty of emerging brood by taking two combs of such brood from three or four strong colonies and adding to these, frames of honey. I have made such with perfect success as late as September first, using six combs of brood and four of honey. It is so easy—no hunting of queens nor any thing of the kind; and the best part of the whole is, enough of the young bees *always* stay to make it a success. No need of natural swarming for increase when we can make as many colonies as we desire in such a simple, easy way. The advent of the queen-excluder was a great blessing, and one of the needed helps in giving us the “modern apiculture” we now enjoy.

With the making of the nine colonies, as above given, I have the desired number for the year 1905, as I have house-building and other work going on, so I have no desire for further enlarging this year. I still have four colonies with a hive of brood on each, the one having completed the queen-cells being the stronger. As I wish to work 16 colonies for section honey, and having shaken only 13 at my last visit, I now prepare to shake three more. To do this I pick from the reserved combs enough to fill three hives, using those the nearest full of honey. One of

these hives is now carried to the colony completing the queen-cells, a reserve bottom-board placed on its stand, after it has been set off, and the hive with combs of honey set thereon.

A comb only partly full of brood is now selected from the upper story, one from which many young bees have emerged, and more rapidly gnawing from the cells, this being set in the center of the combs of honey; then two supers are set on in the way those were at the fourth visit, when I proceed to shake and brush the bees off from the whole of the 19 combs still remaining in the two hives; then from the hives and the bottom-boards, thus giving this colony all the bees from two hives of brood, or, as a rule, very many more than those had that were made at the fourth visit. After two more of the strongest colonies have been treated in the same way the beeless brood is tiered up on those remaining, when a moment of taking an inventory shows that I now have 16 “shook” colonies, two others containing three hives of brood and one of four hives, the queens of which are confined to the lower hive by the queen-excluder, and nine colonies just made, having queen-cells ready to hatch, together nine frames of brood, which will all emerge in 11 days, making 28 colonies in all. In order that the remainder of the reserved combs may not be destroyed



by moths they are now placed, ten in a hive, and one set on top of each of the 12 hives not having sections on them, a queen-excluder having first been placed over the nine just made colonies not having any on. The year 1905 was an exceptional one, in that the colonies in the apiary had been allowed to become so few through overwork.

When the whole 30, 50, or 75 stands (or

whatever number we decide upon for an out-apiary) are occupied at the time of setting out in the spring, there is no need of making colonies as here given. When we have the full number, four-fifths of the best colonies are worked for section honey, while the weaker one-fifth are to care for the beeless brood, and combs, which become the "reserve combs" in the fall, for the next season. That the reader may understand more fully, suppose that the out apiary is laid out for 75 colonies, and that we have that number in the spring; then we shall want 60 hives of reserve combs to go on to the four-fifths of the stronger colonies, which in this case would be 60, the work with each being done as given in chapters three and four.

In thus working, these 60 hives of beeless brood will be stacked on the one-fifth, or 15 colonies, where they will remain till the end of the honey season, when they are taken off and stacked away for reserve combs for the next year, as will be given later on. This will make each of the 15 colonies have five hives of brood, the queen being confined to the lower hive by the queen-excluder. At first glance it would seem that some of this brood would be neglected through the giving of so much to one colony; but repeated examinations prove that all is well cared for.

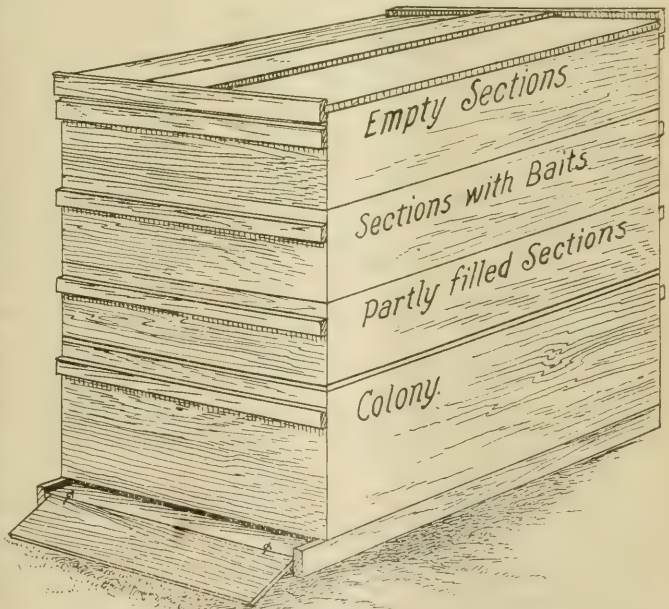
As the weather is warm at this time of the year, and as many young bees are emerging from these combs every hour, a few bees on the start can hold things in a perfect condition till all danger is past. When this brood has all emerged, such hives have an army of bees, which, in a good season, often fill all the hives with honey, thus giving us an insurance for the next year when that needed for brood is so used, and the rest of it carried up to the sections, so there is no loss. It will be noticed that, by this plan, *all the honey not used in the actual production of bees goes into the sections, that the bees and queen are stimulated to their utmost in early spring by this large amount of honey telling them "millions of honey at our house,"* so that there is not only no loss by having these combs stored full after the brood emerges, but a positive advantage through the stimulating effect they have the next spring. If all of the 60 colonies were not ready for treatment on my fourth visit, then I put one or two hives of beeless brood on top of those not quite strong enough in bees to shake, setting this brood under the hive of reserve combs they have, so the brood will all be

together. This gives such a colony so much extra room that they will not think of swarming during our next ten days' absence, notwithstanding the vast numbers of bees emerging from these two or three hives of brood.

#### LATE SHOOK SWARMS FOR COMB HONEY.

When I go to make the fifth visit the reserve combs are set down on the bottom-board, and the bees from all three hives are shaken out. This gives rousing "shook" colonies; and if a heavy yield of honey is on just at this time, these later-made colonies will even surpass those shaken at the fourth visit, in section-honey production; and it sometimes happens that the yield of honey will make it profitable to shake colonies having three and four stories of brood, right at the beginning of the basswood flow, thus bringing nearly or quite 100,000 bees in one of these hives of reserve combs, quite well filled with honey, in which case three and four supers of sections are used to give the proper amount of room for their working to the best advantage. However, this requires an extra visit, which may not be convenient when we are working a long string of out-apiaries.

After having tried this way two or three times I often think it is just as profitable to



A HIVE PREPARED ON THE DOOLITTLE PLAN.

let the honey go into the reserve combs. But the section honey stored by such a rousing colony, right in the height of basswood bloom, is so perfect and handsome in appearance, that my mouth often "waters" for such, and the eagerness of consumers for the same makes it very profitable for market. When it is thought desirable to use this late plan of shaking, colonies can



be formed by the plans given, which will care for the brood, and if desired they can be wintered over to take the place of any that may die during the winter. Then if none die they can be united with others, so that the number may be kept at the 30, 50, or 75, decided upon when the yard was laid out.

WHY AN EMPTY SUPER OF SECTIONS SHOULD BE PUT ON TOP OF RATHER THAN *under* SECTIONS PARTLY FILLED.

It is now nearly noon, with the sun shining brightly, and the air becoming warm and balmy. To see the army of bees rushing in and out of the hives containing the "shook" colonies is a sight to gladden the heart of any bee-keeper; and those returning from the fields seem quite heavily loaded, though the nectar is very thin on account of so much rain. I tried to count those coming in loaded during one minute, but they dropped down so fast in almost bunches of threes, fives, and sometimes ten or more, that it was impossible to do it. I counted two hundred, and estimated that fully twice that number went in without counting. Such colonies as these will do something at securing nectar, even if it does rain the larger part of the time.

I now take a little time to look at the supers of sections, and a glance at them shows the honey being sealed in the bait sections, with the most of the other sections in the lower super, having the foundation fully drawn out, and the honey sparkling in every cell, nearly ready for sealing. With all but two colonies the bees are well at work in the upper super also, drawing out the foundation, with now and then a section having quite a little honey in it. Those that are as far advanced as this have their supers exchanged—that is, the upper super is set directly on top of the brood-chamber; and the lower one, having the baits, now nearing completion, is placed on top, after which a super of sections, filled with the extra-light foundation, is placed on top of the whole, so that in no case shall any colony lack for room.

In all of my working with the bees I have not found that the placing of an empty super over one in which the bees are at work is any detriment, as the bees seem capable of clustering in the openings at the tops of the sections they are at work in, thereby forming a crust of bees that holds the heat in the super they are at work in, to such an extent that the work goes right along.

This is done on the same principle that a colony in early spring is able to maintain a temperature of 93 to 98 degrees inside of the brood-nest (which is the proper temperature for brood-rearing), when the temperature of the hive all around the crust bees does not rise above 45 to 50, when we have a spell of freezing weather. A colony of bees seems to be capable of holding almost any degree of temperature it desires, simply through a crust of bees which often does not at any point touch the hive. How this is done I do

not know. But I *do* know that a handful of bees, less than 1000 by count, kept the temperature where their brood was, between two combs, at 93 degrees, when the mercury outside stood at from only 18 to 26 degrees above zero during a cold spell in April. And I have known (many times when experimenting) of good work being done in the sections, fixed as above, when it was so cool that not a bee would be seen anywhere from or in the upper super, except the crust between the tops of the sections in the super below.

Since these experiments I have always kept these reserve supers on top, ready to catch any overflow of bees or honey. But the placing of such a super under one in which the bees are at work often proves a great damage, especially in a poor season. Therefore, as a rule, during late years I never raise a partly full super up from the brood-chamber unless I can place one underneath it, in which the bees have commenced to work more or less.

Those colonies which have not yet commenced work in the upper super, or have only just begun, are left as they are, as such have all the room they will need until the next visit. In changing these supers I can not resist the temptation to look into the brood-chambers of two or three of the colonies, and in doing so I find the comb given them as a "starter," which was from one-eighth to one-fourth full of brood when placed in the center of the hive at time of "shook swarming," ten days ago, is literally filled with brood, two-thirds of which is sealed over, while six of the remaining nine frames, which were nearly full of honey at that time, have three-fourths of the honey removed from them, while the emptied cells are teeming with brood from the egg to larva in all stages of growth. This shows that the colonies are in a very prosperous condition; and should favorable weather come, a good harvest of white honey may yet be obtained. After a careful looking-over to see that all things are in good shape for leaving I say good by to the pets at the close of this my fifth visit to the out-apiary; and in the above the reader has a record of what was done at this visit.

---

AN ERROR CORRECTED.

*Mr. Root.*—In your issue for April 15, p. 509, you will note that your writer speaks of stamens and anthers as different organs, whereas they are the same. The stamen comprises the anther with its supporting filament; the pollen granules are shed from the anther, which is fecundating dust. The pollen is carried by the insect to the stigma and supporting pistil, which connects with the ovary of the flower, and in which are the ovules to be ripened. J. P. LOUGH.

New York, N. Y.



In the sweat of thy face shalt thou eat bread.—GEN. 3:19.

Thou shalt love thy neighbor as thyself.—MATT. 19:19.

"Lord, lift me up and let me stand  
By faith on heaven's tableland."

I want our readers to take a jump with me from Southwest Florida to Northern Michigan, back to the old "cabin home." I reached there when the cherry-blossoms were just opening. I took along with me two queens, daughters of the Caucasian on the island. To care for them I got a colony of hybrids and divided it into three parts, making an equal division as nearly as I could. The colony was in an eight-frame Langstroth hive, so that two of the three nuclei had three Langstroth frames each. The third was in a twin hive with the division-board removed. I made this arrangement in order to see which nucleus would do best—the one in the twin hive or the two with full-sized Langstroth frames. Just as I got the bees nicely arranged and well to work, so that each nucleus would fix its locality, a snowstorm, together with a hard freeze (the first week in May), came on. The nucleus in the little hive contained so many bees they could hardly all get inside when it was a warm day. I put enameled cloth on top of the frames, with the Neponset cover to keep every thing warm and dry, and the result was these bees were out an hour earlier gathering pollen. Of course, the conditions were better to economize the animal heat of the cluster; for the other two on three Langstroth frames each were in full-sized hives, and I had no arrangement in the way of a tight-fitting division-board to keep them tucked up. I think there is no question that bees will gather honey and rear brood to much better advantage, especially in the cool spring months, by having their hives as nearly air-tight as we can make them, and *just large enough* to contain the bees.

After the cold snap was over I made the little hive two-story, and right here I want to tell you all that that twin nucleus hive, two stories, with *Caucasian* bees, would make the prettiest plaything for a child that could well be imagined, or for older people who wish to get a start in bee-keeping. With such a small hive you could get some very nice honey in the little frames in the upper story. On pages 665 and 666 Prof. E. F. Bigelow has suggested the same thing. The hive would be more simple and more easily handled, it seems to me, by having the honey stored in the frames instead of using section boxes, separators, etc.; and I think it would be a splendid adjunct to the

garden or dooryard of any one who wants to keep just one little hive for the fun of it.

Near the cabin are five beautifully shaped early cherry-trees. One called the Ohio is about the handsomest tree I ever saw. The head is trained so low that, while standing near the trunk, my face was just about in the center of the mass of bloom; and the perfume from its blossom, together with the music of the humming of the bees—my own bees—gave a combination that actually made me say out loud, "Praise God, from whom all blessings flow."

Mrs. Root was not with me on this trip; but with the new "uncooked food" for a regimen I got along very well indeed. It is true that, after three or four days, I felt a longing for meat of some kind; but a can of chipped dried beef, from the country store near by, made a ration completely to my notion; and when one of the neighbors sent in a plateful of fried fish, smoking hot, I think I never tasted any fresh fish before equal to it. You see I have not yet got quite down to so rigid a diet as my friend Terry has. Now, here is another advantage of this "uncooked" plan that I had not thought of before. There are no remnants to be given to the chickens, nor wasted. Your rolled wheat, nuts, and fruit can all be saved over for another meal, and there is nothing untidy about it. You can get dinner in about four minutes, and you can also have every thing out of the way, and the "dishes washed" in about four minutes more.

Well, I was getting along swimmingly until one day in working with the bees, setting out my new trees, flowers, etc., I took off my coat (and fur cap), and worked in my shirtsleeves. It is true I did begin to feel a little warning from the way the cool breeze was taking hold of me; but my coat was some distance away, and I was almost through with my work in that location; so I kept on working in the wind after I had been perspiring quite a little. When the snowstorm came, however, and that cold night after, I was warned by a pain in my throat that I had caught cold. I suppose I had not been on the new diet long enough to be "immune" to catching cold, like neighbor Terry. I was alone in the cabin in the woods, with no neighbors nearer than a quarter of a mile. It was no use to groan, because there was nobody to hear me if I did. I kept a good fire all night in the drum stove; but before morning I felt pretty sick, and my throat was swollen to such an extent that I could hardly take even a drink of hot water. Had I kept on my fur cap and warm coat, all this might have been avoided. But there was nothing to do but to make the best of it. For two days I was scarcely able to work at all; and at the end of the third day, although the swelling in my throat had gone down I felt bad all over. I had arranged to have the county surveyors come and run a line through the woods around my forty acres; and I had purchased some wire to stretch along the



line after their survey. You see, timber is getting to be so valuable now that the neighbors are all cutting logs and firewood pretty close to the lines; and I felt as if I wanted to know just which trees were mine and which belonged to somebody else. The train whistled, and I knew it was time for me to be on hand to meet the surveyors and set them at work. I started off along that beautiful path through the woods which Mrs. Root and I made. The wild flowers were so abundant that the whole forty acres was one great "posy-bed." It was a beautiful warm morning, and the birds were doing their best, and I ought to have been happy, but I was not. I ached all over, and it was hard work to drag one foot after another, even on level ground; but when it came to climbing the steep hills through the woods I felt as if I could not go another step. I got to thinking I was too far along in years for such active work; that my joints were getting old and stiff, and my enthusiasm began to wane. I did not care much for the beautiful flowers nor for the woods, nor even for the surveying. I had studied surveying forty years before, and practiced it a little when I was a young man. As I came to a steep place where I had to reach ahead and grasp the maple saplings to hold myself up, almost involuntarily I repeated a line of that beautiful hymn, "Lord, lift me up," and then I began to pray. My prayer was something like this:

"O Lord, thou who hast been my ever present comfort and helper during the years that are past, help me now. If I have been overtaking my strength and am really worn out, help me to accept the condition of things and to try to say, Thy will be done. If, however, it is consistent with thy holy will that I may once more have strength and energy and ambition and enthusiasm, then help me to use this strength in a way that will be pleasing in thy sight. Thou knowest, O Lord, it is not altogether from a selfish motive that I ask, but it is because I want wisdom and understanding to teach others, especially in this matter of *how to get well and how to keep well*. Help me, O Lord, to get through the duties and tasks of this day that seem to me now so great a burden."

I managed to get to the top of the hill and over to my neighbor Wilson's. He had promised to go along and help cut a path through the thick brush and underwood for the survey. While he sat down to sharpen his ax I started off in the direction the men were to come. When I told them there was only one man available they said it really needed two men. I explained that I had been about sick with a sore throat, and hardly felt able to do any thing; but as everybody was busy in that locality, and no one near by at that, we decided we would try to get along with what assistance I could give.

I soon began to be greatly interested in the new and up-to-date apparatus for measuring land. Instead of the old iron chain we formerly used, these men had a steel tape;

and the new theodolite with its vernier scales, micrometer, etc., was intensely interesting.

It was hard work for some time to climb up and down those steep hills, get over logs, through tree-tops, and crawl through the underbrush; but when I began to feel a little better I took courage. Pretty soon I noticed something dropping on the leaves, and I was wondering if it was really going to rain. Then I discovered it was the sweat dripping from the end of my nose, and a little later the perspiration seemed oozing from every pore in my body. My fur cap and coat were burdensome, but I did not dare to take them off; for when we reached the summit of the hills there was a delicious cooling breeze. The surveyors said my sweating would be the best thing for my malady if I did not catch cold afterward.

Now I want to say a word about my good friend Mr. Wilson. I had known for some time past that he was an expert with an ax. We have men who are expert with all kinds of tools; some who are expert with a gun or revolver; others who are expert in different sorts of games; but how many do you know nowadays who are expert with an *ax*? Friend Wilson said, when he was a boy he used to feel bad because he could not keep up and hold his own with the men who handled axes. Finally one day he got hold of an ax that suited him better than any he had ever found before. With *that* ax kept keen and sharp he *could* hold his own with the men; and I noticed on this trip that, when the engineers stopped to make computations, he sat down on a log and took from his pocket a beautiful little oilstone incased in a mahogany box. Very likely this stone was corundum. I am sorry I did not ask more particularly about it. With this nice little stone he kept on his ax a razor-like edge; and he had learned by long practice just *how* to take every little tree that stood in the way with a sloping cut that took it off with one clip. One of the surveyors said:

"Why, that man with that keen ax of his is worth *two* ordinary men. Then another thing, he has a *remarkable* faculty for striking off at a clip the very trees that are in our way, without marring the others."

The surveyors came in on the nine-o'clock train, and said they must positively get back on the four o'clock, going the other way; and it was of the utmost importance to economize time in order to get the work done. Just before dinner we had finished half our job. The beautiful new instruments with their wonderful accuracy helped us to locate the exact corner in an instant; and as we stopped a little at the corner, all of a sudden it occurred to me I had not an ache or pain, and was feeling about as well as I ever did in my life. My prayer had been answered, and I had actually forgotten to give thanks. "O thou of little faith! wherefore didst thou doubt?" How many times this has happened in the past! I thought I would have to give up my afternoon nap for once, for the work was so ur-



gent. But they were getting along so well I decided to go down for the wheelbarrow and the wire, for they were almost ready to put it up. As I went into the house I decided to change my fur cap for a lighter one, and get rid of some of my heavy clothing. The bed where I had my accustomed nap was right before me, and I began to feel as if it would be a very *great* help if I could sleep just ten minutes. I did not think the men would get over to the corner anyhow for twenty minutes or more. Pretty soon I awoke with a start. I had slept something like an hour. By the time I wheeled my wire over where they were at work it was ready to be drawn up taut right on the line. My neighbor and I were going to put it up. Right close to the line were about half a dozen beautiful large maple-trees. When I was running my sugar-bush, I could not really decide which trees were his and which were mine. My neighbor told me, however, to go ahead and tap the whole lot, it did not matter whom they belonged to. The wire was fastened to a stout old gaspipe driven in deep where the surveyor had located the corner. Then we went to stretching the wire, and I began to think of those big maples. Dear friends, I hate to acknowledge it, but I can not make my point very well unless I do. Almost unconsciously I began hoping the wire would leave the trees on my side. May God forgive me for allowing that greedy spirit to find a lodging-place in my heart. My good neighbor who had been so kind and obliging ever since I knew him was a young man, comparatively, just starting in life. He has a wife and a baby boy to look after, and yet here was I, hoping those trees would come on *my* side of the line. God knows I have more maple-trees already than I can, in all probability, ever make use of. I felt disgusted and ashamed of myself. If I did not say mentally, "Get thee behind me, Satan," it was something pretty near it. As we started off with the wire I uttered a mental prayer in the words of that hymn I have quoted: "Lord, lift me up;" and right away after I said aloud, "Friend Wilson, I do not know just where this wire is going to run; but I shall be just as happy to find those nice trees on *your* side of the line as if they were on my own," and I *told* the truth. God helped me to make it the truth just as soon as I decided to utter the words. Jesus said to that lawyer, "Thou shalt love thy neighbor as thyself," but I tell you, friends, it is sometimes harder to do than climbing hills through the woods over brush-heaps, tree-tops—yes, and *blackberry-bushes* thrown in. Let me digress.

Years ago some men were drawing heavy flagging for sidewalks and road-crossings. They unloaded the great flat stones; and to make them easier to handle they propped them up at an angle with a piece of wood two or three feet long. Some of these sticks of wood were set at such an angle that almost a touch might cause them to slide along the smooth stone and so let it fall. One day in coming home, and when quite a piece

away from these stones, I noticed some children making mud pies, or amusing themselves in a similar way in the shade of one of those heavy pieces of flagging. The back of one of the children was close to one of those pieces of wood. He might have easily loosened the stick and let the flagging down, making a terrible deadfall for the thoughtless prattlers. I thought at first it was our own children; and as I started on a run, the blood almost froze in my veins to think what might happen. As I came near, however, I discovered they were not *our* children at all. I stopped running, and came pretty near saying, "Thank God." Had I said so it would have meant I thanked God it was my neighbor's children and not my own that were in such danger. Was that loving my neighbor as myself? Not much. This incident often occurs to me, reminding me of how hard a matter it is to fulfill that command—"Thou shalt love thy neighbor as thyself."

An hour before train time the surveyors had finished, and Mr. Wilson and I put up the wire. At the close of the day's work, all my old strength and springiness seemed to have returned. My prayer was answered. But the perspiration from my body pouring out so profusely actually had an unpleasant smell. I hope you will excuse me for speaking thus plainly; but I know that many grievous pains might often be saved by taking a tremendous sweat from hard exercise in the open air. The pains and aches and feverish feelings I had were caused, I think, by impurities. These impurities, perhaps, retarded the circulation; and it seemed as if there was no way to get rid of them speedily, except through the pores of the skin. As soon as I could I had a delicious cleansing bath, and I have felt perfectly well ever since. This, dear friends, is "God's medicine," and it is one that produces no reaction. I had taken a bath not more than three days before, and I thought a very thorough one; but for all that, the pores of the skin seemed to have been stopped up, and the circulation clogged, and nothing but this profuse perspiration caused by brisk and almost painful exercise would bring about such an immediate cure.

While climbing that hill in the morning so painfully by the aid of the saplings, I prayed that God would help me to use the strength, should it be given, in a way that would be pleasing in his sight. After we had finished our work my neighbor and I sat down on the wheelbarrow and had a little talk. I knew he had been attending the meetings quite regularly that had been kept up since the revival about a year ago. I had talked with him somewhat on the subject before; and as we sat there I tried to tell him how much encouragement it would give a lot of the boys in that neighborhood if he would get right into the harness with them and help pull, for Christ Jesus. He said he did not know that there was any thing particular to hinder, except that he had not as much feeling in regard to the matter as he thought



one ought to have to take such a step as that. I tried to tell him I was sure the kind of feeling he had in mind was not needed. I said something like this:

"Mr. Wilson, the start these boys have taken during the past year is really a turning-point in their lives. It is going to be to some of them a turning from darkness into light. They are going to grow in wisdom's ways, and make true and honest men. Your sympathy is certainly with them. Let me use an illustration. Young people will get together and have fun. If it is not some sort of religious meeting it is likely to be a dance—such a one as they used to have in the hall over the saloon, or may be such as they have now. Young men often get together and learn gambling. Very likely you yourself have seen a lot of boys get together, and may be some poor fellow would lose the entire wages he had earned during the week. People around here work hard for their money. Now, sometimes young men who work hard get the gambling craze, and on Saturday night lose all their earnings, without leaving enough to pay their boardbill. Have you known such things to happen?"

He nodded his head, and said he had known just such cases.

"In the same way they get to drinking, and spend their money for drink. Now, these meetings and the revival are all in another direction. The teachings of the Bible are directly opposed to every thing that encourages selfishness or greed. What do you think of a man, young or old, who, just because he could beat his opponent in playing cards, would take all his hard earnings? This is supposing it to be a fair and honest game (if a game at cards *can* be honest), to say nothing about cheating and trickery. Now, my good friend, you certainly have feeling and enthusiasm in wanting to see these boys grow in wisdom and righteousness instead of taking the downward path. The gambling, the drinking, the licentiousness, all lead down, down, down. The Bible expresses it in this way: 'Her house is the way to hell, going down to the chambers of death.' But the spirit of *these meetings* is well exemplified in that little hymn I have been quoting—

Lord, lift me up and let me stand  
By faith on heaven's tableland.

"Mr. Wilson, you have a bright little boy who begins to follow you all over the farm, and even when you go quite a piece to the neighbors'. He is going to *keep* following. To him, whatever his father does is right; and he is going to follow in his father's footsteps."

In closing I mentioned some of the boys who are making such excellent progress in the Christian graces. I spoke of one we will call John Brown. "Yes," said he, "John Brown is doing grandly. He is the sort of young man I like, and I am glad to see him get up and read his Bible and take part in the meetings in the manly way he has been doing right along."

I went home and worked hard to make preparations to get back to Medina the next day. It was just getting dark when this same John Brown came over to bid me good by. Of course, we had to talk over church matters, etc. Finally, just before he went away he said something like this:

"Mr. Root, it is true I have been attending the meetings right along, and I think they are doing a lot of good; but sometimes it troubles me to think that I have not more feeling or enthusiasm in the matter. Now, to tell the honest truth, I do not believe I get the enjoyment out of the meetings that I used to get in going to other places that I can not go to now because I am a member of the church, and I am afraid there are others who are not honest about the matter. They think it is their duty to get up and read something in the Bible or tell their experience, but do they always *really mean* just what they say?"

I replied something like this:

"John, I am glad to have you come out square and honest in this way. Many a man has had something of the same feeling that you express, but only a few are honest enough to own it as you do. Even away back in old times we read that God's people got tired of well doing. We read in Malachi that some of them said, 'What profit is it that we have kept his ordinance, and that we have walked mournfully before the Lord of hosts?' The reply was, 'Prove me now herewith, said the Lord of hosts, if I will not open you the windows of heaven and pour you out a blessing that there shall not be room to receive it.' And again comes the exhortation, 'Be not weary in well doing,' etc. Now, John, you keep right along in the straight and narrow path, whether you feel like it or not. In due time God will give you happiness—all anybody ought to have."

Then I told him what Mr. Wilson said of his Christian character, which seemed to please him very much. Then I added, "Look here, John, I do not think it will do any harm to tell you that I know all about some of the enjoyments that church people can not consistently participate in. Why, if it would not be *wicked*, I should greatly enjoy helping to buy a keg of beer and help to drink it. I do not know but I would give a dollar for the fun\* I could get out of a keg of beer with a crowd if I could do it with a clear conscience. But it can't be done. Just a short time ago a keg of beer caused the death of two men not far from here. Now, because I still have a hankering occasionally for this same beer that I have not tasted in forty years, suppose when I am off alone in a strange crowd I should indulge, and that nobody should ever hear of it. What would you think of me, and what would I think of myself if I should stand up in your meeting as I have been do-

\* This kind of "fun" reminds one of the fable about the old frog that stood up and said to the boys who were having fun in stoning them, "Boys, this may be fun for you—no doubt it is; but please remember that what is fun for you is death to us."

ing, and exhort young boys to temperance, purity, and righteousness? Why, I should be one of the worst hypocrites that ever lived. I would not touch this beer, because it means ruin and death. The dance-hall down over that saloon at Bingham is tending the same way. Do you feel no thrill of happiness and joy when you are helping this crowd of boys to break away from every thing that is lowering and degrading, and to hold fast to righteousness, temperance, and purity, things that lead from earth and all things earthly up to heaven? Does it not rejoice your heart to realize that you are with a crowd that is 'stepping heavenward' instead of encouraging that which would rob your neighbor, take his hard-earned wages just because you could beat him in card-playing and all that? Why, I am sure, my young friend, that you do not belong to the crowd that 'love darkness rather than light because their deeds are evil.' May God help you on in the way you have started. May he help you never to think of turning back."

Out under the stars I bade him good by and went to bed happy, because I really had been using some of the strength God gave me in answer to my prayer of the morning in spiritual work as well as physical work. My prayer of the morning was, *in fact*, something after the fashion of that celebrated one of David, where he says, "Create in me a clean heart, O God, and renew a right spirit within me. Cast me not away from thy presence, and take not thy Holy Spirit from me. Restore unto me the joy of thy salvation, and uphold me with thy free Spirit. Then will I teach transgressors thy ways, and sinners shall be converted unto thee."



## PAGE POULTRY FENCE COSTS LESS

erected than common nettings; fences poultry in and stock out; requires no boards and but few posts; never sags, bogs, or buckles, and outlasts the posts. Complete descriptions, prices and comparison of costs furnished on request. Write today.

Page Woven Wire Fence Co., Box 5417, Adrian, Mich.

## YOU SPRAY

Make it as easy and effective as possible. Buy your outfit from a concern that has long made a specialty of spraying machinery. A

## DEMING SPRAYING OUTFIT



always gives satisfaction. 20 styles. An outfit for every purpose including Barrel, Knapsack, Bucket and Hand Sprayers and Power Outfits. Get free catalog and study the Deming line before you buy.

**THE DEMING CO.,**  
230 Depot St., Salem, O.  
Hendon & Hubbell, Western  
Agents, Chicago.

## BANKING BY MAIL

To accommodate the large number of people who keep money at home, or in a local bank where it is earning little or no interest, this bank receives deposits by mail on exactly the same terms as though made in person. Deposits may be sent safely by postoffice or express money-order, New York draft, check on local bank, or currency. We will on request write you how you can bank safely and conveniently by mail, no matter where you live.

Assets of over one-half million and the management of prudent men of solid financial standing give this bank every element of safety.

## THE SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.  
E. B. SPITZER, Cashier.

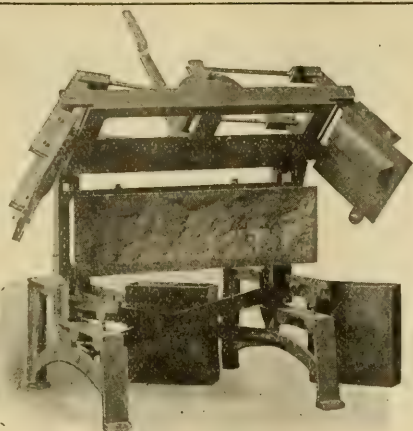


## THERE'S MONEY IN FARMING

If you understand modern methods and farm INTELLIGENTLY.

Every reader of GLEANINGS who is interested in farming or gardening, in the growing of fruit or of flowers, is invited to send for a free copy of our 80-page catalog and full information in regard to the Home Study Courses in Agriculture, Horticulture, Landscape Gardening, and Floriculture, which we offer under Prof. Brooks, of the Massachusetts Agricultural College, and Prof. Craig, of Cornell University.  
Home Correspon. School, Dept. 12, Springfield, Mass.





## This is One Style of Machine

in which hollow concrete blocks from which the attractive homes we have shown in the last few numbers of GLEANINGS are built.

We make several different styles of machines, having different capacities, and intended for different purposes.

All are built by the most careful workmen and from the best material obtainable. The designs we follow have been accepted after long and careful experimenting.

We would like to send our interesting booklet, showing machines, houses and blocks. Every man who builds needs a copy. It's free for the asking.

**Medina Concrete Company**  
22 Court St., Medina, Ohio

## PIONEER GUARANTEED NURSERY STOCK AT WHOLESALE PRICES

All stock guaranteed disease free and true to name.  
Hart Pioneer Stock is pure bred and produces heavy crops.  
Value received for every dollar sent us. No Agent's Commission  
WRITE FOR COMPLETE PRICE LIST. WE WILL SAVE YOU MONEY  
**HART PIONEER NURSERIES, Est. 1867 Fort Scott, Kan.**

**Sold by Dealers in Seeds all over America.**



*My Grandfather used  
Mr. Hammond's Slug Shot  
for Potato Bugs. So does my  
father use it. My Mother puts Slug Shot on  
roses.*



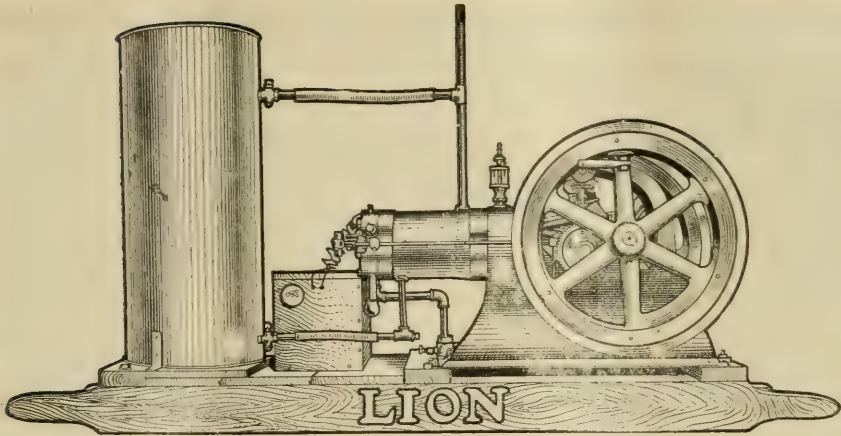
## "SLUG SHOT"

**Used from Ocean to Ocean**

A light, composite, fine powder, easily distributed either by duster, bellows, or in water by spraying. Thoroughly reliable in killing Currant Worms, Potato Bugs, Cabbage Worms, Lice, Slugs, Sow Bugs, etc., and it is also strongly impregnated with fungicides. Put up in Popular Packages at Popular Prices. **Sold by Seed Dealers and Merchants.**

**HAMMOND'S SLUG SHOT WORKS, FISHKILL-ON-HUDSON, N. Y.**

Write for pamphlets worth having on Bugs and Blight, and for bee-hive paint.



## IT'S READY TO OPERATE

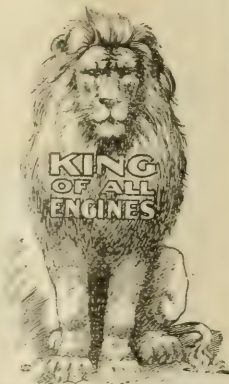
There's no firing-up—no waiting for steam with a **Lion** Gasoline Engine. It is **always ready to operate**. Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

# *The Lion Engine*

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

**We sell direct from factory to buyer**, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion** engine and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion** engine. It is free if you mention this paper when you write.

**Lyons Engine Company**  
LYONS, MICHIGAN





# 85 BEST Farm Gates SOLD to ONE MAN

Shelbyville, Ind., March 3, '06.  
Best Gate Co., 67-69 E. Jackson St.  
Shelbyville, Indiana.

Dear Sirs:—Please deliver to bearer, Albert Luther, six 12 ft. **BEST Gates** for Fairland farm. This will make **eighty-five BEST gates** bought of you for our farms in this county, many of which have been in use several years. They are **light, durable**, and do not sag or warp, and **have not cost one cent for repairs**. In view of these facts, I will continue to buy **BEST Gates**, and no doubt will have **one hundred or more in use** before fall. Very truly yours,  
J. B. HAMILTON.

and are now in actual everyday use on his farm. This certainly is pretty strong evidence of the superiority of the **BEST GATE**. A good gate is necessary to complete the fences on a well kept farm. It will more than pay for its first cost in one season in the time and labor it saves the farmer in passing through it, or in driving from one field into another.

## The BEST Gate

is certainly just what its name implies—it is the **BEST** for any purpose. It is light, strong and convenient to handle. The frame is made of select hard pine and strongly braced. There are **TEN STRANDS OF HIGH CARBON COILED SPRING STEEL WIRE** on this gate which are attached to the frame work with a **PATENT RACHET** so as to allow for tightening when needed. You cannot reproduce this gate for less than **50 PER CENT MORE THAN WE ASK**. We sell the **BEST GATE**

### Direct from Factory to User

and **PREPAY THE FREIGHT** as far as 300 miles from Shelbyville. **PRICE \$5** and upward according to the size of gate. The illustration below shows the strength of **THE BEST GATE**.

It is not an exaggeration for this gate will hold a weight of more than 700

lbs. without buckling or sagging. Write for our booklet, it describes

The Best Gate more thoroughly than we can in this advertisement.

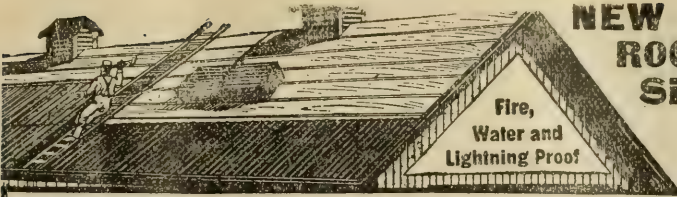


**THE BEST GATE CO.**

**Dept. L**

**Shelbyville, Indiana.**





# NEW STEEL ROOFING and Siding \$1.75

Fire,  
Water and  
Lightning Proof

PER 100  
SQ. FT.



Metal roofing, such as we offer, is far superior to any other kind. It is easier to lay, lasts longer and costs less. No experience necessary to lay it. Just an ordinary Hatchet or Hammer—the only tools you need. This roofing at \$1.75 per 100 square feet, is our No. 15 Grade Semi-Hardened Steel, painted red two sides, perfectly flat, 24 inches wide by 24 inches long. Corrugated (as illustrated), "V" Crimped or Standing Seam costs \$1.85. We can furnish this Roofing in 6 or 8 foot lengths at 25c per square additional. We offer Pressed Brick Siding and Beaded Ceiling or Siding at \$2.25 per 100 square feet. At this price—

**WE PAY THE FREIGHT TO ALL POINTS EAST OF COLORADO**

except Oklahoma, Indian Territory and Texas. Prices to other points on application. Send in your order for as many squares as you may need to cover your new or old Building. Time has proved its enduring qualities. Thousands of Barns, Houses, Residences, Poultry Houses and Buildings of every kind are covered with this superior material. We guarantee satisfaction. Money cheerfully refunded if upon receipt of the material you do not find it all we represent it, or if you are not perfectly satisfied in every way just send the material back at our expense, and we will refund the purchase price. If you want quick delivery, now is the time to place your order. Send us diagram of the Building you have to cover, and we will quote you a Freight prepaid price on such Covering as we deem best suited for your purpose.

Ask For Catalog No. W888. Lowest prices on Roofing, Wire, Pipe, Fencing, Paintings, Doors, Household Goods and everything needed on the Farm or the Home. We buy our goods at sheriff's and receiver's sales.

CHICAGO HOUSE WRECKING CO.

35TH & IRON STREETS,

CHICAGO

## SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

YEARS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.,  
Ashland, Ohio.



ASHLAND  
PUMP AND  
HAY TOOL  
WORKS

## JOSEPH HORNE CO.

Pittsburgh, Penn.

### Lawn and Porch Swings

In the good old summer time lawn and porch swings and all other outdoor furniture are in great demand. We have a generous collection of this class of furniture marked at very low prices. For example:

Eagle Lawn Swings, made of steel, with canopy, \$12.50.

Rockaway Steel Lawn Swings, nice gliding motion, hold four people, \$17.50.

Large Wooden Swings, painted red, particularly strong, \$6.00.

Porch Swings, hung by chains, very strong, \$5.75. Gliding Settees, can be used on porch or lawn, hold four people, \$10.50.

Swinging Chairs of steel, canvas seat and back, \$4.

Croquet Sets—Single sets, \$1.25 to \$4.00; double sets, 85c to \$7.00.

Tennis Goods.—Rackets, \$1.50, \$2.00, \$3.00, and up to \$10.00. Balls: Wright & Ditson's, \$4.00 dozen; Ayre's, \$4.50 dozen; practice balls, 25c each. Nets: 75c, \$1.25, to \$4.50. Racket-presses, \$1.00 each. Tennis-markers, \$1.00 and \$2.00. Tennis-poles, \$2.00.

Marking-tapes, \$3.00 and \$4.00 set.

## THE BEST LIGHT

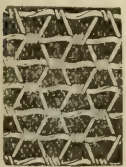
The only light that makes and burns its own gas at the extremely low cost of 2c per week and gives perfect service with **NO GREASE, DIRT, SMOKE OR ODOR.** Every burner equal to 100 candles burning at one time. Think of it—brighter than electricity or acetylene and cheaper than kerosene. You cannot afford to be without it. Over 100 styles. Every lamp warranted. Agents Wanted Everywhere.

THE BEST LIGHT CO., 306 E. 5th St., Canton, O.

## FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today.

COILED SPRING FENCE CO.  
Box 101 WINCHESTER, INDIANA.



## BROWN PAYS THE FREIGHT

### HEAVIEST FENCE MADE

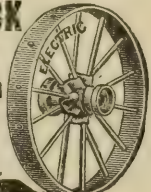
All No. 9 Steel Wire, Well Galvanized. Weighs 1/4 more than most fences. 16 to 85c per rod delivered. We sell all kinds of fence wire at wholesale prices. Write for fence book showing 110 styles. The Brown Fence and Wire Co., Cleveland, Ohio.

## SAVE YOUR BACK

Save time, horses, work and money by using an

### Electric Handy Wagon

Low wheels, broad tires. No living man can build a better. Book on "WheelSense" free. Electric Wheel Co., Box 95, Quincy, Ill.



EXTENSION NUTS CURE AXLE WABBLERS. Make old buggies run like new. Quick sellers. Very profitable for agents. Exclusive Territory. Hardware Specialty Co., Box 535, Pontiac, Mich.





## Special Notices by A. I. Root.

## THE ACME HAND POTATO-PLANTER.

I suppose everybody knows how to use these by this time. We have only three or four dozen left, and do not expect to handle them after these are sold. In order to close out, we offer what we have at the very low price of 50 cts. each. They can be sent by mail at an additional expense of 45 cts. But a better way is to have them go by express, or, better still, by freight with other goods. Full directions accompany every machine. Circulars in regard to the potato-planters or sprayers will be furnished free of charge; also our catalog of honey-plant seeds.

## THE FAULTLESS SPRAYER FOR POTATO-BUGS, CURRANT-WORMS, LICE ON STOCK, POULTRY, ETC.

As we cannot closing out on these goods we offer what we have left, at the low price of 25 cts. each for the tin sprayer, and 35 cts. for the galvanized iron tank. If wanted by mail, either kind can be sent for 25 cts. additional. I am sure no one in the country can afford to be without these sprayers, especially as they cost so little. You can often save the price of a machine in a very few minutes if you have it handy and keep it "loaded." With every machine there is a stout linen tag with full directions how to use it. It will do for fruit-trees if you get up on a ladder so you can get the spray where it is needed.

## CAUCASIANS ON THE ISLAND UP TO MAY 4.

The following came to me at the "cabin in the woods:"

*Friend Root:*—Your letter and cages came to hand today. I will mail you a queen to-morrow.

We have a good honey-flow this week; extracted two combs from each of four hives, Caucasian one of the four. They are holding their own as honey-gatherers, and gentle hardly expresses it. We shook and brushed the bees off the combs without smoke; not a bee offered to sting. Florence never uses smoke when opening their hive, and not a Caucasian has ever stung any of us. Osprey, Fla., May 4. J. T. SHUMARD.

I will add that the daughter of our Florida Caucasian is now a two-story twin nucleus (*full of bees*) up here at the "Old Cabin Home" in North Michigan. The snow-storms and cold weather of the first week in May seem to be over, and it is hard telling who is the happiest this beautiful May morning—the bees or myself. A. I. R. Traverse City, Mich., May 11.

## THE ART OF ATTRACTING AND CATCHING SWARMS OF BEES.

Letters are coming in almost continually, asking if we advise sending a dollar to T. W. Bryan, Ficklin, Ill., for his secret in regard to catching swarms of runaway bees. We showed up his swindle on page 732, last year, and also on page 923, Sept. 1, last. As soon as Mr. Bryan began advertising we sent a dollar for his book. He returned the money promptly, saying he would send the book as soon as he got a new edition. No new edition came, however, but he kept right on advertising, and getting people's money. But one of our subscribers sent for the book and promptly forwarded it to us. Let me repeat what I have said before. This dollar book contains five very small pages, coarse print; but the wonderful secret is all told in just a few lines on one of the small pages. There are two things you are to do to attract the bees. Put a little bright-red flag on one corner of the hive. The second thing is to attract the bees by the scent of the oil of anise. Now, there is no doubt that a hive fixed in this way will occasionally catch a runaway swarm; and so will an empty hive without any red rag or anise; and because the bees sometimes locate in such hives he gets his material for testimonials. The use of the oil of anise is not at all new. The "red" rag may be new, but I think every intelligent bee-keeper will decide that it has nothing to do with attracting the bees. Will other bee-journals please help us expose this man and his swindling operations? One of the worst things about Bryan's operations is that he is employed by the *Missouri Valley Farmer* to conduct a bee-keeping department in that paper; and in every issue he takes pains to boom his dollar secret. Let me give you a specimen of his "instructions" to bee-keepers, clipped from the journal named above, for April, 1906:

"Well, after many attempts and failures I at last succeeded in perfecting a hive which caught the eye and scent of the home-seekers, and they have no trouble in locating it at once. To-day I hold the key to the situation, and can teach any person just how to prepare empty hives so they will attract bees for miles, and thus catch all the swarms they want for practically nothing. So far as I know I am the only bee-keeper in the country who has ever succeeded in doing this. My booklet, which was copyrighted in 1904, is the only work that teaches this science, and can be had only from me."

"T. W. BRYAN."

## "A POCKETFUL OF WHEAT."

When I said last winter that a pocketful of wheat was the best medicine for little chickens, why did not somebody among our 30,000 readers tell me that a pocketful of wheat is the best medicine in the world for the human family as well as for chickens? For six weeks or more I have been having raw wheat (Pettijohn's rolled wheat) three times a day, and I like it just as well now as I did at the start; and it is worth more than all the medicines for troubles with digestion I have ever gotten hold of. I have tried different kinds of nuts, and have about settled down on fresh nicely prepared salted peanuts; and after having had a satisfying meal of "grains and nuts" I eat all the fruit I care for, of any sort that comes handy—dates, figs, apples, bananas, oranges, etc.; also all kinds of dried and canned fruits, avoiding sugar as much as possible. The sugar in fruits—dates, for instance, the sugar that God makes—is much better for me than manufactured sugar. A little honey, also, seems to be very much better than any kind of refined sugar. Now, in order to get this excellent result I never taste any thing between meals, and drink no liquid of any sort at mealtime. Of course, the apples and oranges, furnish some liquid at the close of the meal, and this seems to be all right.

## BUCKWHEAT FOR BEE-KEEPERS, ETC.

We have for years past been sending out a pamphlet giving what information we could gather in regard to the buckwheat crop for bee-keepers. The Cornell University, Ithaca, N. Y., has just sent out a bulletin (No. 238, April, 1906), which is for free distribution in York State. I can not gather whether other people can get it or not. This bulletin contains much valuable information, and we clip as follows from the concluding summary:

Formerly the flouring qualities of the Japanese variety were pronounced by many millers to be inferior to the other sorts, and not infrequently the price of Japanese buckwheat was five or ten cents per bushel less than the others. In some localities this condition still prevails; in others the reverse is true. In parts of Seneca Co., N. Y., in recent seasons the millers have offered a bonus of five cents per bushel for the Japanese variety. Whether this change in the estimate of the variety is due to improvement in the quality of the grain due to acclimatization, or to better adaptation of the milling methods to the variety has not been ascertained.

## ENEMIES.

The buckwheat crop is unusually free from interference from weeds or plant-diseases. It starts so quickly and grows so rapidly that most weeds get no chance to make headway against it. In fact, buckwheat is one of the best crops for cleaning land by smothering out weed growths. Wild birds as well as domestic are fond of the grain, and, when abundant, sometimes cause considerable loss. No insect or fungous troubles have been sufficiently destructive to attract much attention.

## BUCKWHEAT AS A SOILING CROP.

A number of farmers have reported favorably upon the use of buckwheat as a soiling crop, but its use for this purpose has not been sufficiently extended to establish its value.

## BUCKWHEAT AS A GREEN-MANURE CROP.

The use of buckwheat as a green manure has been much more extended. It possesses several characteristics that adapt it to this purpose. It thrives on quite poor soil. It grows rapidly. It smotheres out weeds, thus helping to clean the land. It leaves hard soils in a remarkably mellow condition. It decays quickly when plowed under.

## VARIETIES.

There are three principal varieties of buckwheat grown in America—the common gray, silverhull, and Japanese. The seed of silverhull is slightly smaller than

the common gray—the color is lighter and of a glossy, silvery appearance. The Japanese is larger than the gray, of somewhat darker color, and there is a tendency for the angles or edges of the hull to extend into a wing, making the faces of the grain more concave. The plant of the Japanese variety is a somewhat larger grower than the others; the fresh stem has a green color, and the flowers seem not to be quite so subject to blasting as the others. On this account it is recommended in some localities to sow the silverhull and Japanese varieties mixed, it being said that the later and hardier Japanese will shade and protect the others from hot sunshine, thus avoiding blasting, and securing a larger zone of seed-bearing straw than is furnished by either sort alone, a larger yield resulting. The silverhull variety has a red stem, and branches more freely than the others. The leaves also are smaller.

#### ST. PAUL AGENCY.

After our forms had gone to press we received further particulars regarding the sudden death of Mr. J. C. Acklin, our agent in St. Paul. While delivering some bees to a customer in one of the St. Paul suburbs he was stricken with apoplexy and was taken to the hospital, where he died next morning without regaining consciousness.

This sudden ending of his labors in this world is a crushing blow to Mrs. H. G. Acklin and her daughter Ethel; but they are determined to carry on the business as usual. For this she is thoroughly competent, having had active charge for years. Only last January was the name of the manager changed from her initials to his. She has a faithful helper, Robert, who has been with them for years, and has taken entire charge of the business for weeks at a time. All orders for bees and supplies will receive their usual careful attention.

#### Kind Words from our Customers.

##### "IN ALL THY WAYS ACKNOWLEDGE HIM."

For some years past my health has been rapidly failing; and my occupation being that of carpenter and builder I saw I was not going to be able to do hard work much longer, and so my wife and I began to ask the Lord if I should not make a change and try something else. She spoke of bee-keeping, it being on her mind for some time. At first I did not approve of it, for many had tried them here and all failed. But still my wife was anxious to try them, so we got one colony in the fall of 1901, and laid the matter before the Lord to show us if it was his mind that we keep them or not, for neither of us knew any thing about them. I sent for the *Canadian Bee Journal* and the A B C book, and we packed the bees as well as we could outside on their stand, and in the spring the box was full of bees, and in August we had six good swarms, and not one got away. But they were black bees, and we wanted Italians, so we sent \$5.00 to the Root Co. for two queens, and divided two of the largest colonies, making four, and introduced your two queens, and you may depend on it they were a matter of much prayer to the Lord. I packed them outside as well as I could, giving more attention to the new queens; but in the spring when I examined the hives I found the rain had got into the outside box of our \$3.00 queen, and the stuff was all wet around the hive; and when we looked at the bees they had all died but the queen and a handful of bees. I don't think there were more than 100 at the outside. Oh, I was so disappointed and vexed at my carelessness not to notice the plan in the lid! But all we could do was to tell the Lord about it, and go on and make the best of it. And, just think I before the season was over that colony cast the biggest swarm in the yard, and both queens proved to be excellent breeders.

Last spring, 1905, we started with 12 colonies—7 good ones and 5 weak ones, and they made nearly 1000 lbs. of honey, and increased to 32 good ones in August, and I had no trouble to sell the extracted honey at 15 cts. per lb., and 20 for comb; so this spring we have 27 to start with; lost 4, and sold one. The reason of our loss was, two of them, I think, were queenless when put away, and two were robbed.

This spring my wife had no trouble in learning to clip the queens' wings by looking at the picture in GLEANINGS. I must say that journal has been a great thing to us. How I came by it was this: I saw an advertisement in the *Canadian Bee Journal*, 1902, that if one sent you the names of six bee-keepers you would send a

copy of GLEANINGS six months on trial. I could not send that many, for there were no bee-keepers in this part of the country; but I sent the names of a number who said they would like to get bees, and got it. The man I sold the colony to last fall gave me his subscription for it the other day, so the folks around are much interested in our bees now.

But what I want to say to my fellow Christians, those who love our Lord Jesus, is this: No matter what you go to, consult the Lord about it; don't be in a hurry starting—just as Moses said to the Lord, "If thy presence go not with me, carry us not up hence." Then if you see he has opened the way, and made the matter clear, and you have made a start, be sure you honor the Lord in it. See Proverbs 3:9, 10. I have proved this to be true at all times and in all my business.

While we can not lay down a straight rule in the matter of giving, I believe in having a separate purse for the Lord; and every time I sell anything I put so much of it away in that purse for him for the poor and the spreading of the gospel. The Lord does not reckon from the amount that is given, but from the amount that is kept back. How beautifully we see that in the widow with the two mites! and the more the Lord is honored in that way, the more he will bless you. But how often our gracious Father has to cut off our supply like a doctor in a hospital, who gives only food enough to keep the patient alive till he gets better of the disease. The same thing happens with us. We have a loving Father who would be pleased to give us good things, but our spiritual health will not stand it. For my part I can look back and thank the Lord for every hurt, sickness, and loss, for I know it was in love he permitted these things to happen.

Little Rapids, Ont.

JOHN LAMONT.

The Ideal Specialty Co., 141 S. Clinton St., Chicago, Ill., have an ad. on page 776 of this issue of GLEANINGS. This company manufactures scrap-books, photo-albums, post-card albums, and invoice-books of the latest and best designs. Their self-gummed Ideal scrap-books same as shown in their ad., are the neatest scrap-books we have ever seen. They do away with disagreeable gluing, and do not make it impossible to remove a clipping which has been preserved. It will be well worth your while to send for a copy of their catalog No. 8, which shows every style of these fine books. There is no charge for their catalog.

## Best's Mortgage-Lifter Bees

My bees are of a new strain, bred by careful selection from the best imported and domestic stock. They are the gentlest, the strongest honey-gatherers, and most rapid breeders of any bees you will find. Have been among bees for 35 years and never found their equal. Price for immediate delivery—warranted queen, \$1.50; tested, \$2.00; select tested, \$3.00; breeding queen, \$5.00; select breeder, \$8.00. Purity of strain guaranteed.

**BEST-THE-BEE-MAN,**  
Slatington, Pa.

## WE ARE HEADQUARTERS FOR THE ALBINO BEES,

the best in the world. If you are looking for the bee that will gather the most honey, and is the gentlest of all bees in handling, buy the Albino. I also furnish the Italian, but orders stand fifty to one in favor of the Albino.

Prices: Select tested Albino queens for breeding, \$4.00; tested Albino queens as they run, \$2.50; untested, \$1.00. Italians, tested, \$1.50; untested, \$1.00.

**S. VALENTINE,**  
Rocky Ridge, - Frederick Co. - Md.

**65c** for 25 NAMES—For names and P.O. of 25 farmers and 15c (stamps taken) we will send for 2 years the Farmer's Call—regular subscription price, 40c a year. F. C. is a weekly, 25 years old; 1300 pages a year; sample free. Farmer's Call, Quincy, Ill.



----"If Goods are Wanted Quick, Send to Pouder."----  
Established 1889.

# BEE-KEEPERS' SUPPLIES

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,  
**EVERYTHING USED BY BEE-KEEPERS.**  
Headquarters for the Danzenbaker Hive.



## New Metal-spaced Hoffman Frames are Here in Stock

### Conversation with Wilson

"Hallo, Mr. Wilson! Have you been to dinner?"

"Yes, thank you, Mr. Smith; just got up from the table, and thought I'd come over for a little talk while the horses are feeding. Say, Mr. Smith, I am going to have a big crop of honey, and I have a notion to send it to Pouder as soon as I take it off the hives. What do you think about it?"

"Well, Pouder will buy your honey if you wish to ship it to Indianapolis; but I believe that you can establish a home trade for every pound that you can produce. I get 20 cents for every section of my comb honey, and 15 cents a pound for all of my extracted. Of course, where my neighbors want a little for sickness I never charge any thing; but do you know, Mr. Wilson, that I do not have enough to go around, and I had to send to Pouder myself for several cans to supply my home trade? It is a long time till honey comes again, and you will be surprised how they will come for miles when they once learn that you have it on hand."

"I am aware that the market is now almost bare of honey; but don't you think there will be a big crop of honey this year? It looks as

if California would have a big crop of honey this year, and won't that affect the price of honey here? The other evening Bob was reading in the Indianapolis News about one of those big prizefights being postponed on account of a down-pour of rain. Bob will read all that stuff in spite of all I can say. I just thought that, when California has those heavy rains, it means lots of honey."

"I'll tell you about that, Mr. Wilson. You and I need never fear any thing about any overproduction. This is a great country, and we shall have a demand that exceeds our supply every season. Haven't heard of any one having any more corn than he could dispose of, have you? Another thing, considering the modern hives and equipment that we now have, we could even afford to reduce the price on honey, for we get twice as much honey now as we did ten years ago from a single hive, and at the same time honey is growing in better demand every day."

"I guess you are right about this matter. I must be going. Let me know when you are ready to send your order to Pouder again, and I will have some brood foundation and some of those new metal-spaced Hoffman frames included with your order."

### BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight; always be sure to attach name to package.

CATALOG FREE

**WALTER S. POUDER,**  
513--515 Massachusetts Ave., - INDIANAPOLIS, IND.

# Bee = keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

## Good Goods, Low Prices and Prompt Shipments

are the **POINTS** in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

**Page & Lyon Mfg. Co., New London, Wis.**

### **Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!**

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

**BEES AND QUEENS**—Orders booked now for spring delivery.

**HONEY AND WAX**—We handle honey and wax. Write for particulars.

### **The A. I. Root Co.**

Northwestern Branch,  
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

## **DO YOU KNOW**

That the sale of Dittmer's Foundation has increased so much that we were forced to double our melting capacity in order to fill orders promptly?

### **There is a Reason for This**

It is because Dittmer's Foundation is tough, clear, and transparent, and has the natural color of beeswax.

#### **AGENTS FOR DITTMER'S FOUNDATION:**

W. D. Soper..... Jackson, Mich.  
Bee and Honey Co..... Beeville, Texas  
E. H. Taylor .. Welwyn Sta., Herts, Eng.  
E. Grainger & Co..... Toronto, Ont., Can.

Our warehouse is well stocked with all kinds of bee-keepers' supplies.

Beeswax always wanted.

**Gus Dittmer, Augusta, Wis.**



# BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

**Kretschmer Mfg. Co., Council Bluffs, Iowa.**

Muscatine Produce Co., Muscatine, Iowa.  
Trestler Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.  
T. B. Vallette & Son, Salina, Kansas.



## Over a Million Lewis Sections

in stock since Jan. 1st, 1906.  
Dadant's Foundation and all  
other goods in proportion. Im-  
mediate shipments.

Get your goods in a hurry—  
before the ink on your order  
gets dry—by sending to

**A. G. WOODMAN CO.**  
**GRAND RAPIDS, MICH.**

### DAILY EXPRESS TRAINS:

|                            |    |
|----------------------------|----|
| Adams Express.....         | 12 |
| American Express.....      | 9  |
| United States Express..... | 22 |
| National Express.....      | 12 |

### DAILY FREIGHT TRAINS:

|                           |               |
|---------------------------|---------------|
| P. M. System.....         | 20 and extras |
| M. C. System.....         | 6             |
| Gd. Trunk System.....     | 10            |
| L. S. & M. S. System..... | 6             |
| G. R. & I. System.....    | 12            |
| G. R., G. H., & M.....    | 10            |
| G. R., H., & L. M.....    | 10            |

## Bee-keepers' Supplies!

Lewis' famous "Beeware." Root's Smokers and Extractors; Dadant's Comb Foundation, etc.; Queens and Nuclei in Season, Large and Complete Stock; Prompt Service. We will meet all competitors who handle first-class goods. Catalog with practical hints free.

### "Mandy Lee" Incubators and Brooders!

Whether you are experienced in artificial incubation or not, these incubators will give you gratifying results. The "Mandy Lee" brooder is the only brooder made which applies direct contact heat to the little chicks' backs. Our free incubator catalog describes them. Prompt shipments.

**C. M. Scott & Co., Indianapolis, Indiana**  
1004 East Washington Street



Established 1881

YES!

Same Place 1906

# THIS IS THE MAN

WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year. ♣ ♣ ♣ ♣ ♣

Geo. E. Hilton, - Fremont, Mich.

## Increased Business Compels Larger Space!

So we have just doubled our capacity in the building at 141 Ontario Street, where we carry a full line of

### Poultry-supplies and Lewis' Popular Beeware

Catalogs on application. ORDERS FILLED PROMPTLY AT FACTORY PRICES.  
BEESWAX WANTED.—28c cash or 30c in trade.

ITALIAN BEES in modern hives with select queens for sale; also pure Italian queens.

## York Honey and Bee Supply Company Not Inc.

H. M. Arnd, Mgr.

141 Ontario Street, Chicago, Ill.

Phone North 1559

**BINGHAM**  
Original  
Direct Draft  
CLEAN  
Bee Smokers



Pat'd 1879, '82, '92 & 1903

### Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and last; don't spit fire; don't go out; don't daub themselves all over. We are the most extensive exclusively bee-smoker makers in the world.

T. F. Bingham - Farwell, Mich.

Chico, California, October 28th, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.

J. M. RANKIN.

## Ask Lathrop

for Root's Goods  
at Root's Prices

All kinds of Bee and Poultry Supplies.  
Catalog, etc., on request. . . . .

Lathrop Mfg. Co., Rochester, New York  
27 East Avenue

### If You Want the Bee-book

that "covers the whole apicultural  
field more completely than any other  
published," send \$1.20 to :: ::

Prof. A. J. Cook, Claremont, Calif.

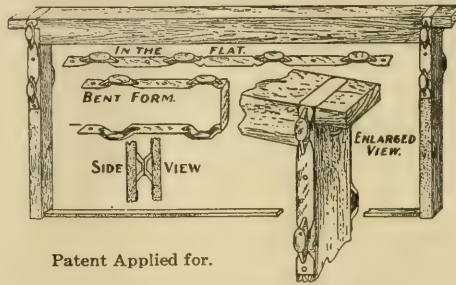
— FOR HIS —

### "Bee-keepers' Guide"

Liberal Discount to the Trade.



# Metal-spaced Hoffman Frame IN GREAT DEMAND.



Patent Applied for.

*Has come to stay. Can be used interchangeably with regular Hoffman frames. Has all the advantages of the regular Hoffman. Is not affected by propolis. Can be handled without pry or screwdriver. Has no rights or lefts, and, therefore, can not be put up wrong. See full description in 1906 GLEANINGS, page 16.*

**PRICES.**—Metal-spaced Hoffman frames—100, put up, \$4.50. In flat—10, 35c; 100, \$3.00; 500, \$14.00. Metal spacers only—30c per 100; \$2.50 per 1000. Hives with metal-spaced frames, 5c extra each body, 8 or 10 frame, put up or in the flat.

**The A. I. Root, Company, Medina, Ohio.**

## PENNSYLVANIA

Ours is the largest bee-supply house in the western half of the State. Every thing which the bee-keeper will need is in stock awaiting your order.

## ROOT'S GOODS AT ROOT'S PRICES

You can save time and expense by ordering from us. . .

Best shipping facilities. . .  
Complete stock. . . . .

Do not put off ordering to-day what you will urgently need a little later on in the season. . . . .

**Frank W. Prothero**

Successor to Prothero & Arnold

**Dubois, Clearfield Co., Pennsylvania**

## If You Want Root's Goods

I have them at Root's prices. Also A B C of Bee Culture—one of the best books printed on bees. Catalog free. Address as below. . . . .

**D. Cooley, Kendall, Michigan**

## Bees, Queens, and Bee Supplies.

We manufacture standard dovetailed bee-hives and supplies cheaper than you ever bought before. Our queens and bees stand at the head in quality. Untested, 75c each; \$4.25 for 6, or \$8.00 per dozen. Tested, \$1.25 each; \$12.00 per dozen. Select tested, \$1.50 each. Special prices to dealers in large lots on application. State agents for Dittmer's foundation. Catalog free.

**THE BEE AND HONEY CO.,**

**Will Atchley, Prop., Beeville, Bee Co., Texas,**

## QUEENS OF MOORE'S - STRAIN - OF - ITALIANS

produce workers that fill the supers and are not inclined to swarm. . . .

Stewart Smillie, Bluevale, Ont., Can., says:

"They fill the supers and are not so much inclined to swarm as others. I have been buying queens for fifteen years, and your stock was the only one that was any good to gather honey."

Untested queens, \$1.00 each; six, \$5.00; dozen, \$9.00. Select untested, \$1.25 each; six, \$6.00; dozen, \$11.00. Safe arrival and satisfaction guaranteed.

**J. P. MOORE, Morgan, Pendleton Co., Ky.**

# A Good Bee-hive!

is made of the best grade of white pine, accurately cut, so it will go together without the use of tools, except a hammer. Such is the kind of hives we make, and such is the kind you get when you buy from us. It is a cinch that we can make lower prices than you can get from any dealer, as you can save the middleman's profits when you buy direct from the manufacturer. We are manufacturers, and sell direct to the consumer. Send us a list of your wants, and let us make you prices. We guarantee every thing we sell to be satisfactory, or refund the money. We have large stocks of Dovetailed Hives, Sections, Shipping-cases, Foundation, Veils, Smokers, etc., on hand, and can ship promptly.

## Minnesota Bee-supply Company

John Dell & Son, Proprietor

Power Building No. 20, Minneapolis, Minnesota



### Everything for the Bee Keeper

will be found in our Illustrated Catalogue No. 40. It contains a full line of Hives, Supers, Followers, Sections, Section Holders, Frames, Extractors, Smokers, etc. All these and many other essentials are manufactured by us. Everything is guaranteed to be right and of best quality. Our prices are so reasonable that any bee keeper may afford the best supplies. We cannot tell you here of all the good things in this book.

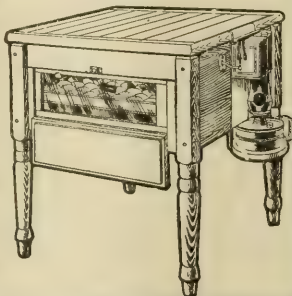
Better send for a copy today. We mail it free, together with a copy of the **Progressive Bee Keeper**, a splendid monthly publication devoted to bee interests. It will help you start right and keep you right after you are started. It is invaluable as an aid to every bee keeper. Ask for the paper and the book.

### We Sell the Best Incubators and Brooders.

Delivered at your station, prices the lowest. Write us at once and save money. Address

**LEAHY MFG. CO., 15 Talmage St., Higginsville, Mo.**

Branches at Omaha, Neb. and East St. Louis, Ill.



### CAUCASIAN QUEENS.

Try one or more of my gentle Caucasian queens, said to be the gentlest race of bees in the world, having a sting. The demand for these queens is good; in fact, orders are rolling in now. All orders filled in rotation, as received. Special prices on large orders. Untested, \$1.50 each; warranted tested, \$3.00 each. Ready in June. I control all bees within three miles of my apiary, and can promise pure stock. A few choice nuclei can be furnished with a fine queen, when wanted.

Money-order office, Olive Branch, Mississippi.

**W. T. LEWIS, Lewisburg, Mississippi.**

### From Long-tongued Imported Italians.

Trial queen, 60c; Untested, 75c; \$7.50 per doz. Tested, \$1.25; \$12.00 per doz. Breeders, \$2.00 to \$3.00. Postal orders drawn on Decatur, Mich.

**E. E. MOTT, Glenwood, Mich.**



### RED-CLOVER QUEENS AND ITALIANS BETTER THAN EVER.

Average queen, 75 cts. Untested, \$1.00; tested, \$1.25. Guaranteed to work red clover.

"Our red-clover fields are swarming with your bees," says G. W. Slaybaugh, York Springs, Pa.

Laying queens ready by return mail. Guaranteed to work red clover as well as white.

Send for my new circular; it's free. Root's Bee Supplies for sale. **G. ROUTZAHN, Biglerville, Pa.**

### QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. **OUR MOTTO**—"Whatever ye would that men should do to you, do ye even so to them."

**MALAN BROTHERS, Luserna, San Giovanni, Italy.**

### TRY ONE OF MY \$100 RED CLOVER BREEDER'S DAUGHTERS.

After May 1st, untested, 50c; 13 for \$6.00. Select untested, 75c; 13 for \$9.00; tested, \$1.00; 13 for \$12.00; select tested, \$1.50 each. Breeders, \$2.50 each. Extra select breeders, \$3.00 each. Nuclei, \$1.75 per frame without queen.

**H. A. ROSS,**

**1709 UPPER 2D ST., EVANSVILLE, IND.**



# Queens.

## Quirin-the-Queen-Breeder

is, as usual, again on hand with his SUPERIOR IMPROVED strain of ITALIAN BEES and queens. The editor of GLEANINGS, in observing the handling of our bees last fall, remarked that "such stock is in great demand." Years ago we used to be obliged to buy bees each spring to keep us agoing; but now we sell perhaps a carload each season; get tons of honey, and raise thousands of queens. We have bred our bees for business; they have no superior either side of the ocean. For a dozen testimonials see our full-page adv't in the Dec. 15th number of GLEANINGS, or ask for circulars.

| Prices of Queens before July 1     | 1      | 6      | 12      |
|------------------------------------|--------|--------|---------|
| Select queens.....                 | \$1 00 | \$5 00 | \$ 9 00 |
| Tested queens.....                 | 1 50   | 8 00   | 15 00   |
| Select tested queens.....          | 2 00   | 10 00  | 18 00   |
| Breeders.....                      | 4 00   |        |         |
| Golden five-band breeders.....     | 6 00   |        |         |
| Two-comb nuclei, no queen.....     | 2 50   | 14 00  | 25 00   |
| Full colonies on eight frames..... | 6 00   | 30 00  |         |

Add the price of whatever grade of queen is wanted, with nuclei or colonies, queens ready in April, nuclei about May 10; can furnish bees on Danzenbaker or L. frames; pure mating and safe arrival guaranteed. We employ 400 to 500 swarms in queen-rearing, and expect to keep 500 to 1000 queens on hand ready to mail. Our North-bred bees are hardy, yet gentle; they will give you results. Address all orders to

## Quirin-the-Queen-Breeder, Bellevue, Ohio

### COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.

### Yellow from Tip to Tip!!!

My Adel bees and queens are yellow all over. Every queen a breeder, and guaranteed to produce all golden queens and bees; non-swarmers, gentle, great hustlers; \$1 each.

Catalog ready. H. Alley, Wenham, Mass.

## A RECORD

of the work and results of each colony in our apiaries is kept, and from the best of these is chosen the colony from which are bred

## Extra Honey Queens

Is it any wonder then that they are noted for their honey-gathering qualities. . .

### Prices

One.....\$1.00      Six .....\$5.00      Twelve ..\$9.00

Francis J. Colahan

Bernardo, San Diego Co., Calif.

## Tennessee-bred Queens

From Extra Select Mothers

Three-band from dark leather imported; Moore's long tongue or my own; Golden from Laws, Doolittle's, or my own; Caucasians and Carniolans from direct imported. No disease. Contracts with dealers a specialty. Apiaries from 3/4 to 7 miles apart. Write name on postal, and get circular and what others say.

JOHN M. DAVIS

Spring Hill, Tennessee, U. S. A.

### TAYLOR'S ITALIAN QUEENS FOR 1906

Leather-colored and golden Italians. I have made it a specialty for 13 years to breed for the best honey-gatherers of these races, and I have not been able to get any other stock that will store as much honey as my strains, gentle and beauties. Untested, 75 cts. each; \$8.00 per dozen. Tested, \$1.00, or \$11.00 a dozen. Select tested, \$1.50. Breeders, \$3.00 to \$5.00 each. I guarantee safe arrival on all queens. Untested Caucasians, queens, \$1.00 each. Send your orders to

J. W. Taylor, Beeville, Texas

## Queens - Italian - Queens

and bees from Root's Red-clover stock and Golden Italian queens. Better than ever. Untested.....60c each; six, \$3.50  
Selected untested.....75c " " 4.00  
Tested.....\$1.00 " " 5.00  
Selected tested.....1.25 " "

Two-frame nuclei with untested queen..2.00  
Orders filled in rotation. . Send orders to

E. A. Simmons, Greenville, Ala.

# CARNIOLANS our SPECIALTY

**W**E HAVE bred this race of bees for twenty years, and find they are among the gentlest bees known. Very hardy and prolific, and the best of honey-gatherers, and their combs are of snowy whiteness. We are wintering 50 select imported and 200 best select tested Carniolan queens for early orders.

Also breeders of Golden and Leather Italians. One untested queen, \$1.00; six for \$5.00; twelve for \$9.00. Tested, \$1.50. Best breeder, \$3.00. Best imported, \$5.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in U. S. or Canada. Descriptive list free.

**F. A. Lockhart & Co.,**

## "\$100 Offered for a Carniolan Queen"

We will pay the above sum to any queen-breeder or bee-keeper who can furnish us with a breeding Carniolan queen that is not over one year old, and can prove that she is in no way related to our strain of Carniolans. This queen must be in color a light bronze, large and prolific; her bees very gentle, and every one to have silver-gray bands. Our breeding Carniolans are as described above, and we are willing to pay a good price for a queen that will produce stock in every way equal to our own, and not in any way related.

**Lake George, New York**

# Finest Italian Queens

ALL SEASON I will offer choice Clover Queens and Nuclei, bred from a strictly three-band strain of bees, unsurpassed as honey-gatherers and for prolificness, etc. As to hardness, my strain of bees is simply wonderful. My entire apiary passed this winter on their summer stands, without the loss of a single colony.

Untested queens.....50c      Select untested.....75c

Two-frame nucleus, \$2.00. If with queen, add price of queen wanted. . . . . Ask for my circulars.

**James W. Bain,**

**Marion, Ohio**

# DOOLITTLE & CLARK

are booking orders for their famous Italian queens. Now is the time to order breeders. Send for circular.

| Grade.                      | One    | Three  | Twelve |
|-----------------------------|--------|--------|--------|
| Untested .....              | \$1.00 | \$2.50 | \$9.00 |
| Select Tested .....         | 1.50   | 4.00   | 14.00  |
| Tested (1905 rearing) ..... | 2.50   |        |        |
| Select Breeding .....       | 5.00   |        |        |
| Extra Select Breeding ..... | 10.00  |        |        |
| Two-frame Nuclei .....      | 2.50   | 7.00   | 25.00  |

**DOOLITTLE & CLARK**

**Borodino, Onondaga Co., New York**

# Quality Queens

Are the Best Italians yet.

Send for circular. ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀

**H. H. JEPSON,**

**182 Friend St., - Boston, Mass.**

# Every Bee - Keeper Knows the Worth of a Good Queen

Knows the worth of a good strain of bees, and also knows how worthless is a poor queen and inferior bees. ♀ Try our strain of three-banded Italians. They are bred for business, and will not disappoint you. Home-bred and imported mothers. Tested, \$1.00 each; untested, 75 cts. each; \$8.00 per dozen. . . Send for price list.

**J. W. K. SHAW & CO.**

**Loreauville, : : : : Louisiana**

# CARNIOLAN and ITALIAN QUEENS!

Ready to mail by April 15th. Quality of the highest, prices the lowest. Write me.

**Grant Anderson - Sabinal, Texas**

**Queens!** Three and five band queens; perfect satisfaction and safe arrival. Untested, 60c; select, 75c, or \$8.00 per doz.; tested, \$1.00, or \$10.00 per doz. **R. O. COX, Route 4, Greenville, Ala.**

## ITALIAN QUEENS AND GLEANINGS.

For \$1.10 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

**W. T. CRAWFORD, Hinston, La.**

## Red-clover Italian Queens Exclusively !!

No better honey-gatherers in existence. Select untested, 75c; tested, \$1.00; three-frame nucleus with queen, \$2.00. To prove the quality of my stock I will send two trial queens for a \$1 bill. **F. M. Mayberry, Obelisk, Pa.**

## MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, \$1.00; six, \$5.00; twelve, \$9.00. Tested, \$1.50; six, \$8.00. Best breeders, \$3.50. Safe arrival guaranteed.

**W. H. Rails, - - - Orange, Calif.**

**GRADE ITALIANS** in June. Three Lang. frames of brood, fine laying queen, and lots of bees, \$1.50. **G. W. GATES, Bartlett, Tenn.**

**H. C. Simpson, Catawba, S. C.**

Dealer in

**BEE - KEEPERS' SUPPLIES!**

Breeder of Italian bees and queens. Root's Goods a specialty. . . .

**A. H. Reeves, Perch River, Jefferson Co., N. Y.**

DISTRIBUTOR OF ROOT'S GOODS FOR

**NORTHERN NEW YORK**

**BEE SWAX WANTED**



## Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws apiaries, and double your crop of honey.

### I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season. I also offer another car of bees the coming season.

**PRICES:** Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

**W. H. LAWS, BEEVILLE, BEE CO., TEXAS.**

## Caucasian - and - Italian - Queens

from California

Prices: CAUCASIAN - One tested, \$3.00; one best breeding, \$6.00; one imported from Caucasus, \$7.00. ITALIAN - One untested, \$1.00, six for \$5.50, 12 for \$10.00; one tested, \$1.50; one best breeding, \$5.00. Caucasians bred from the best imported breeding queens. Italians bred from breeding queens we procure from principal breeders of this country who have the best honey-gatherers. Nuclei and full colonies of bees. Send for particulars, and see our adv. in GLEANINGS, February 1st.

**A. E. Titoff, Ioamosa, San Bernardino Co., California**

## CAUCASIAN QUEENS!

For beginners, the timid, and the city bee-keeper. Not stingless, but gentle. With this race many will master the art of handling bees. I breed HIGH-GRADE ITALIAN QUEENS also. The demand for these queens is great; the supply is limited. Write for particulars today. Address

**Robert B. McCain, Yorkville, Ills. R. F. D.**

## Rose - Lawn - Queens

\$25.00 IN PRIZES.

For the largest number of sections No. 1 comb honey produced by a colony headed by one of our "Pure Gold" queens before September 15th, 1906, \$10.00 cash. For the second largest, \$7.50 cash. For the third largest, \$5.00 cash. For the fourth largest, \$2.50 cash. In addition to the above offer we will pay 20 cts. per pound for all prize honey for exhibition purposes.

Select "untested" "Pure Gold" queens, \$1.00. Select tested "Pure Gold" queens, \$2.00. Select breeding queens, \$6.00. Our very finest extra select tested breeders, in 2-fr. nucleus, f. o. b., Lincoln, Neb., \$10.00. We ship in June, 200 "Pure Gold" queens to one customer. Caucasians / Carniolans / Red Clover Italians / Rose Lawn Apiaries, Station C, Lincoln, Nebr.

## California Sage Queens

Old reliable Italian stock from well-known breeders. Bees that get the honey if it's in the field. One select untested, \$1.00; six, \$5.00; tested, \$1.50. Write for a circular.

**J. W. GRIFFIN**  
528 Gladys Av., Los Angeles, Cal.

## The Best Stock

Nice three-banded Italians that are guaranteed to please, or money refunded. The Robey queens now go to nearly all parts of the globe. They are being used by many of the largest honey-producers of this and other countries, who pronounce them to be very superior strain of bees. I have spent 21 years in building up this strain of bees. Warranted purely mated, in any quantity, 60 cts. each; selected warranted, 75 cts. each.

**L. H. Robey, Worthington, W. Va.**

### IT WON'T PAY YOU

to keep those poor colonies when young vigorous queens given to them now will increase your honey crop many times. Italian queens only. I rear my queens carefully, guarantee them good and purely mated, or replaced free on notice. You will find my queens will give you satisfaction. No bee disease here. Prices: Untested, \$1.00; six, \$4.50; dozen, \$8.00; tested, \$1.50; six, \$8.00; dozen, \$14.50; breeders, \$5.00. For larger quantities write for prices.

**M. D. WHICHER, Los Olivos, Cal.**

## Untested Queens!

### Golden Italian

75 cts. each; six for \$4.00; an extra fine one for \$1.00. Warranted purely mated and good queens. . . .

**J. B. Case, Port Orange, Fla.**

1906 Italian and Caucasian Queens. Price list now ready. Write **E. E. LAWRENCE, Doniphan, Mo.**

## Superior Stock

I make a specialty of long-tongue Italian, Carniolan, and Caucasian,

Rearing only from best stock obtainable. My Italian queens are unexcelled; my Carniolans and Caucasians from best imported queens. All races bred in separate yards to insure purity. A postal will bring my price list for 1906.

**CHARLES KOEPPEN**  
Fredericksburg, Va.

# BEES and QUEENS

BY RETURN MAIL.

The Three-banded  
Long-tongued Strain  
of Italians.

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

## Superior Qualities.

Honey-gathering, size of bees, non-swarming, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price

## Quality Our Motto.

1300 colonies to select from.

|                                    |          |             |       |
|------------------------------------|----------|-------------|-------|
| Untested queens.....               | 75c; 6,  | \$4.25; 12, | 8.00  |
| Select untested queens.....        | 1.00; 6, | 5.00; 12,   | 9.90  |
| Tested queens.....                 | 1.00; 6, | 6.00; 12,   | 11.50 |
| Select tested queens.....          | 1.50.    |             |       |
| Breeding queens, \$3.00 to \$5.00. |          |             |       |

Yours for best service,

**The Victor-Knolle Apiary Co.,**  
Hondo, Texas.

# Italian Queens

Northern-bred; originated from best long-tongued "red-clover" breeders in the United States; bred in full colonies; excellent honey-gatherers; winter well, and gentle.

Untested, \$1.00; six, \$5.00. Tested, \$2.00; six, \$10.00. After July 1; 75c, \$4.00, \$1.50, \$8.00. Write for descriptive circular. Satisfaction guaranteed.

**ISAAC F. MILLER,**  
Brookville, (R2), Pennsylvania.

# Boston Headquarters FOR Bees-Queens-Supplies

H. H. Jepson - 182 Friend St.

# Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:

Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

**H. M. PARKER, Jr.**  
James Island, South Carolina

# Italian and Caucasian Queens and Bees



Choice homebred and imported stock. All queens reared in full colonies.

## PRICES FOR JUNE

### ITALIANS

|                               |      |
|-------------------------------|------|
| One untested queen .....      | 90   |
| One tested queen .....        | 1.10 |
| One select tested .....       | 1.40 |
| One breeder queen .....       | 2.20 |
| One-comb nucleus, no queen... | 95   |

Untested queens in May. Safe arrival guaranteed. For prices on quantities, and description of each grade, send for free catalog.

**J. L. Strong, Clarinda, Iowa, U. S. A.**  
204 East Logan Street

# I can Now Furnish You

with the best of queens at 70c each or \$7.00 per dozen. I breed only from imported stock, Leather-banded Italians and Gray Carniolans. I want your orders, and guarantee safe arrival and satisfaction. Write for prices on large orders. Money-order office, San Angelo, Texas. Postoffice, Vigo, Texas.

**J. E. Chambers.**

You are

# Losing Money

by not Introducing  
Our Queens through-  
out Your Apiary. . .

They are bred from pure Italian stock, red-clover strain; hardy Northern grown. Prompt shipments at these prices:

Untested.....\$1.00; \$5.00 for six

Select tested.....1.50; \$7.50 for six

For prices in larger numbers and breeders write us.

Orders for delivery after May 15th now being booked.

Get your order in early.

Handsome booklet mailed free upon request.

**B. C. Terry Co., Hinsdale, Ill.**

# MINNESOTA-BRED QUEENS.



Try our Northern-bred queens—nothing finer; three-banded and golden Italian queens, untested, 75 cts.; tested, \$1.50. Hardy and prolific. We want your orders, and will fill them by return mail, and guarantee safe arrival and satisfaction. Write for circular to

**MENNIE & FENTON,**  
Pine Island, - Minnesota.

# Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

**The JENNIE ATCHLEY CO.,**  
Box 18, Beeville, Bee Co., Tex.

**Queens!** Select three or five banded, \$1.00; tested three or five banded, \$1.25. Ready for delivery April 1st. Write for circular. Daniel Wurth, 1111 No. Smith Street, San Antonio, Texas

# Red-clover Queens from Westwood Apiary

will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.  
Henry Shaffer . . . . . Westwood, Ohio



## Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—To exchange for cornet, offers, or cash, a large watchdog. ADAM McQUEEN, Baltic, O.

**WANTED.**—Second hand typewriter, Oliver preferred, for bees or supplies.  
"Bee Man," Williamsport, Pa.

**WANTED.**—Refuse from the wax-extractor, or slumgum. State quantity and price.

OREL L. HERSHISER,  
301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—You to own good queens; no delays; satisfaction. See my ad. on page 696.  
M. D. WHITCHER, Los Olivos, Cal.

**WANTED.**—For delivery by June 1st six five-banded golden breeding queens, for a special customer. These must be extra-fine breeding stock, golden to the tip. Mention price and full particulars.  
THE A. I. ROOT CO., Medina, Ohio.

**WANTED.**—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.  
H. F. HAGEN, 1632 Blake St., Denver, Col.

## Help Wanted.

**WANTED.**—An experienced bee-keeper. Give references and state wages wanted.  
W. J. STAHMAN, Bruce, Wis.

**WANTED.**—Nurses. The Western Pennsylvania Hospital and Eye and Ear Hospital offer exceptional advantages for training. References required. Apply Superintendent's Office, 1945 Fifth Av., Pittsburg, Pa.

## For Sale.

**FOR SALE.**—400 cols. pure Italian bees in lots to suit. Write for prices. F. A. GRAY, Redwood Falls, Minn.

**FOR SALE.**—Excelsior printing-press (chase 7¼x13¼) and 15 cases type; fine shape. Box 95, Medina, Ohio.

**FOR SALE.**—Bees and bee-supplies.

J. GOBELI, Glenwood, St. Croix Co., Wis.

**FOR SALE.**—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog. F. R. DANIELS,  
117 Florence St., Springfield, Mass.

**FOR SALE.**—My apiary complete in the great irrigated alfalfa belt; no failure yet. See GLEANINGS of Dec. 15, 1903, page 1051. C. K. C., Lovelock, Nev.

**FOR SALE.**—The Alexander wire bee-veil. The best face-protector on the market. Try one and be convinced. At 75c each postpaid.

FRANK C. ALEXANDER, Delanson, N. Y.

**FOR SALE.**—About 300 sixty-pound cans; mostly new, good condition, new cases, two cans to a case; 40 cts. per case, f. o. b. Preston.

M. V. FACEY, Preston, Fillmore Co., Minn.

**FOR SALE.**—Best land for bee-keepers, farmers, dairymen. Cheap. Write us.

WRIGHT-ROBINSON, Cumberland, Wis.

**FOR SALE.**—Bee-supplies, berry-boxes, etc.; best polished sections, \$4.50 per M. Catalog free.

J. J. BRADNER, Marion, Ind.

**FOR SALE.**—Untested Italian queens at 60c, two for \$1.00; tested, \$1.00 each. MRS. J. W. BACON,  
Waterloo, Seneca Co., N. Y.

**FOR SALE.**—Virgin queens from superior Italian stock, virgins, 30c; untested, 60c; tested, \$1.00; by return mail.

YOUNG'S BEE-SUPPLY HOUSE, Boonville, Mo.

**FOR SALE.**—50, or less, 1½-story 8-frame hives, supers, holders, fences, complete (no sections), painted, and in perfect condition; been used one season, good as new; \$1 per hive; changing to 12-frame extracting-hives. A. W. SMITH, Birmingham, Mich.

**FOR SALE.**—Special sale of sections—Wisconsin basswood—equal to the best, No. 1, \$4.20; No. 2, \$3.70. Root Dovetailed and Danz, comb-honey hives, and all kinds of supplies on hand. Italian queens and bees.

H. S. DUBY, St. Anne, Ills.

**FOR SALE.**—200 eight-frame L. hives nailed and painted, some used a little, 75c each; 400 supers to stock, nailed and painted, with best hive-ventilator known, 25c each; section foundation, 50c per pound.

F. H. McFARLAND, Hyde Park, Vermont.

**FOR SALE.**—Second-hand empty sixty-pound honey-cans, two in a crate; in lots of 10, 40c per crate; 25 or more crates at 35c per crate.

THE FRED W. MUTH COMPANY,  
51 Walnut St., Cincinnati, O.

**FOR SALE.**—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to FRANK S. STEPHENS,  
(Root's Goods.) Paden City, W. Va.

**FOR SALE.**—Bees; the right kind, right prices. Safe arrival and satisfaction guaranteed. Ask for illustrated Outfits for Beginners, price list, and our hints on buying bees. MASON SUPPLY CO., Mechanic Fs., Me.

**FOR SALE.**—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season. W. N. CANNON, Greenville, Ala.

**FOR SALE.**—A 40-acre tract of land in the Grand Traverse country, the raspberry region of Michigan, about 25 acres of which are cleared and fenced; a house, barn, bee-cellar, root-cellar, poultry-house, etc. About 350 fruit-trees, 60 of which are bearing; about 75 colonies of bees, and hives for 75 colonies more; also many supers and fixtures, making a complete apiary, in a choice location. CLINTON F. PULSIFER,  
1022 S. Main, Mount Pleasant, Mich.

## Poultry Offers.

**FOR SALE.**—W. P. Rock eggs, \$1.00 per 15; Fishel strain. J. F. SMITH, Waynesville, Ill.

**FOR SALE.**—S. C. W. Leghorn, also S. C. B. P. Rock eggs, 75c per setting. Homing pigeons, colors to suit, 75c per pair. R. H. COLEGROVE, Remus, Mich.

**FOR SALE.**—Rhode Island Reds, White and Barred Rocks, White Wyandottes and Leghorns, Light Brahmas. Farm bred, pure stock. For birds (moderate prices), or eggs to hatch, at 8c each, write

WALTER SHERMAN, No. 100 Boulevard, Newport, R. I.

## Blacks and Hybrids.

Notices in this column are inserted free, and the publishers assume no responsibility for sales made. We believe, however, that every advertiser will do just as he promises.

**FOR SALE.**—50 black queens, 25c each; 50 hybrids, 35c each; 100 fine, bright yellow (warranted pure stock) Italian queens, 75c each. Order now.

W. L. WOMBLE, Raleigh, N. C.

# Bee-keepers' Field Day!

## Tuesday, June 26, 1906.

### Jenkintown, Pa.

So great was the enthusiasm at the meeting held at the Jenkintown exhibition apiary last September, and so numerous were the calls from different parts of the United States, asking us when we would have another such meeting, that it has led us to plan for even a larger and more complete demonstration than was ever held in this country before. The kindergarten method of seeing as well as reading is up-to-date, and we now desire our readers to see these expert writers demonstrate what they say.

THE MEETING will be held at our exhibition apiary all day, commencing at 9:30 A. M., and continuing until 6 P. M., gathering under the trees, with the operators on elevated platforms; also several large circles roped off around the hives in different parts of the apiary, giving the opportunity for a large number of people to see the manipulations around each circle at one time. From the advices we have already received, there is prospect of a much larger attendance this year than ever before. We have also engaged a large hall in the town, within a few minutes' walk from the apiary, where we will meet should it rain, and also hold an evening meeting. Dr. Lyon will exhibit here live bees on the screen, moving pictures, etc. The evening session will give a fuller time for discussion and review of the work of the day.

PROGRAM.—At this date we can not make up the full program, but the following is an outline of just a few of the features:

Mr. E. W. Alexander, Delanson, N. Y., is expected to demonstrate his advanced method of increase, cure for foul brood, and other features. We have received more inquiries for fuller explanations and more satisfaction expressed regarding this writer's articles than any thing we have heard of for a long time.

Mr. E. L. Pratt, the queen-expert—his method in full of breeding queens, comprising nursery-hives, baby nuclei, swarming, increase, and his way of caging queens, etc., showing how queens can be handled from the thorax without injury.

Dr. E. F. Bigelow, Stamford, Conn., with his Educational hive and the Pearl Agnes hives, will explain fully the instructions to educational institutions, the best method of making science practical.

Prof. H. A. Surface, of the Department of Agriculture of the State of Pennsylvania, will tell of the best ways to interest beginners in bee-keeping, and assisting in transferring wild bees from box hives to standard frames.

Mr. W. K. Morrison, who has traveled thousands of miles in the west Indies and South America since leaving this country twelve years ago, will be present with a colony of the wonderful stingless bees from South America; will show their habits, mode of constructing

their cells, honey-receptacles, mud-wax enclosures of their houses, and their attitude of defense without stings; (this alone is worth coming a long journey to see); to give a description of the various bees of the world, with their local conditions and environments.

Mr. W. L. Coggeshall, of West Groton, N. Y., showing his celebrated rapid method of extracting honey and handling bees (getting lots of stings); extracting stings with forceps for medical purposes.

Queen-hunting contest by experts.

Forcing a swarm of bees to alight on the naked arm.

Demonstration by actual results of the different plans of hive construction for comb and extracted honey; tying-up, etc.

A miniature baby-nuclei apiary, showing queens in the different processes of development; their care, etc.; and many other features too numerous to mention.

PLACE.—Jenkintown, Pa., a delightful suburb, ten miles from center of Philadelphia, and the home of Mr. Wm. A. Selser, is reached by the Baltimore & Ohio R. R. from the south; L. V. R. R. from the north; New Jersey Central R. R. from the east, and the P. & R. R. R. from local points. Parties coming through Philadelphia can take a Willow Grove trolley on either Eighth or Thirteenth Sts., and for 10c can ride direct to the field, getting out at the Jenkintown toll-gate.

ENTERTAINMENT.—Arrangements have been made by the Root Co. to provide, free of cost to the visitors, lunch at noon and evening; and for those coming from a distance, arrangements will be made at one of the good hotels for accommodations to stay over night, at the rate of \$1.50 to \$2.00 per day. Reduced rates on the railroad can be had by writing any of the undersigned. We are negotiating with the railroad to run a special train from New York city to the apiary, costing each one \$2.40 for the round trip, and a special train from Washington (details to be given later).

HONEY EXHIBIT.—Bee-keepers are asked to bring samples of their 1906 comb and extracted honey. A prize will be given for the best exhibition of each. We also desire to give a part of the meeting to a general discussion on the 1906 honey crop thus far compared with the last ten years.

Further information and particulars will be given by writing to

The A. I. Root Co., Medina, O.

L. W. Boyden, 44 Vesey St., New York. Phone—543 Cortlandt.

H. G. LaRue, 1100 Maryland Ave., S. W., Washington, D. C. Phone—6021-M.

Wm. A. Selser, 10 Vine St., Philadelphia, Pa. Phone 2443-A Market. Jenkintown. Phone—19-A Ogontz.

Gentlemen:—

This will advise you of my intention to be present at the Bee-keepers' Field Day, June 26.

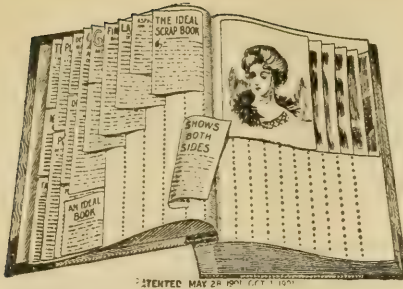
NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

If others attend with you, state number (     )

(The above, if filled out and sent us at once will greatly assist us in laying our plans for your entertainment.)





### IDEAL SCRAP BOOK.

No smearing of fingers with paste or mucilage.  
Both sides of articles can be seen.  
Room under clippings for memoranda. Loose Leaf.  
Enormous capacity. Indexed. Simple. Convenient.  
Practical. Complete.  
For sale by all up-to-date booksellers and stationers.  
Send for our catalog No. 8 of Scrap and Invoice Books,  
and other specialties.

**IDEAL SPECIALTY COMPANY,**  
Manufacturers.

141 S. Clinton St.,  
CHICAGO.

106 Fulton St.,  
NEW YORK.



### LAWN FENCE

Many designs. Cheap as  
wood. 32 page Catalogue  
free. Special Prices to Ceme-  
teries and Churches. Address  
COILED SPRING FENCE CO.,  
Box 448 Winchester, Ind.

## GOLDEN Opportunities!

**E**XIST in the South, and the Seaboard  
Air Line's monthly magazine will  
point them out to you. If you are  
thinking of changing your loca-  
tion, engaging in other business, want a  
winter home, a summer home, or a place  
for all-the-year-round residence, want  
an orange grove, a banana plantation, a  
pineapple grove—in fact, anything, and  
want it in Virginia, the Carolinas, Geor-  
gia, Alabama, or Florida, the magazine  
will assist you.

Sent free on request, together with  
other handsomely illustrated literature  
descriptive of the South and its wonder-  
ful resources and progress.

**J. W. WHITE**

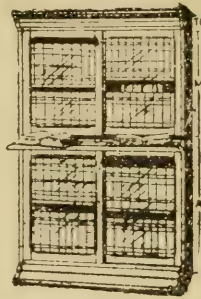
Gen. Indus. Agt., Portsmouth, Va.  
**Seaboard Air Line Railway**

*Are you interested in the great and  
growing South?* If so, send 25 cents in stamps  
or silver and receive the Alabama Times one year.

### THE ALABAMA TIMES

is a large eight-page paper, and is published week-  
ly. It will tell you all about the South. Send in  
your subscription to-day. Address

THE ALABAMA TIMES, Montgomery, Ala.



## SECTIONAL BOOKCASES

Sliding doors, adjustable  
shelves, in Quartered Oak  
and Mahogany. Send for il-  
lustrated free catalog.

**The Cleveland Desk Co.,**  
CLEVELAND, O.

Office and Library Furniture.

## Poultry Magazine,



Monthly, 50 to 100 pages, its writers  
are the most successful Poultrymen  
and women in the United States. It is

### The POULTRY TRIBUNE,

nicely illustrated, brims full each month  
of information on How to Care for  
Fowls and Make the Most Money with  
them. In fact so good you can't afford  
to be without it. Price, 50 cents per year. Send at once  
for free sample and **SPECIAL OFFER TO YOU.**

R. R. FISHER, Pub., Box 85, Freeport, Ill.

## You Need It. . . . .

If you have only a few chickens;  
If you are at all interested in poultry;  
If you are breeding for fancy points;  
If you cater to the market trade;  
If you are in the business on large scale, you need

## Ohio Poultry Journal

the paper published in the interest of the farmer, begin-  
ner, and small breeder, with plenty of pointers for the  
experienced fancier. Each month is especially edited  
for the needs of that special season of the year. Regu-  
lar price is 50 cts. a **AT HALF PRICE**  
year, but we offer it to introduce it to readers of Gleanings.  
for a short time to introduce it to readers of Gleanings.  
Send only 25 cts. and get it a year; or, if you send us \$1  
for a year's subscription to Gleanings in Bee Culture,  
we will send you Ohio Poultry Journal for a year free.  
Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.

## \$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size  
8x11 $\frac{1}{4}$  inches) of valuable poultry, pigeon, and  
pet-stock reading, costing you thousands of dol-  
lars to procure. Also your name and address in  
the "Poultry-breeders' Directory" for 10 years;  
revised yearly. Send \$1.00 to-day, and address

Poultry Item, Sellersville, Bucks Co., Pennsylvania

## DO YOU RAISE CHICKENS?

If so, you will find The Poultry Gazette a  
welcome monthly visitor to your home. A  
down-to-date, practical poultry magazine  
that is the acknowledged leader of all West-  
ern poultry papers; ably edited; profusely  
illustrated. Subscribe now, while the price  
is only 25 cts. a year. If you have poultry to  
sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

## TO THE BEE-KEEPERS OF CANADA

WE ARE pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we are not able to offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers. Moreover, what we do list we propose to keep in large quantities, and will be able to ship promptly.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

### E. GRAINGER & COMPANY

Deer Park

Toronto - Ontario - Canada

CANADIAN AGENTS FOR  
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

## Root's Bee - supplies

You know what this means. Four carloads of new goods on hand. Our business increased last year 100 per cent over 1904. This is proof that we are saving our customers money. Why not let us do the same for you? Low freight rates from Toledo. Large discounts. It tells the story. Two per cent discount this month on bee-supplies. . .

## Model Incubators. . . . . . and Brooders

Made by Charles A. Cynhers. Poultry-supplies of all kinds. Eggs for setting and stock for sale. Our new eighty-page illustrated catalog describes all of these well-known goods. Sent free. Don't be without it. Don't delay. Send to day.

### Griggs Brothers

523 Monroe St. : Toledo, Ohio

# CENTRAL AND NORTHERN PENNSYLVANIA

Distributor of Root's Goods from the  
Best Shipping - point in this State.  
WHOLESALE - AND - RETAIL

I sell at catalog prices, and, with the low low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also rear Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

## E. E. PRESSLER, WILLIAMSPORT, PENN.



# SUPREME EXCELLENCE

is only another name for OUR Make of

## BEE-KEEPERS' SUPPLIES

---

Have you ever used them? If not, give us a trial order this spring. We will do our best to please you. Our prices are as low as any; and if our goods aren't as we claim you'll not have to pay for them.

We have published the AMERICAN BEE-KEEPER for nearly sixteen years. It is the largest and best illustrated magazine of its kind for the price. Edited by two of the most experienced bee-keepers in America; monthly; 50c a year. Sample copy and our large illustrated price list of supplies free on application..

**The W. T. Falconer Manufacturing Co.**  
Jamestown, New York

### Dadant's

# Foundation

### It Excels

**Every Inch Equal to Sample**

---

Beauty! Purity! Firmness!  
No sagging; no loss.  
Twenty-eighth Year.  
We Guarantee Satisfaction.  
Wax Worked into Foundation.

~~~~~

Bee-supplies of All Kinds

~~~~~

Beeswax wanted at all times.  
Send for Our 1906 Catalog.

~~~~~

Dadant & Sons, Hamilton, Ill.

New Goods-Big Stock

New Warehouse, Root's Goods,
Prompt Shipment, Low Freight.

Everything for the Bee-keeper at Savannah, Ga.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. . . .

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog sent free. Correspondence solicited. .

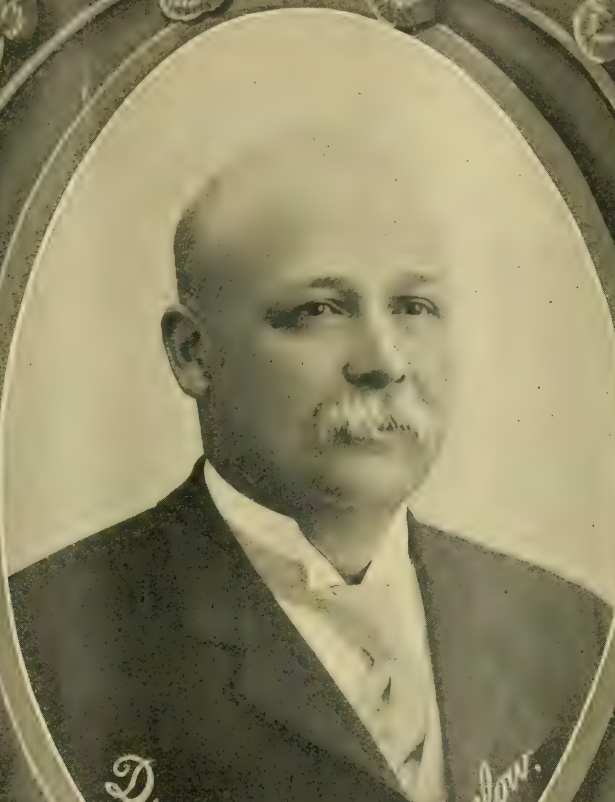
HOWKINS & RUSH

124 West Liberty Street

SAVANNAH - - GEORGIA

GLEANINGS

IN BEE CULTURE



Dr. Edward F. Bigelow.

THE A. I. ROOT CO.
MEDINA, OHIO.

Eastern Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

Washington, D. C.

A convenient place to get your supplies. Lowest rate by rail and water to all parts of Virginia and South Atlantic States.

We carry a full line of our goods at this branch, and give you prompt and satisfactory service. Give us a trial.

Write for catalog.

The A. I. Root Company

H. G. La Rue. . . Manager
1100 Maryland Av., S. W.
Washington, D. C.

MISSISSIPPI

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders. . . .



Bees and Queens

from Select Stock

Correspondence Solicited.

GEO. A. HUMMER,
BRAZELIA, - MISSISSIPPI
Shipping-point, Macon

Bee-Supplies

For Southern

Bee-Keeper's

I have been over 20 years in the bee-supply business, manufacturing hives and fixtures, and raising bees and queens. With all this experience and the excellent facilities I have, I am able to fill your orders promptly, and give absolute satisfaction. Though I make my own hives I carry a complete stock of The A. I. Root Company's manufacture. Just specify "Root's Goods" and you will get them.

Bees and Queens

I breed with scientific, intelligent methods, from the best imported and long-tongued stock. Cheap queens may be had elsewhere. My stock is worth every cent of the price. You will be pleased with it. I GUARANTEE IT.

64-page Catalog

of Supplies and Bees sent free. Tell me you saw my ad. in GLEANINGS.

J. M. JENKINS

WETUMPKA : ALABAMA

Booking Orders!

for our celebrated Red-clover and Leather Color Italian Queens. We can supply nucleus or bees by the pound after June 15th, but you should send in your order now, as we fill all orders in rotation.

Order your sections and supers now, so you will have them in readiness for the honey flow.

Send for price list of bees, queens, and hives.

W. W. Cary & Son, Lyonsville, Mass.

NORTHEASTERN & NEW ENGLAND BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusively, at Root's Factory Prices.

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled, the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is there will be "Fancy White," "No. 1 Dark," etc.

TOLEDO.—The market in comb honey remains rather quiet. Stock is pretty well cleaned up now. On account of the strawberry season, demand is very light. Fancy white clover would bring 16; No. 1, 15. Extracted white clover in barrels brings 6½ and 7; cans the same; amber in barrels brings 5 to 5¼; cans the same. Beeswax is firm at 28 and 30.

June 9. GRIGGS BROTHERS, Toledo, Ohio.

CHICAGO.—The honey market is in about the same condition as when we last quoted; very little call for either comb or extracted. White comb, No. 1, 15; other grades, 10 to 14. Extracted white, 6½ to 7; amber, 5 to 6. Beeswax, 30.

June 5. R. A. BURNETT & Co., 199 South Water St., Chicago, Ill.

MILWAUKEE.—We continue to quote honey, fancy 1-lb. sections, 16 to 18; off grades nominal, 8 to 10; extracted in barrels, cans, and pails, free from acid, 7 to 8; amber dark, nominal, 6 to 7. Beeswax, 26 and 30.

May 27. A. V. BISHOP & Co., 119 Buffalo St., Milwaukee, Wis.

KANSAS CITY.—The honey market here remains a little dull on account of there being very little honey here, and no demand. We believe the first new honey will sell at \$3.25 to \$3.50, for 24-section white comb. Some little honey is beginning to move now. Extracted is dull, and price cuts very little figure in movement of same.

June 9. C. C. CLEMONS & Co., Kansas City, Mo.

PHILADELPHIA.—There is no new honey arriving in this market as yet, and so few lots of old honey sold that we can not establish any price. Some little lots of Southern extracted honey have arrived in barrels. We quote: New Southern honey, light amber, 6¼; amber, 6. Beeswax selling freely at 29. We are producers of honey and do not handle on commission. WM. A. SELSER.

June 11. 10 Vine St., Philadelphia, Pa.

ATLANTA.—As the season advances it develops that there is a better crop than was first reported. Comb honey is coming more freely; however, we are finding a ready market for it at the following prices: Fancy white, 12½ to 14; A No. 1, 12 to 13; No. 1, 10 to 11. Extracted is going slowly at 6½ to 7 for white, and about 1 ct. less for amber. Beeswax, 28 to 30.

June 11. JUDSON HEARD & Co., Atlanta, Ga.

BUFFALO.—There is very little demand for honey now. There is no white comb here. If there were it would sell well at about 15; some candied and No. 2, also some dark comb here; but trade buys only a little when forced to get some. There will not be much more trade for honey until new commences to come.

June 13. W. C. TOWNSEND, Buffalo, N. Y.

ST. LOUIS.—Since our last there is no change noticeable in our honey market. It is very dull on all grades except that there is a good demand for choice new comb honey. We quote: Fancy white comb, 14 to 14½; No. 1, 13 to 13½; amber 12 to 12½; extracted California light amber, 6 to 6½, according to condition and quantity; Spanish needle, 6½ to 7; Southern in barrels, old, 4 to 4¼; new, 4½ to 4¾; in cans, 5 to 5½ for old, and 6 for new. Beeswax, prime, 29½; all impure and inferior, less.

June 12. R. HARTMANN & Co., St. Louis, Mo.

DETROIT.—Very little honey in market, and demand is light; but prices are ruling rather high. Comb honey, A No. 1 and No. 1, 16; extracted, 7 to 7½, with very little demand. Beeswax, 28 to 30c. No prospect of any change until new crop is in.

May 26. M. H. HUNT & Son, Bell Branch, Mich.

FOR SALE.—Thirty 5 gallon cans of clover honey. Single can, 7½ cts. per lb.; two or more at 7 cts.

C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Fourteen cases amber honey in new five-gallon tins, candied solid; price 5 cts.

C. E. FOSS, Alpine, San Diego Co., Calif.

FOR SALE.—Extracted honey. Write for prices. State quantity and kind wanted. Samples free.

HILDRETH & SEGELKEN, New York, N. Y.

FOR SALE.—California light amber, in 60-lb. cans, 5¼c; California water-white, in 60-lb. cans, 6¼c; Wisconsin light amber and buckwheat, in 250-lb. barrels, 5c; sample, 10c.

E. R. PAHL & Co., 294-6 Broadway, Milwaukee, Wis.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.

O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

BEE-SUPPLIES.

We handle the finest bee-supplies, made by the W. T. FALCONER MFG. Co., Jamestown, N. Y. Big Discounts on early orders. Let us figure with you on your wants.

MUTH SPECIAL DOVETAIL HIVES have a honey-board, warp-proof cover and bottom-board. Think of it. Same price as regular styles. Send for catalog.

The Fred W. Muth Company, Cincinnati, Ohio
51 Walnut Street

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT, 199 South Water St., Chicago, Ill.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. GRIGGS BROS., Toledo, Ohio.

WANTED.—Comb and extracted honey. State quality, quantity, and price. JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us. EVANS & TURNER, Columbus, Ohio.

WANTED.—Beeswax. We are paying at this date for pure average beeswax delivered at Medina or any branch office named below, 28 cts. in cash or 30 cts. per lb. in exchange for bee-supplies, less transportation charges. We can not use old combs. Pack securely and address plainly. Be sure to send bill of lading when you make shipment, and advise us how much you send, net and gross weights. Ship to home office or nearest branch named below.

THE A. I. ROOT CO.,
Medina, Ohio.

Chicago, 144 East Erie St.; New York, 44 Vesey St.; Philadelphia, 10 Vine St.; Washington, 1100 Maryland Ave., S. W.

WANTED.—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.

THE A. I. ROOT CO., Medina, Ohio.

JELLY-TUMBLERS AT REDUCED PRICES.

You can double your money from your honey crop by using Jelly-Tumblers of correct style, as containers and keeping your market supplied. No other glass so economical. Write for quotations.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

H. C. Simpson, Catawba, S. C.

Dealer in

BEE - KEEPERS' SUPPLIES!

Breeder of Italian bees and queens.
Root's Goods a specialty.

A. H. Reeves, Perch River, Jefferson Co., N. Y.

DISTRIBUTOR OF ROOT'S GOODS FOR

NORTHERN NEW YORK BEESWAX WANTED

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

A GOLD MEDAL

at the World's Fair,
St. Louis, 1904.



20th CENTURY

**UP-TO-DATE,
STRONGEST,
COOLEST,
CLEANEST.**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Platteville, Wis.

SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker." Grant Stanley, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

F. DANZENBAKER, MIAMI, FLORIDA

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.

POULTRY DOLLARS COME EASY.

Our large 52 to 112 page beautifully illustrated magazine, best printed and edited poultry journal, makes it easy to add dollars to your income by keeping a few hens on a town lot or make a success on a large scale, covers every thing. Contains information that will put you in comfortable circumstances if followed. **POULTRY SUCCESS** one year, 50 cts. Large illustrated poultry book free to annual subscribers. Three months' trial, 10 cts. **POULTRY SUCCESS CO., Springfield, Ohio.**

KEEP YOUR EGGS

all summer while prices are low, and sell next winter at a good profit. Write for our plan; it will interest you. T. T. POULTRY CO., Springfield, Ohio.

GET RID OF LICE.

For 25 cts. we send formula that never fails to exterminate lice. Costs less than 8c per lb. to make. Guaranteed. Used by many leading poultrymen.

T. T. POULTRY CO., Springfield, Ohio.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

E. R. ROOT
Editor

A. I. ROOT
Editor Home Departments

H. H. ROOT
Asst. Editor

Department Editors:
DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE,
LOUIS H. SCHOLL, G. M. DOOLITTLE, W. P. ROOT.

J. T. CALVERT, Business Manager

A. L. BOYDEN, Advertising Manager

Circulation 30,000. Reaches every State and 60 foreign countries.
Established in 1873. Sixty-four pages. Semi-monthly.
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

Terms---\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.

Postage is Prepaid by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS., 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 6/.*

Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publisher.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY.....STATE.....

DATE.....if you want Gleanings discontinued at expiration, check here ()

500 COLONIES

of bees will be under the charge of the editor of the Bee-keeper's Review the coming season—100 colonies at home and 400 in the wild picturesque region of Northern Michigan. A brother of the editor is moving to this region this spring, where, aided by his boys and the Review editor, he will manage a little over 400 colonies for the production of extracted honey. Over 300 colonies will have to be moved there, some by wagon and 100 by rail, accompanied by the editor.

The locations have already been selected, and the Review for May devotes several pages to an account of this initial trip north, giving views and descriptions of that region, showing how to select the most desirable location, the difficulties to overcome, etc.

Next will come the moving of the bees, the establishing of the apiaries, the building of the honey-houses and the cellars, the extracting of the honey, etc. The editor of the Review, accompanied by his camera, will be in the "thickest of the fight," and all will be faithfully described and profusely pictured in the Review.

Send \$1.00 for the Review for 1906, and what back numbers there are left of 1905 (some seven or eight issues now) will be sent free.

If you would like to see the Review before subscribing, send ten cents for three late but different issues, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, Flint, Mich.

HERE'S YOUR CHANCE

to win a prize by doing a little work in
obtaining subscriptions for Gleanings
in our Second Subscription Contest.

Last contest EVERY contestant that sent in more than ONE subscription obtained a prize. It will doubtless be so in this contest, so that besides the regular commission you will receive a prize that will more than pay any effort made.

Twenty-five Prizes!

(Variety of queen to be winner's selection)

First Prize \$10.00 queen
Second Prize 7.50 queen
Third Prize 5.00 queen

Fourth Prize 3.00 queen
Fifth Prize 2.00 queen
6th to 15th Prize One cloth-bound A B C
16th to 25th Prize One Junior Corneil smoke

Conditions!

FIRST.—That subscriptions to be entered in this contest are to be obtained as results of work between February 15 and July 1, 1906.

SECOND.—To be eligible to any one of the first fifteen prizes, contestant must have at least five yearly subscriptions, or their equivalents, to his credit.

THIRD.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

FOURTH.—That subscriptions can be sent in any time, but must be plainly marked "For Second Subscription Contest."

CUT HERE

Gleanings in Bee Culture

Subscription Contest Department.

Date

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Please send agents' terms and enter my name as contestant in Second Subscription Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions and agree to them.

Name

P. O.

I can use sample copies of Gleanings. State

CONTENTS OF THIS NUMBER.

MARKET QUOTATIONS.....	782	HEADS OF GRAIN.....	824
STRAY STRAWS.....	791	J. E. Chambers' Non-swarmling Plan.....	824
EDITORIAL.....	793	Feeding by Setting Hive on Bottom-boards.....	824
The Pure-food Bill Hanging Fire in Congress.....	793	Double-bottom-board plan to Keep down Increase.....	825
Making a Newly Hived Swarm Contented.....	793	Curious Bee-tree.....	825
Obstructed Entrances.....	794	Yellow Spider.....	825
What Shall the Harvest be.....	794	Bee-keeping in State of Washington.....	826
Dr. Edward F. Bigelow.....	794	Honey in Brood-nest when Running for Honey.....	826
Big Field Day at Jenkintown.....	795	Necessity of Queen-breeder having Imp'd Queens.....	826
Fatalities from Bee-stings.....	796	How Some People Handle Bees.....	827
CONVERSATIONS WITH DOOLITTLE.....	797	Alexander Plan.....	827
BEE-KEEPING IN THE SOUTHWEST.....	798	Vertical vs. Horizontal Wiring.....	827
GENERAL CORRESPONDENCE.....	799	Plan for Getting Bees out of Wall of Building.....	827
Is Thin Sugar-fed Syrup same as Honey.....	799	Question Concerning Reason and Instinct.....	827
Alexander's Honey-tanks.....	801	Honey in Brood-combs.....	827
Cyrenius Hive-lift.....	802	Bee-keeping in Western North Carolina.....	828
Comb Honey by the Two-queen System.....	803	Does Feeding Pay?.....	828
Comb Foundation.....	804	Southern Queens for Northern Apiaries.....	828
Foul Brood.....	806, 807	Preparing Hives for Moving by Carload.....	829
Lighter Grades of Brood Foundation Condemned.....	808	Bee-spaces between Supers.....	829
Wax-rendering.....	810	Comb Attached to Separators.....	829
Alsike.....	811	Clipping Queens.....	830
Control of Swarming.....	811	Alexander Methods.....	830
How We Know that Bees Hear.....	812	Do Queen-bees Take a Cleansing Flight.....	830
Photograph of Live Bee Sipping Nectar.....	814	Crocus-blossoms.....	831
Good Report from Northern Michigan Bee-keeper.....	814	Changing Hives while Swarm is in the Air.....	831
Transferring Excursion.....	815	How to Get Rid of Laying Workers.....	831
If I were to Start Anew.....	816	Grape-basket on Pole for Swarm-catcher.....	831
How to Handle Hives without Killing Bees.....	819	Outdoor Feeding.....	831
A YEAR'S WORK IN AN OUT-APIARY.....	821	Hiving on Starters of Foundation Unsuccessful.....	831
		OUR HOMES.....	932
		SPECIAL NOTICES.....	938

INDEX TO ADVERTISEMENTS.

Banking by Mail.		Crawford, W. T.....	846	Fences.	
Savings Dep. Bank Co.....	834	Darrow, C. M.....	848	Coiled Spring Fence Co.....	852
Bee Smokers.		Davis, John M.....	846	Honey-buyers.	
Bingham, T. F.....	843	Doolittle & Clark.....	847	See page.....	782-783
Danzanbaker, F.....	783	Jepson, H. H.....	847	Household Specialties.	
Bee Supplies.		Koeppen, Chas.....	847	Best Light Co.....	852
Cook, J. H. M.....	837	Krechlan, D. F.....	837	Horne Co., Joseph.....	834
Falconer Mfg. Co., W. T., Back Cover		Lawrence, E. E.....	848	Machinery.	
Hershiser, Orel L.....	782	Laws, W. H.....	848	Deming Co.....	837
Hilton, Geo. E.....	843	Lewis, W. T.....	847	Electric Wheel Co.....	852
Hunt & Son, M. H.....	788	Lockhart & Co., F. A.....	847	Lyons Engine Co.....	835
Jepson, H. H.....	848	Malan Brothers.....	847	Medina Concrete Co.....	857
Kretschmer Mfg. Co.....	842	Mayberry, F. M.....	847	Myers & Bros., F. E.....	837
Lewis Co., G. B.....	790	McCain, Robert B.....	848	Miscellaneous.	
Marshfield Mfg. Co.....	814	Mennie & Fenton.....	849	Best Gate Co.....	836
Minnesota Bee Supply Co.....	837	Miller, I. C.....	849	Hardware Specialty Co.....	834
Muth Co., Fred W.....	782	Miller, Isaac F.....	849	Seaboard Air Line R. R.....	852
Page & Lyon.....	841	Moore, J. P.....	847	Shepard Co., O. C.....	834
Pierce.....	843	Mott, E. E.....	848	T. T. Poultry Co.....	783
Pouder, Walter S.....	840	Parker, Jr., H. M.....	849	Publishers, Agricultural-paper.	
Prothero, Frank W.....	844	Quirin the Queen-breeder.....	846	Southern Fruit Grower.....	783
Reeves, A. H.....	783	Rails, W. H.....	847	Publishers, Bee-journal	
Root Co., The.....	844	Rambo, J. R.....	846	Falconer Mfg. Co., W. T., Back Cover	
Root Co., The, Syracuse, N. Y.....	789	Robey, L. H.....	848	Hutchinson, W. Z.....	785
Root Co., The, St. Paul, Minn.....	841	Roselawn Apiary.....	848	Root Co., A. I.....	784-785
Scott & Co., C. M.....	842	Routzahn, G.....	846	York & Co., Geo. W.....	789
Soper.....	843	Shaffer, Henry.....	847	Publishers, Poultry-paper.	
Stringham, I. J.....	841	Shaw & Co., J. W. K.....	847	Ohio Poultry Journal.....	852
Weber, C. H. W.....	784	Simmons, E. A.....	846	Poultry Gazette, The.....	852
Woodman Co., A. G.....	842	Simpson, H. C.....	783	Poultry Item.....	852
York Honey & Bee Supply Co.....	843	Strong, J. I.....	849	Poultry Success.....	783
Bees and Queens.		Taylor, J. E.....	849	Wants and Exchanges.	
Alley, Henry.....	846	Titoff, A. W.....	848	See page.....	850
Anderson, Grant.....	846	Victor-Knolle Apiary Co.....	849		
Atchley Co., The Jennie.....	849	Wurth, Daniel.....	849		
Blocher, D. J.....	849	Bee-books.			
Case, J. B.....	848	York, George W.....	789		
Colahan, F. J.....	846	Comb Foundation			
Cox, R. O.....	847	Dadant & Son.....	Back Cover		
		Dittmer, Gus.....	841		

ADVERTISING TALKS

BY THE AD. MAN.

The following clipping from the New York *World* emphasizes what we have been saying right along.

Don't advertise if you believe you are wasting money. Let your competitor waste the money on advertising, and perhaps in this way you'll soon put him out of business. Just stand back and laugh at him when you see him squandering his money for printer's ink. Once there was a boy named— we think his last name was Wanamaker, or may be Moneymaker; anyhow, his name was John, with some sort of a maker attached to his last name. He owned fifty yards of calico, three pairs of jeans, half a dozen pairs of boots. He called this a drygoods store through a Philadelphia newspaper, and offered to sell a pair of socks for 39 cents.

The don't-believe-in-advertising merchants just laughed. Young John spent \$65 with a Philadelphia paper to advertise just one time and less than \$100 worth of goods. He was cautioned by the merchants who knew it didn't pay. It was through sympathy that they offered him advice.

But John did not listen to them, and went and blew his money foolishly; and to-day poor John sees the result of his misdoings—he has so many large drygoods stores that he can hardly find time to study his Sunday-school lesson. Can you see a lesson in this? Be a progressive up-to-date business man. Advertise your wares if you want to sell them.

Some of the most skeptical merchants, when finally induced to advertise, become the merchants of prominence.

There is a wonderful field before any business man who has a good proposition, and who will carefully and constantly advertise. Repeating your ad. time after time is just the same as inviting Mr. Brown or Mrs. Smith to call again.

Just a few days ago we heard from a man who had never run his ad. in a paper of the class of GLEANINGS. He said he did not know any thing about bee-keepers. He seemed to think that they were a foreign race of people who had no such needs as the rest of us do. When he finally decided to try this journal he did it in a half-hearted way. But the result—well, his ad. appeared more than once, and will appear again in spite of the fact that the article he sells retails at from one to three dollars, and his ad. costs him nearly \$10 an insertion.

What is there about your proposition that makes it one which would not appeal to our readers? May be you would like to ask us a few questions about how best to bring your offer before our subscribers. We shall be very glad to have you do this, and are sure that you will value the assistance we can give.

The Medina Concrete Company has just issued a four-page folder entitled "Our Special." This folder shows four styles of their concrete machines, and gives information about building, concrete-block making, and instructions for mixing materials and making blocks.

Judging from the large number of machines which this company has sold this spring, concrete building-blocks are a very popular material for construction; and their machines, being so easy to operate and perfect in results, are coming into wide use.

Their address is The Medina Concrete Company, 22

Court Street, Medina, Ohio, and you should ask them any questions in regard to their machines or building-blocks, which you would like to have answered.

On page 834 of this issue our readers will find the ad. of Shepard's chick food, prepared by The O. C. Shepard Co., Medina, O. Mr. E. R. Root says of this food:

Until I used the chick food which I procured from the Shepard Company my hens were not laying. I was greatly surprised at the results after I had commenced feeding chick food to them. I am sure that this is a very valuable mixture for poultry, and advise any part of our readers who keep chickens, and want to secure the best results, to try it.

You will note that the Shepard Co. have told what their chick food is made of, and also have, at our request, quoted a special low price to bee-keepers who may wish to give it a trial. You will make no mistake by sending for a 100-lb. sack; but if you would prefer to have a sample first, send for this any way. Address as above.

When others report such profitable results how can you afford to keep silent?

The A. I. Root Co., Medina, Ohio:

Gentlemen:—Kindly discontinue my ad. in GLEANINGS with the issue of May 15th. It has brought me more business than I can attend to.

Norwalk, Ohio, May 12.

GEORGE W. BARNES.

Mr. Barnes told the "ad. man" a few days ago that, when he ordered his one-inch ad. in, he had about 50 queens for sale. He sold nearly 200 while his ad. was running (6 times). He was very much surprised at the results, as he had never advertised queens before, and had no reputation as an expert queen-breeder. He possessed, however, the ability which enabled him to raise fine queens, and the confidence in GLEANINGS which led him to try it as an advertising medium.

A brother of Mr. Barnes advertised poultry in GLEANINGS two or three times this season, and found, as did Mr. G. W., that here was a good advertising medium.

Ask yourself if you can afford to miss a single number of GLEANINGS.

Gentlemen:—Find enclosed \$1.00, for which please send another year's subscription to GLEANINGS IN BEE CULTURE.

I thought my time was out with June 1st number, but I have not as yet received the May 15th. I don't want to miss any of the numbers.

Yours truly,

HALLOCK SHEARER,

Sec'y of the Wabash County Farmers' Institute and Domestic Science Association.

When are you going to make your start—now or in ten years?

Ten years from now there will be people explaining the advertising successes developed within the decade just passed, by saying "anybody would have succeeded if he had started when they did."—*Mahlin's Messenger*.

The Largest and Oldest Bee-Supply House in Michigan.

ESTABLISHED IN 1878.

Our business has been of steady healthy growth for nearly thirty years. It has been built up on our part by prompt service, courteous treatment, and careful attention to every detail.

The goods we sell are ROOT'S GOODS. They have a quality of their own. We call it "ROOT QUALITY." It's the extra pains taken to have the workmanship and material of the very best.

SOME OF THE NEWEST!

Alexander Feeders

Metal-Spaced Hoffman Frames

German Bee-Brushes

Everything for the bees and always "ROOT QUALITY."

M. H. Hunt & Son,
Bell Branch, Wayne Co., Mich.



This Offer Good Until July 1st Only !

**DOOLITTLE'S
QUEEN-REARING
BOOK**

For Only 25 Cents



When taken with the Weekly American Bee Journal for One Year at \$1—making \$1.25 for both.

(Book bound in Leatherette cover, otherwise same as the cloth-bound book, which is \$1.)

This offer is open to any body, either new or old subscribers, but the latter when accepting it must send enough to pay their subscriptions a year in advance, if they are in arrears now.

Mr. Doolittle's book tells in detail just how he rears the best queens possible; also gives **His Methods of Comb Honey Production**. Every bee-keeper should have this book. (126 pages.)

OUR STANDARD-BRED ITALIAN QUEENS

are unexcelled. Reared by best queen-breeders. Prices—1 Untested, 75c; 3 for \$2.10; or 6 for \$4.00. Orders filled in rotation. Better get your orders in **NOW** for June delivery.

The Weekly American Bee Journal one year with Untested Italian Queen—both for \$1.50. And to all such who order, and who are **NEW** subscribers, we will send **FREE** all the back numbers of the Bee Journal since Jan. 1, 1906, so long as they last. We have quite a few full sets left since Jan. 1. First come, first served.

Sample copy of the Weekly Bee Journal free on request, or a **Trial Trip** of 3 months (13 copies) for only 20 cents, to a new reader. Better order now, as there are lots of good things appearing in its columns every week.

Address,

GEORGE W. YORK & CO.

334 Dearborn Street, CHICAGO, ILL.



Mr. Bee-keeper

Just a minute of your time, please. Swarming will soon be over and honey coming in. We can send foundation and sections, if you need them, by express promptly.

The A. I. Root Company
Syracuse, New York

5 Points of Comparison

JUST recently a Lewis agent complained that another concern was selling a hive cheaper than the Lewis hive, with the statement that he could not understand how that firm could afford to undersell the Lewis Company. We straightway had one of these so-called cheap hives sent to us at Watertown, and, after a careful and unbiased inspection of the hive in comparison with the Lewis hive, we are able to give the answer as illustrated below.

I. The Material was a poor quality pine, containing knots and other imperfections.	Lewis Hives are all made of the best Wisconsin white pine, absolutely clear.
II. The Cover was of the simplest and cheapest design.	Lewis Covers are all standard covers, made strong and substantial.
III. The Body was crudely made, having no handles.	Lewis Bodies go together snugly, and are all fitted with handles.
IV. The Frames were very poorly made, the end-bars rough-sawn, showing poor spacing, and were not pierced.	Lewis Frames are accurately and carefully made to give correct bee-spacing; and in the Dovetailed and Wisconsin hives are always pierced.
V. The Super contained no super-springs. The slat fences were made of thin flimsy pieces, so thin as to be easily broken even by shipment. The section-holders and section-slats were rough on both sides.	Lewis Supers are all completely furnished with super springs. The fences are made of strong pieces firmly put together. The slats and section-holders are made of good lumber smoothly planed.
Summing up the Matter, it was like comparing a soap-box with a parlor cabinet.	

Mr. Bee-keeper, Which will You Have?

ENGLAND—E. H. Taylor, Welwyn, Herts.
 CUBA—C. B. Stevens & Co., Havana.
 C. B. Stevens & Co., Manzanillo
 CALIFORNIA—Chas. H. Lilly Co., San Francisco.
 SOUTHERN CALIFORNIA—
 Fletcher-Doyle Co., San Diego.
 Fallbrook Co-operative Association, Fallbrook.
 Paul Bachert, Lancaster.
 COLORADO—R. C. Aikin, Loveland.
 Arkansas Valley Honey-producers' Ass'n, Rocky Ford.
 Colorado Honey-producers' Association, Denver.
 Fruit Growers' Association, Grand Junction.
 Robert Halley, Montrose.
 IOWA—Adam A. Clark, LeMars.
 Louis Hanssen's Son, Davenport.

ILLINOIS—York Honey & Bee Supply Co., 141-143 Ontario St., Chicago.
 Dadant & Son, Hamilton.
 INDIANA—C. M. Scott & Co., Indianapolis.
 MICHIGAN—A. G. Woodman Co., Grand Rapids.
 MINNESOTA—Wisconsin Lumber Co., 432 Lumber Exchange, Minneapolis.
 MISSOURI—E. T. Abbott, St. Joseph.
 OHIO—Norris & Anspach, Kenton.
 OREGON—The Chas. H. Lilly Co., Portland.
 PENNSYLVANIA—Cleaver & Green, Troy.
 TEXAS—Southwestern Bee Co., San Antonio.
 UTAH—Fred Foulger & Sons, Ogden.
 WASHINGTON—The Chas. H. Lilly Co., Seattle.

G. B. LEWIS CO.

Manufacturers Bee-keepers' Supplies
 WATERTOWN, WIS., U. S. A.

GLEANINGS

IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

JUNE 15, 1906.

No 12



R. C. AIKIN's plans, p. 731, are so thoroughly logical that it almost makes one fall in love with the sectional hive.

"THE GERMAN CENTRAL UNION of beekeepers numbers 30,809 members." That statement, made on p. 715, needs correction. A later numbering makes the number 50,000.

REIDENBACH, editor *Pfäzler Bienenzeitung*, has made repeated observations, and finds the temperature of the center of the cluster in the coldest weather 86 to 92°, and the periphery, or crust, 59 to 73°.

BAREHEADED BROOD is caused by worms, says Dambach, in *Schweiz. Bztg.* Just what I said years ago. Proof lies in the fact that it does not occur in strong and prosperous colonies, and always in rows or spots.

PROF. SURFACE, you have stirred me all up by saying in your list of Pennsylvania honey-plants, "alfalfa, where grown." Please tell us more about it. Does it yield in every locality where grown? It grows here, but as yet there is no proof that it yields.

YOU THINK, Mr. Editor, that climatic conditions may account for the delay in queens hatching. Quite right. Another thing that may make even more difference is strength of colony. Careful and repeated experiment may very likely establish 17 days as the correct time from the laying of the egg to the emerging of the queen, *if the experimenting be done in a nucleus weak enough.*

J. E. CRANE'S "crumb of comfort for Dr. Miller," p. 721, is more than a crumb. It's a whole loaf. Nor does the comfort consist in the fact that hybrids give more honey than pure stock, but in the fact that he gained by using pure queens with grade drones. That's easy to try. I'll try it.

IN ADDITION to the good advice given Prof. Bigelow, p. 746, this also might be given as another alternative: Move the old hive with its contents to a new location. Take from it the queen with a frame of brood and bees, and put in a new hive on the old stand. Two or three days later, more brood can be given to the new from the old, if desired.

YOU SAY I never liked the shallow hive. "Error i' the bill." I liked it, and expected to adopt it, until trial showed its faults. [I remember that you once used the Dandenbaker hive, but this is only slightly shallower than the regular Langstroth size. I did not remember that you ever used the genuine shallow hive in any considerable number.—Ed.]

EDITOR ROOT asks again, p. 717, if I don't find myself clinging to the old, true, and tried just a *wee bit* more than I once did. Certainly; didn't I say so, p. 717? I said I had improved just a little, and was less inclined than formerly to run after new things. Still, I don't think I'm yet quite so conservative as the editor of GLEANINGS—for instance, in the matter of three-compartment hives.

HOW MANY of the "younger fry" have abandoned T supers? They have hardly abandoned them who have never tried them; and I would abandon them too if I used them as some do—intelligent men too. An intermeddler at my elbow suggests, "If the A. I. Root Co. had pushed the T super as much as some other things, wouldn't the younger fry all be using the T super? [Did I say the younger fry abandoned something they never used? I have looked, but I do not find

the place. If the language implies it I stand corrected. Tell that "intermeddler" that I do not agree with her. Not every thing sells that we advertise or "boom." It won't go unless it has merit.—ED.]

"IS IT NOT a fact, doctor, that you clung tenaciously to the old T super with loose T tins when all the younger fry had abandoned them in favor of either the section-holder or wide frames?" So ye editor, page 717. It is a fact that I clung, and still cling, to the aforesaid super. I expect to cling to it till I find something better. Your question intimates that if I were more progressive I would abandon the T super for the wide frame. After using the wide frame for years I abandoned it for the T super. Does not that show as much progressiveness as if I had changed the other way? [But you never used the section-holder to any great extent, doctor. The old wide frame that you used extensively years ago could hardly be considered equal to your present T super.—ED.]

THE U. S. DRINK BILL for 1905—just the cost of liquor alone—was not less than \$1,500,000,000; and the indirect cost—that is, the cost of crime, loss of productive labor, etc., was at least \$1,000,000,000 more, making a total \$2,500,000,000. That makes more than \$30 per capita, or \$150 to every family in the U. S. How long is an intelligent nation going to stand such a waste? [The people are being awakened, and the recent temperance legislation in the various States shows that the time will come when this awful cost, and I might say this disgrace as well, will be obliterated. By our recent laws some 600 saloons have been driven out of Cleveland alone within the last 30 days; but that still leaves a very large number; but if we keep on trimming at the dog's tail we shall soon be up to his head.—ED.]

DENATURED ALCOHOL FREE! Good! Now please tell us how much can be paid for one pound of honey to be made into alcohol, so that we may know whether or not to save up our poor honey till next January, when the law goes into effect. [Your question assumes that we could afford to sell poor honey so that it could be made into alcohol. Whatever I may have said on the point, I did not intend to give that impression; for the cheapest honey sold in the United States would be too dear for the purpose. But it sometimes happens that a bee-keeper will find on his hands quite a quantity of honey slightly soured. It is this honey that he can sell to the baker or to the distiller. Of course, it could be converted into honey vinegar; but ordinary cider vinegar is so nearly equal in quality, and so much cheaper, that the production of honey vinegar is not usually profitable.—ED.]

FOR FEAR you don't happen to think of it, Mr. Editor, I will remind you of one thing that looks as if bees do not value pollen as highly as honey. When a colony becomes queenless it goes right on storing pollen until it has an oversupply. Then it practically

stops gathering pollen, but keeps right on storing honey. Yet I'm not sure that that proves that bees place a higher valuation on honey than pollen.

P. S.—Footnote, page 716, to hand. You are still a little off. In the heaviest flow, not only will some stray bees be taking in pollen, but a fair proportion of them; neither do they depend on pollen already stored up before the flow, but keep up the surplus pollen during the flow. If at the beginning of a long heavy flow the bees had on hand enough pollen to last through the flow, do you think there would be room enough in the combs for the brood? [As we are now right in the midst of a honey-flow I will make this a matter of special observation, and report my finding later.—ED.]

SPEAKING of three-compartment mating-hives, p. 717, the editor hands me this question: "If you made each division the same size, would you not get a difference very much like that shown in the Ferris diagram?" Quite likely. But I wouldn't be foolish enough to have more than one frame in the middle compartment, as distinctly intimated, pp. 69 and 200, and the sketch, p. 140, was made, I think, the same way; but the printer took liberties with it. He has also taken liberties with the one on p. 717, which should show two combs in each outside compartment fully occupied with bees. You say my bees must be different from yours if they don't show a strong tendency to cluster toward the entrance. To be sure, they have that tendency; but I wouldn't be much of a bee-keeper if I couldn't overcome the tendency. [The diagram had to be made of what is called "map type," as it was not practicable in the short time we had before the day of publication to have a drawing and an etching made. If you make the central compartment slablike, and the other two of such width as to complete the ball of bees, you may be able to work the three-compartment nucleus.—ED.]

YE EDITOR says, p. 725, "Say, my good doctor, it does me good to see Mr. Green jab you in the ribs." Who—me? Jimmie Green jab me in the ribs? Where? Why, bless your heart, he's standing right up beside me with his arm around my shoulder. We are both agreed that there is no such thing as a "one-pound section," and that a light weight section should never be sold for a full pound. Years ago I favored the idea of a section so light that it could not be palmed off for a pound, and his 12-oz. section fills the bill. Jab me? Not much. [Whoever Jimmie is jabbing at, he is preaching my doctrine to a T. If you subscribe to all he says, let's shake. But, say; what does Jimmie mean when he says, "It does not by any means follow that the man who buys a 12-ounce section of honey is either cheated or deceived, nor even dissatisfied. He buys a box of honey"? That is exactly the doctrine I have been preaching. Certainly I have never said or implied that the light weights "deceive" or "cheat,"

Again, Mr. Green says, "The dealer, in fixing his selling price, seldom knows or cares any thing about the market price of honey as quoted in the market reports." That is exactly my notion. If you subscribe to these sentiments, then we are on the same side of the fence. Shake again.—ED.]

"PERHAPS Mr. Doolittle meant that the brooding heat of the cluster of bees would be the same, no matter what the outside temperature was." So you say, Mr. Editor, p. 716. If Mr. Doolittle says he meant that, I'll take his word for it; but please, Mr. Editor, read what he says, *American Bee Journal*, p. 364, and tell us what you think he meant. Among other things he says, "And right here I shall, I suppose, be considered a heretic by the masses when I say that, from all I can see by way of my experiments, they will keep that temperature of from 92 to 98 degrees in the brood-nest just as easily as they did or could before the other hive was put on, as the heat is confined within the *cluster* or *crust* of bees, not in the hive. . . . No, the heat from the cluster is not allowed to pass up into an upper hive at any time when that heat is needed for the brood within the cluster of bees." Don't you see there would be no heresy in saying that the bees "eat more honey, and thus generate more heat"? The heresy is in saying that "the heat is confined within the *cluster* or *crust* of bees." And if you want my conclusion I will say that, since the experiment given, p. 716, I think most emphatically that, in that particular, Mr. Doolittle is a "heretic." The practical bearing of the matter is of exceeding importance; for upon it depends whether we shall or shall not in spring keep the brood-chamber as warm as possible. [The editor deems it wise not to mix in this fray, and therefore turns you over to Mr. Doolittle direct. Permit me to say that, for the present at least, you seem to have the best of the argument. Now, friend Doolittle, "wade in."—ED.]

REV. S. L. ORR, in that sprightly publication *The Irish Bee Journal*, says there is foundation of all grades of quality and price, according to whether it is pure or adulterated, the bees having trouble with much of it, both in brood-chamber and super. A. Schilling says, in *Deutsche Ill. Bztg.*, that one of the largest manufacturers of foundation in Europe was convicted of selling foundation (guaranteed pure), that was $\frac{2}{3}$ paraffine; and of six samples from six leading Austrian manufacturers, only two were unadulterated! Whatever else may be in this land of wooden nutmegs, we never have a moment's anxious thought as to the purity of our foundation. [Strange that some of the manufacturers in Europe should pursue the suicidal policy of selling adulterated foundation, even for what it is. The makers in this country know that paraffine, ceresin, or any other mineral wax in foundation, would very soon show itself to the practical bee-keeper. A ruined reputation would do tenfold more

mischievous to his business than any slight gain he would make by putting out an adulterated article. But any manufacturer of foundation may inadvertently get taken in on a small lot. We find it necessary, for example, to examine carefully every cake of wax and inspect it for its quality and purity before accepting it. Even then we might get taken in with a few adulterated samples. Every year we have to reject considerable quantities; and we presume that our experience has been duplicated by that of other manufacturers. We will not, if we know it, allow even one per cent of paraffine or ceresin to get into our product; and, so far as we know, that is the attitude of all other manufacturers in this country.—ED.]



THE denatured-alcohol bill has been finally signed by the President, and the law will take effect on the first day of next January.

THE PURE-FOOD BILL HANGING FIRE IN CONGRESS.

THE pure-food bill is hanging fire in Congress. There seems to be now a possibility that it may be passed; but certain whisky, patent-medicine, and canning interests, so it is stated in the papers, are fighting it with powerful lobbies. But over against them we have the strong personality of President Roosevelt, who is doing every thing in his power to have the bill enacted into law. But we can not be successful unless the people write to their Senators and Representatives, urging them to support the bill and pass it without further parley. The friends of the pure-food bill feel that if it is killed now it may be a good many years before we shall come to a point where we can get an equally good law.

IMPORTANCE OF MAKING A NEWLY HIVED SWARM CONTENTED.

ATTENTION is drawn to a very reasonable suggestion by Mr. Holtermann, at the close of his article in this issue, on the subject of making a newly hived swarm comfortable with plenty of shade, abundant bottom ventilation, and a large amount of room—at least until such time as the bees can "cool off." A swarm, for a day or two after it is hived, is in a state of frenzy or excitement; and if conditions are not exactly suited to their comfort or liking they will, while in that state, swarm out again, and then it will be exceedingly difficult to make them feel satisfied *anywhere*. When they are

bent on swarming I would hive them and take them down cellar and keep them there for two or three days, or until they could "cool off."

OBSTRUCTED ENTRANCES IN THE HEIGHT OF THE WORKING SEASON.

ATTENTION is drawn to a very suggestive illustration by our artist, Mr. Murray, at the close of the Doolittle article on non-swarming, in this issue, page 823, showing a tangled entrance and one that is free of obstructions. Many and many a time I go through a bee-yard and see dollars being lost, as I view it, just because of a little lack of attention on the part of the owner of the bees. An hour's time with a grass-hook would remove all the obstructions and save days and days of time, to say nothing about torn wings and shortened working capacity on the part of the little bees.

I remember visiting, some years ago, a yard of quite a prominent writer, and I was astounded to see how disorderly every thing appeared to be—hives out of plumb, and entrances fairly grown up with grass and weeds. It is needless to say that *that* man did not continue to write for us any longer, for every thing about his yard betokened any thing but successful management.

It is not necessary that the whole apiary be made to look like a city park; but it *is* important that the flight of the bees be not obstructed, at least during the active working season.

WHAT SHALL THE HARVEST BE?

THIS is a hard question to answer. I am glad to say, however, that I am able to give something a good deal better than a *guess*. We will start with the extreme western coast. In San Diego Co., Southern California, there will be a fair crop; but in the region round about Los Angeles the season which promised so well a few weeks ago has not come up to expectations. Indeed, the crop will be light, it is feared, at this writing.

Central California will contribute its full quota of honey.

Texas is having a poor season. This is unfortunate on the eve of holding the big convention at San Antonio. Colorado is not doing much apparently. There was a big loss of bees owing to the failure of the crop a year ago.

The region immediately west of the Mississippi appears to be far below the average. Too much drouth seems to be the cause.

At the present time it is too early to predict what the result will be in the central part of the United States or that territory 200 or 300 miles east of the Mississippi; but we have reason to fear that there has been a lack of rain at just the critical time. It is not too late yet for rain to do good; but some bee-keepers are beginning to feel a little blue.

In the eastern portions of the United States conditions for a honey-flow have been

exceedingly favorable. Our bee-supply trade has been far heavier than we have ever had it before in all our experience. Had it not been for the lightness of trade in the far West we should have been buried out of sight with orders.

Taking it all in all, there will be a light California crop and a light flow from Colorado, and a scant supply from Texas. Indications are magnificent for a good flow from clover in the eastern portions of the country; but as for the Mississippi Valley, we are in doubt.

We desire our subscribers to send in postal-card reports, not to exceed two or three lines, describing conditions as they find them.

After writing the foregoing the following came from our office in Washington, and will explain itself:

We are continually getting good reports from the Virginias and Carolinas as to this year's honey crop. There seems to be a fine flow over the whole of the South Atlantic States. Around Washington the frequent showers have livened up all the clover and other sources of honey, so that there seems to be a fine flow. We get such reports as the following: "Honey seems to be rolling in." "Linden is just opening up." "Best honey-flow since we have been in the business."

Washington, D. C., June 6.

H. G. LARUE.

DR. EDWARD F. BIGELOW.

We are glad to introduce Dr. Edward F. Bigelow, lecturer, editor, and naturalist, from Stamford, Ct. Among the scientific men who love the study of the bee, we have no greater enthusiast than Dr. Bigelow; and he carries his enthusiasm in his walks, talks, and writing. His enthusiasm bubbles over to an extent that it is contagious, for one can not be with the doctor long without having his interest in bees renewed to a higher pitch.

For several years back Dr. Bigelow has been Nature and Science editor of the *Saint Nicholas Magazine*. Formerly for three years he was editor of *Popular Science*, and eight years editor and publisher of the *Observer Magazine for Naturalists*. At the present time he is instructor in nature study at teachers' institutes in Pennsylvania, Delaware, Ohio, Michigan, West Virginia, and California. He was the originator and director of the first session of the Annual Summer School of Nature Study at the Connecticut Agricultural College, Storrs, Ct. For two years he was director of the Annual Summer School of Nature Study of the Connecticut Chautauqua Association. For six years he has been director of the departments of Nature Study and Biology at the Castle Private School for Young Ladies, at Tarrytown, N. Y., and formerly held the same position for two years at the Mackenzie Private School for Boys. For eight years he was principal of public schools, and for the past six years has been lecturer of the New York Board of Education. He has lectured at Martha's Vineyard Summer Institute for Teachers and elsewhere. He is well known among the naturalists and teachers of the country as a general instructor in nature study; and his

enthusiasm and love for the bees have made this department of his work particularly interesting and instructive. He was the inventor of the Bigelow Educational hive and of the Pearl Agnes hive that were illustrated and described in these columns. He has a regular scientific laboratory at his home, entirely devoted to the general study of bees. Not merely content with the practical side of the subject of bee-keeping, he is constantly delving down into the scientific side. Scientific men, teachers, and instructors at the colleges speak of him in the highest terms.

Dr. Bigelow is a most interesting speaker; and those who have the opportunity to hear him should not fail to do so. We feel very fortunate in securing his attendance at the Jenkintown field-day meeting; and those of our friends who will be able to attend these meetings, we can say in advance, will not be disappointed when they see and hear Dr. Bigelow. Like Prof. H. A. Surface—and the men are very much alike in some respects—he is a whole team. Here is a list of some of Dr. Bigelow's popular lectures—lectures that have delighted audiences wherever they have been delivered:

Journeys about Home—Roadsides, Fields, and Forests; Travels in a Swamp; Vacations in the Country; The Haunts of Nature; Half-hours at the Sea-side; Journeys in Space—Our World and Others; Our Nearest Neighbor, the Moon; Nature's Largest Things; Let Nature be Your Teacher; Henry David Thoreau; In the Land of the Setting Sun; Nature's Little Things; Lectures on Nature Pedagogy from the Standpoint of the Child, etc.

OWING to not getting data concerning the life of Mr. J. C. Acklin, whose untimely death was announced in our last issue, in time for this number, we have arranged to put in a full write-up, with a portrait on the cover, in our next issue.

THE BIG FIELD DAY AT JENKINTOWN, PA., JUNE 26.

As will be seen by the announcements on pages 851 and 838, this promises to be one of the biggest things of the kind that was ever held in the United States. While the meeting of a year ago at the same place was in the nature of a convention and field day combined, the convention feature at this meeting has been almost entirely eliminated, and practical field work will take its place.

We are fortunate that we shall have with us three well-known scientific men—Prof. H. A. Surface, of Harrisburg; Dr. Edward F. Bigelow, of Stamford, Ct., and Dr. E. F. Phillips, of the Department of Agriculture, Washington, D. C. and the partial promise of several others. In addition we shall have such practical men as Doolittle, Coggsall, West, Pratt, Morrison, and possibly E. W. Alexander and others. These men are too well known to need further mention.

Mr. W. A. Selser, our eastern manager at Philadelphia, is making preparations to receive over a thousand people. While we may not have such a number present, yet if we should have a good day, all indications go to show there will be the biggest crowd of bee-

keepers that ever assembled in one place in the United States.

I have just come from Jenkintown, and was much pleased to note how well Mr. Selser has got things in hand. The apiary is beautifully situated, parklike in appearance, and the terraces will give an opportunity for an immense crowd to sit in comfort and take in all the demonstration work by the various experts.

OUR STINGLESS BEES AT JENKINTOWN.

Something that I think will especially interest those who do attend will be the handling of a colony of stingless bees by W. K. Morrison, lately from the tropics. These bees are interesting, to say the least, and such combs! Instead of individual cells, they make immense cups of wax. While the internal construction of their brood-nest is entirely different from that of other bees, they are yellow and look very much like ordinary Italians; are a trifle larger, and a little blunter at the end of the abdomen, where there is no sting. Mr. Selser reports that these little chaps, when annoyed, will attack one's nose and ears, as if they were going to do something awful. While the little bites of these bees are not painful, he says it makes one feel as if he had got into a fearful hornet's nest.

We regard these bees as a find, and hope to propagate them possibly in Florida; for if they work as they did the day I saw them, when the other bees stayed in their hives because of the cold, they may be something more than mere curiosities.

Prof. Surface was selected to preside because of the fact that he has splendid talent in this direction. If there is any man who can make things move along with a clocklike precision in a businesslike way, it is Prof. Surface.

MAILING-CAGES FOR QUEENS.

OUR subscribers are urged to be very careful when putting up queens for the mail to see that the wire cloth is covered by a cardboard or wood cover so that no stinging of employees handling the mail can occur. We occasionally receive cages with wire cloth unprotected, which is contrary to postal regulations.

ANOTHER NEW SYSTEM OF COMB-HONEY PRODUCTION AND SWARM CONTROL; MAMMOTH JUMBO HIVES; HANDLING HIVES WITH A DERRICK.

WE have just closed arrangements with Mr. A. K. Ferris, of Madison, Wis., by which he is to contribute a series of articles describing his system of swarm control and comb-honey production. This system involves the use of mammoth jumbo hives—so large, indeed, that they actually require a special derrick, I call it, to permit of handling the brood-chambers, taking off the hive, and, in fact, doing any thing and every thing that requires back-breaking, lifting work.

While some of the principles of the system are not new, the method of applying

those principles forms a combination that is as novel as it is startling.

As I have previously explained, Mr. Ferris is only a three-year-old bee-keeper. He was not wedded to old ways and methods, but at the very inception of his experience he devoted himself ardently to the subject of swarm control and honey production. Unlike some would-be inventors, instead of launching out into the doubtful field of invention without the knowledge of what others had done, he studied thoroughly all the methods in vogue, and then went at it and got up a system of his own.

While I doubt somewhat that the system he describes will revolutionize the plans used by old bee-keepers, yet it will place strong emphasis on some of the good ideas so persistently advocated by such successful bee-keepers as the Dadants, R. F. Holtermann, and other advocates of colonies in large hives, and in the end do good. Mr. Ferris will show that we have possibly been frittering away our time with little picaninny colonies, while we might better have concentrated our energies into powerful colonies made so by two queens in mammoth hives, where the bees can concentrate their energies.

When it is understood that our friend found it necessary to use a derrick employing a combination of ropes, pulleys, cog-wheels, and levers, in order to handle his hives, a feeling of pity as well as ridicule may come over the hearts of some of our bee-keeping friends, perhaps. But let me request all such to withhold judgment until they see the whole system in its entirety; for it is to be explained through these columns for the first time. One thing more:

Mr. Ferris feels that he can produce as much comb honey as extracted off from a given set of bees; and when you see his comb-honey arrangement you may recognize some old features, and perhaps some old combinations; but I think you will acknowledge that nothing exactly like it was ever used before by any bee-keeper.

The editor is not making any claims for this system, for that would be premature at this time. He only knows that it is one that may well receive the careful thought of every intelligent bee-keeper who is looking on the dollars-and-cents side of the business, whether he adopts the plan wholly or in part.

FATALITIES FROM BEE-STINGS; HOW BEES MAY BE HANDLED WITH IMPUNITY.

DURING the last few days there have been various accounts in the Eastern press of a farmer who, when hauling a colony of bees home, was stung to death by them. It appears that a severe jolting of the wagon loosened the cover, allowing the bees to escape, with the result as stated. The farmer's son was stung, and the presumption is that the horse received his fair share, but nothing serious is reported in either case. From the account given, it is hard to say whether the man died as the direct result of the stings or because of a weak heart. In

any event, cases of this kind are exceedingly rare. But whenever there is a fatality resulting from bee-stings the newspapers are inclined to make a great hurrah about it, leading the general public to believe that the sting of a bee is most deadly. In the twenty years that I have been connected with this journal I do not remember more than three or four cases where a loss of life has occurred as the direct result of bee-poison. Fatalities to horses and other stock are equally few and far between.

Had the farmer taken the pains to rope or nail his cover down, or even if he had had a lighted smoker, no such result would have occurred, probably. As a general thing, bees that have been jolted over the road are very tractable. Our readers know that there are not a few practical bee-keepers who advise putting bees into a wagon without even closing the entrances of their hives. The bees are smoked when being put on the wagon, and the hives are driven off at a rapid rate. It is well known that drumming on box hives to force the bees out into other hives induces quiet on the part of the bees. In the same way, the jolting over roads in a wagon produces the same effect.

In comparison with this, a recent performance by Prof. H. A. Surface and assistants, in Capitol Park, Harrisburg, Pa., stands out in strong contrast. The professor had given out in the papers the previous day that he would on the following day take a swarm of bees out of a squirrel-box in one of the park trees at a given time. Accordingly, barehanded, with nothing over his face, and armed with only a smoker, he ascended the tree by means of a ladder, smoked the bees, then knocked the box loose. This he then let down with a rope, to the amusement of crowds of people aggregating something like 800 who had come to witness the wonderful stunt.

After Prof. Surface had descended to the ground he pried the box open, scooping out the bees by the handful, to the great amazement of the onlookers. He then took occasion to say there was no such thing as manufactured comb honey, giving an offhand lecture on bees and their habits.

The bees were successfully placed in a modern hive and removed to the Real Estate Building, on the third floor of which is located the Division of Zoology. During the whole performance Prof. Surface received no stings except those self-inflicted for the amusement of the crowd.

The various accounts in the newspapers showed that the public was tremendously interested, and the immediate effect of such a demonstration will be to stimulate the demand for honey, and at the same time remove the general impression that bees are always bent on mischief, and will sting on the slightest provocation. The bee-keeping industry as a whole may well congratulate itself that it has in its ranks a scientific man who not only understands bee life but is capable of handling bees themselves bareheaded and barehanded.



SECTION HONEY AND NO INCREASE.

"Say, Doolittle, are you too busy to have a little talk with me on bees this morning?"

"Well, Mr. Robinson, it a busy time of the year just now; but as this 'busy' is with the bees, perhaps we can make it profitable to stop a little while and talk about bee business. What is on your mind this morning?"

"I have not been a bee-keeper very long, and so come to you wishing your advice regarding the best method of producing comb honey on a no-increase plan."

"What are your reasons for wishing no increase?"

"This year I want to balance up the ledger, so I do not wish to buy extra hives, using no more hives than the bees now occupy, which is all I have."

"Well, you are getting me down to a fine thing—just no increase, and no chance for a hive or two for an emergency."

"Do you not think such a thing possible?"

"Yes, it is possible; but it is of doubtful expediency."

"Then if it is possible I want you to tell me how I can do it."

"I suppose you have plenty of supers of sections?"

"Yes."

"Then the first thing to be done is to have all these in readiness for use, having, in the first super put on, quite a few 'bait' sections."

"What are bait sections?"

"They are sections partly or nearly filled with comb, left over from the season previous—such as did not have the honey in them sufficiently completed so that they were salable. Have you such sections?"

"Yes, quite a lot of them."

"Well, practical bee-keepers use from two to twelve of these sections in the first super put on the hive at the commencement of the honey season, as they entice the bees in the super at once, with the first honey, as there is now in such prepared supers a place for the immediate storage of honey, and the bees will take advantage of these open cells and fill them with honey before they would draw out any comb foundation, and much sooner than they would build comb; and in this early entering of the sections comes the desire to draw the foundation in the other sections, so that the bees are fully at work in the whole super almost before they know it, and from this desire to fill the whole super the swarming fever does not come on nearly so quickly as it otherwise would; while if more super room is added as fast as

required the colony may not think of swarming during the whole season."

"Well, now, that makes the matter so I can understand it. I had read about bait sections, but could not comprehend the matter before in all of its bearings. But these baits will not prevent swarming entirely, will they?"

"No. If they would, the bee-keepers of the world would go wild with joy; for the swarming of bees is the great bane in our pursuit, especially after one has all the increase he desires."

"Then how am I to keep down the increase if this will not do it?"

"The main object of the baits is to coax the bees early into the sections, thereby delaying preparations for swarming for a week or two, this giving you a better chance for profit from your bees, and working for no increase at a time when it will be more surely successful, and the least damage to your crop of surplus honey."

"Then I have other work than this to do?"

"Yes. About seven days before you expect your honey harvest to commence in good earnest you will go to each hive, taking with you a queen-cage made of wire cloth; hunt out the queen and put her in this cage, after which you will look over the combs in the hives for queen-cells; and if you find any with larvæ in them, or any which are sealed, you will cut them off."

"What is this for?"

"So that no young queen shall emerge from her cell in that hive while the old queen is in the cage."

"How long is she to be left in the cage?"

"Ten days, or till all the larvæ and eggs which are in the hive when the queen is caged shall have become sealed over; for I find that, when any colony goes without a laying queen long enough so that all the brood is sealed over, such a colony loses its desire for swarming, with the cutting of all queen-cells and the liberating of the queen. And where any queen-cells with larvæ in them, or any such cells which are sealed over are in the hive at the time of the caging of the queen, they are liable to emerge from their cells before we are ready to let the queen out, and thus our work is thwarted."

"Where do you keep the cage while the queen is in it?"

"By looking the frames of comb over which are in the hive you will be likely to find one or more which do not have the comb built down the bottom-bar of the frame the whole length. Taking advantage of such places I slip the cage with the queen between the comb and the bottom-bar, where it is held securely till I wish to let out the queen."

"What about food for the queen? Do you put any in the cage?"

"No. The bees will take care of that part unless you allow young queens to emerge from their cells, in which case they might neglect her and leave her to starve,"

"I think I understand the matter so far. What next?"

"At the end of ten days from the time of the caging of the queen the hive is opened and all queen-cells are cut off the combs. That you may not miss any, it is always best to shake the bees off the combs; for unless you do, one or more cells are usually so covered by the bees that they are not seen; and the leaving of one or more cells would work the spoiling of the plan by the bees swarming."

"I see. But how do you shake these combs—each one at the entrance of the hive, as you lift them out?"

"That is the way I used to do it; but of late years I have found it far better, both as to freedom from stings and in preventing the bees from piling up on the unshaken frames still in the hive, to take an empty hive with me, or, what is still better, an empty box made of half-inch stuff, so as to be very light, the same being made to hold one frame more than the hive will, so that there need be no crowding in putting the frames in. I have three or four of these boxes, and find them very handy indeed in all work when handling frames, setting the combs in such a box instead of standing them about the hive with one end resting on the ground, as I have seen many bee-keepers do, and as I used to do myself. Having the box with me I take the frames out of the hive, and place them in regular order in this box till I come to the last one, when it is shaken in front of the entrance to the hive and carefully looked over for queen-cells, which are cut off if any are found, and the frame put back in place in its hive. The one which went next to it is now taken from the box, the bees shaken from it as with the other, cells cut off, and so on until all are back in the hive. In this way the bees are all practically out of your way; you do not have them piling up on top of the frames, and, still better, there is not a lot of them all over the rabbets where the frames rest, to kill in replacing the frames, or in closing the hive, as in the old ways of shaking; and as no bees are killed, the colony is not specially irritated, and few or no stings received."

"Good! But what about the queen?"

"When you come to the frame she is caged in, shake it the same as the others, for she will not be hurt now that she is not laying; and as soon as you have the queen-cells which may be on that frame cut off, remove the cage and set the frame in the hive. Now remove the cork from the cage and hold the open end of the cage near the entrance where the bees are running in with fanning wings, when the queen will leave the cage and run into the hive with the bees the same as does any queen when a swarm is being hived."

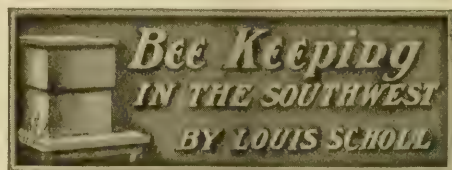
"That is easy, I am sure."

"Yes; and, what is better, you will see those bees go to work with a will, carrying into the sections all honey which may have accumulated in the cells from which the

bees have emerged during the last ten days, so that the queen may have room to lay without any further idea of swarming, unless the season should be long drawn out."

"But I shall lose ten days in bees, shall I not, as no eggs were laid while the queen was caged?"

"Yes; and this might be against the plan where the honey harvest is one which continues without interruption throughout the whole season; but in any section where only one or two or three sets of bloom, like clover, basswood, and buckwheat give the surplus honey, then the stopping of the queen from laying during this period of ten days is a blessing rather than a curse, as the bees from such eggs would come after the harvest was past, hence would become consumers instead of producers."



What not to do is often as important as what to do in the apiary.

Good stock is essential to good honey crops, and is cheap at any price.

Improve your own stock, or buy the best stock at four times the cost if necessary.

One good queen is worth half a dozen of the ordinary kind; so, get good ones.

My! "A cold spell . . . now on . . . and great flakes of snow are falling," says editor Root, page 641—in May, when the Southerners are complaining about hot weather and having "good old summer time." It is quite refreshing during such warm weather even to read about "the falling snow."

As soon as one crop is out of the way, get every thing in readiness for any other flow that *might* come; then you will not be nearly so likely to be caught by surprise, and you will have less occasion to pull your hair and mutter things like "My! had I only had every thing in shape to catch that sudden unexpected flow of fine honey, I should be just so much the richer. Now I am only wiser." Yes, and next year do it all over again!

The Weather Bureau is made for the bee-keepers as much as for any one else, and

there is no excuse for their not taking advantage of its lessons and profiting by looking ahead. It is true that a good many people do not believe in weather forecasts, and in foretelling what the season will be. Many of the bee-keepers, however, make good use of these privileges. To be able to know, pretty well at least, what the season will mean for the bee-keepers helps much in preparing for it. A record kept of preceding years will help much in deciding upon the outcome of a season that opens and continues like one in some former year. Too many of us "wait to see," and are like the Dutchman who said, "Ich never predigate der vetter till der rain he be gumming down alretty."

ANNUAL MEETING OF THE TEXAS BEE-KEEPERS' ASSOCIATION, COLLEGE STATION, TEXAS, JULY 10, 11, 12, 1906.

The date for the next session of the Texas Farmers' Congress on the Agricultural and Mechanical College grounds has been set as above. The sessions will begin at 9 A.M. on the 10th, and adjournment is provided for at 10 P.M., July 12.

The Texas Farmers' Congress is indeed a unique organization. It comprises some fifteen State agricultural organizations. The Texas Bee-keepers' Association is one of these. Meetings of the individual sections of the congress that is meeting, of the separate associations, are held in the morning, from 9 A.M. until noon, in different rooms of the institution halls. During the afternoon and night sessions the sections all meet in a body in Assembly Hall. This leaves three independent half-day or morning sessions for each association, the rest of the time being taken up in congress sessions. Inspection of buildings, departments, the farm, apiary, stock, cattle, etc., is provided for in the evenings.

Much good, indeed, results from these gatherings. About 3000 delegates, representing the varied industries of the State, gather here. The bee-keeper's hum is not absent.

The program of the bee-keepers' section is as follows:

Opening prayer.

The annual address by the President.

Reading of minutes of last meeting.

Report of the Secretary-Treasurer.

Business of the Association.

Discussions.

"How can this Association be made to be more effective in its work?"

Arrangements and entertainment of the National Bee-keepers' Association at San Antonio, November 8, 9, and 10.

The question-box is to be one of the main features of the convention, and all bee-keepers are invited to ask such questions as are of most importance to them.

LOUIS H. SCHOLL,

Com. on Program.

Secretary-Treasurer Texas Bee-keepers' Association.



IS THIN SUGAR-FED SYRUP, WHEN STORED AND CAPPED BY THE BEES, THE SAME AS HONEY?

Some Interesting Experiments.

BY W. A. SELSER.

There has been considerable discussion in the past few years at different bee conventions and in the press, both by chemists and bee-men, whether a very thin syrup, about the consistency of nectar from the flowers, fed to the bees, after being deposited, evaporated, and stored by them in the comb, would be practically the same as honey; and a statement has been made that chemists could not detect the difference between this sugar-fed syrup and the pure article gathered from the nectar of plants. In fact, a noted chemist in the West made the statement that there would be absolutely no difference, chemically speaking, between the two; that this thin syrup, slowly fed, would undergo in the stomach-pouch of the bee a complete chemical change, and, after the conversion, would be the same as honey, except that it lacked the essential oils.

The writer has always taken a very strong stand against this statement, claiming it was absolutely false, and that there is a vast difference, both chemically and otherwise, between the nectar when first produced in the plant and in any other artificially made syrup, basing his opinion largely upon analytical experience, coupled with the idea that God places the nectar in the flowers to attract the bee for fertilization and the use of man, and that no agency of man is equal to the work of God.

This has been the first year in many years when atmospheric and climatic conditions have been favorable to test this experiment correctly; i. e., from the 12th day of July to the 5th of September no nectar has been secreted in any plant in the vicinity.

In July, 1905, I selected from about 25 hives two Danzenbaker hives in exactly the same conditions, composed of a vigorous Italian queen, six frames of bees and brood, comprising about 25,000 bees and two frames of empty comb. I placed these hives within 2 ft. of each other, some 300 yards from the main apiary, at a time when there was absolutely no nectar coming in from the field. During part of the time of this experiment (lasting six weeks) I had each of these experimental hives covered over separately with a tent during the day; and, aside from any other precautions, the results of the ex-

periments themselves show very conclusively that there was no nectar gathered during this period.

My first experiment consisted of feeding a solution to each hive, consisting of one part cane sugar, polariscope standard 98.7 to three parts water, specific gravity 1.1240. A quart of this was fed slowly in six hours in Boardman entrance feeders. After continuing this for a period of ten days, then waiting four days for perfect evaporation and transformation by the bees, I opened the hives, took out four different samples from different locations from the two hives and supers. The first sample was from the capped product out of a frame directly over the capped brood, specific gravity 1.3810, and removed them to the laboratory, situated within a few yards of the hives. The polariscope test showed a dextro-rotation of 7.3, and, after inversion, a levo-rotation of 11.4. (All pure honey shows a levo-rotation, or, in other words, turns the plane of polarization to the left.)

The second sample was taken from a different position in the brood-chamber—the same specific gravity, and showed a dextro-rotation of 7.7, and, after inversion, a levo-rotation of 13.

The third sample was taken from uncapped product in the brood-frames from the first story—specific gravity 1.3551, and showed a dextro-rotation of 18.7, and, after inversion, a levo-rotation of 16.

The fourth sample was taken out of uncapped product in the shallow frames in the super—specific gravity 1.3426, showing a dextro-rotation of 22 and a levo-rotation, after inversion, of 15.

Not satisfied with this very beautiful showing of exactly the amount of the inversion of the syrup in the stomach-pouch of the bee, I proceeded to feed, in the same careful way, syrup, one part sugar and four parts water—specific gravity 1.0902. After feeding this slowly for the course of a couple of weeks, as before, I took out the first sample from capped product from the brood-frames—specific gravity as before, showing a dextro-rotation of 10.5, and, after inversion, a levo-rotation of 13. I then took a sample of the product from the brood-frames, half capped and half uncapped, specific gravity 1.3650, showing a dextro-rotation of 9.4, and, after inversion, a levo-rotation of 11. I then took a sample of all capped product from the brood-chamber—specific gravity 1.3942, showing a dextro-rotation of 10.5 and a levo-rotation of 13.

The results of this experiment will be apparent in reviewing the figures of the first and second experiments, that, the greater the difference between the specific gravity in the sugar-fed syrup and the finished product, the greater was the inversion in the stomach-pouch of the bee, and that which was hastily deposited by the bee from the fed syrup underwent the least amount of inversion by the bee. The graduating scale of this experiment shows how the amount in proportion of the inversion

in the stomach-pouch of the bee proceeded according to the ratio of the specific gravity of the finished product. In other words, this sugar-fed syrup, in both of the proportions as fed, showed beyond dispute that it was sugar-fed and not nectar gathered.

Now for illustration let us suppose that the difference between the figures of the dextro and levo-rotation represented exactly the amount of inversion in the stomach-pouch of the bee. The smaller these figures of difference, the greater the amount of inversion by the bees. In the first experiment we fed one part of sugar and three parts of water, specific gravity 1.12+. We have one sample +18-16, specific gravity 1.35+. In this there are 34 points that have not been inverted by the bee. Again we have +22-15, specific gravity 1.34, and 37 points not inverted by the bee. In the second experiment, we have one part sugar and four parts water, specific gravity 1.09+; then we get +9, -11, 1.36+, specific gravity or 20 points, not inverted by the bee, and again +10-13 at 1.39+, specific gravity. We have 23 points not inverted by the bee, and in pure honey there are no points not inverted by the bee; and with the more water fed giving the lowest specific gravity, showing the difference in this last case of over 30 fractional points in its specific gravity between fed syrup and finished product, it still gives 23 points not inverted by the bee. Time was given for the bees to work up this product, and every other advantage it was possible to give the bees to produce the results as claimed was given, and the result shows beyond controversy, in the mind of the writer, that no sugar syrup of whatever character, fed to the bees, will ever be changed to actual honey as gathered from the nectar of plants, and, therefore, that no capped comb product can possibly be honey unless it is nectar gathered. So that, also, from a purely chemical standpoint, there is a vast difference between the product gathered by the bees from fed cane-sugar syrup and pure nectar; viz., cane sugar is a chemical individual represented by $C_{12}H_{22}O_{11}$, and in the breaking up, on inversion, it takes up one molecule of water, H_2O , and is $C_{12}H_{24}O_{12}$, while honey is a chemical mixture, represented by dextrose $C_6H_{12}O_6$; and levulose $C_6H_{12}O_6$, with a mixture of pure sucrose. Now, the sugar-fed syrup, capped over as honey by the bees, varies in the chemical analysis (my assumption) from $C_4H_8O_4$ to $C_8H_{16}O_8$, and is immediately branded by the chemist as a different composition, and, therefore, can not be honey.

Another very important result of this experiment has proven the question that seemed to be in doubt in the minds of scientists, whether phosphoric acid, which appears in greater or less quantity in all pure honey, is a product of the bee or a product of the plant; in other words, whether phosphoric acid in honey is of plant or animal origin.

I took the very thin syrup that was fed to the bees in the last experiment, specific

gravity 1.0902, and evaporated it to specific gravity 1.3426, and, upon analyzing it, I found absolutely no trace of phosphoric acid. I then took the lowest specific gravity of the finished product in the first experiment, specific gravity 1.3426, and found that this contained $1\frac{1}{100}$ per cent of phosphoric acid, the average amount in pure honey, and was deposited by the bees at a time when there was absolutely no nectar coming in, as previously explained, showing that phosphoric acid comes directly from the animal rather than the plant.

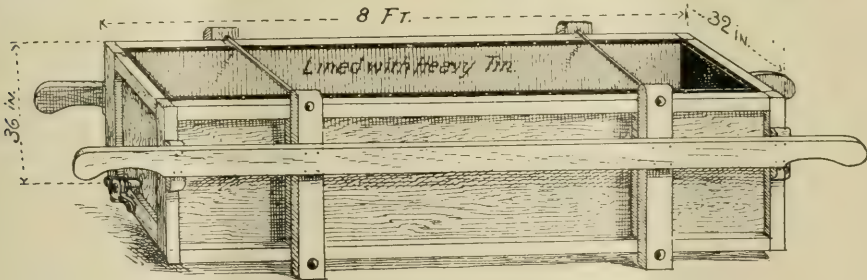
The point at issue is, whether the nectar gathered contained phosphoric acid or whether the bee, in its inversion of the nectar, adds phosphoric acid. This experiment would show that it is the bee in its inversion that adds the phosphoric acid, and, therefore, directly, it is of animal origin.

ALEXANDER'S HONEY-TANKS.

The Advantage of Strong Heavy Construction;
How to Introduce Large Numbers of Queens.

BY E. W. ALEXANDER.

In answer to many recent inquiries as to the size and shape of our honey-tanks I will say that they are 8 feet long, 32 inches wide, and 36 inches deep, inside measure, and are made of $\frac{3}{4}$ pine and hemlock lumber, the ends set inside of stout cleats. The bottom is cleated, also the sides. Here we have a piece of 2x4 joist bolted with $\frac{3}{4}$ -inch rods from one piece of joist to the other, one rod across under the tank, the other on top.



ONE OF ALEXANDER'S STORAGE AND EVAPORATING TANKS FOR EXTRACTED HONEY.

We have one narrow strip of board on each side, which projects about 8 inches past the ends of the tanks, and forms handles to carry them by. This is very convenient. It is not necessary to make the sides or bottom tight. If there are cracks $\frac{1}{2}$ inch wide it will do no harm, for the tanks are to be lined with the heaviest and best quality of tin that you can procure. Have the tin-smith put a large molasses-faucet at the bottom of one end to draw off your honey through; also see that every seam is well lapped and soldered or it will make a bad job if one commences to leak when full of honey.

After you have them empty in the fall, wash them out with hot water; and as soon as dry wipe them well with a cloth dampened with sweet oil. This will keep them from rusting, and, with other proper care, they will last a lifetime and remain as bright as new. A tank of the above size will hold about 5000 lbs. of extracted honey, and is the cheapest and most convenient article for storing honey in I have ever seen. I think ours cost about \$16.00 apiece some 20 years ago. Make them stout in every way, for but few realize how 5000 lbs. of honey will make them bulge out unless made strong. You can make them any size you wish, but I wouldn't advise having them over 32 inches deep. Ours are 4 inches deeper than I wish they were.

HOW LARGE NUMBERS OF QUEENS ARE INTRODUCED.

Another question I wish to answer, which many are inquiring about, is how we introduce the 300 or 400 queens every year which our system of management requires. This is one of the knottiest of questions, and one that has cost bee keepers thousands of valuable queens. It has cost us so many that we now seldom try to introduce a queen into a full colony. We would much rather have our young queens hatch in what would be considered a small colony, and then as soon as she commences to lay build it up in two or three days into a good strong colony by giving them combs of hatching brood. In this way we never lose a queen, whereas by the introducing method many times the strange queen will be allowed to live only until she has laid eggs four or five days, and the bees

begin to have plenty of larvæ to rear one from; then they will kill their queen and rear a young one in her place. We have lost hundreds of valuable queens in just this way, so for several years we have not introduced many queens into full colonies except when we have a surplus that we hardly know what to with.

I think the day is not far distant when a large per cent of the queens that are bought from queen-breeders will be bought in a nucleus, and then built up into strong colonies by the purchaser. This is a fine way to make increase, and at the same time procure choice queens and avoid all loss and

trouble in introducing. I think 100 good three-comb nuclei purchased in May, and properly cared for, will furnish enough extracted honey during the season to pay their first cost.

If not convenient to get your queens in a nucleus, then introduce them into small colonies that have no uncapped brood, especially if the queen is a valuable one.

I think queen-breeders are often wrongfully accused of sending out hybrid queens when the queen they sent was all right; but shortly after she commenced to lay she was superseded by a young one reared from her brood, which was mismated, and the purchaser never knew that the queen he bought was killed shortly after she commenced to lay.

If you have any questions to ask me, please ask them through GLEANINGS, for I can not take time to answer so many private letters separately.

Delanson, N. Y., March 20.

[I saw these tanks when I visited Mr. Alexander. Two of them were put in a building large enough to receive them and yet give room for a man to get in and around them. The two buildings were very nearly alike, each containing two tanks or what would be a total capacity of 20,000 pounds. To each of these buildings was a conductor pipe running on up grade to the extracting-house in the center of the bee-yard. As is well known perhaps, Mr. Alexander extracts just before the bees cap the honey. As I saw it running out of the conductor-pipes it was very thick, but to further evaporate it, it is allowed to stand in these shallow tanks in a small building where the temperature will rise to a high point in mid-summer. This will explain why Mr. Alexander is able to extract without allowing the bees to cap the combs. Should any one desire to make a honey-tank of this description he will need to follow carefully the details here given. A long oblong tank of this kind would bulge very badly at the sides unless it were braced securely with 2x4's at top and bottom edge and further braced by cross-pieces and iron rods or bolts.—ED.]

THE CYRENIUS HIVE-LIFT.

How to Tip up a Hive for Examination; Bisulphide of Carbon vs. Sulphur.

BY F. GREINER.

In response to a letter from a New Jersey friend in which he is asking about the best hive for extracting, and the Cyrenius hive-lift, etc., and in consideration of what was said in regard to the latter device at the late New York State Bee-keepers' meeting in Geneva, I would hereby beg for a little space to ventilate these matters.

To begin with, the Cyrenius hive-lift is a clever device, easily adjusted, and intended to hold together securely the hive and super

upon it, while the whole is tilted up for examination of the combs from the under side. For illustration and description see GLEANINGS, 1905, page 714. I find that, when a brood-chamber is filled full of good combs, nearly all the queen-cells are started at the bottoms of the combs. By tilting the hive, not necessarily laying it clear over, we are enabled to see any queen-cells under construction when the bees are smoked back a little. If we do not see any cells we may safely conclude that no preparations for swarming have so far been made. My New Jersey friend fears that, with his deep (?) Langstroth frames, the cells may not be built along the lower edge of the combs, and he would, therefore, like a very shallow hive in two sections, somewhat like the Heddon. He proposes a shallow frame of five inches. I am in position to tell him how it works with the five-inch frame hives as well as with Langstroth frame hives and others with a still deeper frame by two inches. I have them all in use, and would say that I have for the past two seasons, with infallible certainty and very little trouble, found the colonies which were bent on swarming in any of these hives as easily in one as in the other. I would, therefore, advise my friend not to change from his ten-frame Langstroth hive to the shallow five-inch-deep frame hive nor the Danzenbaker hive—not on that account, particularly as he would be unable, as he says, to sell bees to others in his vicinity—if they were in other than Langstroth hives. Two shallow-framed hive-bodies as a brood-chamber are sometimes an advantage, sometimes they are a great disadvantage. For the production of extracted honey it is extremely doubtful whether a better hive-combination will be found than the ten-frame L. hive with full-frame supers.

That my friend should be troubled with swarming seems strange. With plenty of storing room in shape of empty combs, a large entrance to his hives, and shade, there should be no swarming with our ordinary bees. If he has Carniolans, then I would advise Italianizing his whole yard as speedily as possible. The Carniolan bee is a good one for comb honey, but not so desirable for extracted, while the Italian bee would be hard to beat for the production of extracted honey.

Right here it might not be out of place to give a pointer on tilting up a hive properly. I have had the fewest mishaps when I proceeded from the rear of the hive. In tilting it up from the front it brings it in danger of slipping off from the bottom-board unless we take the precaution to move it forward just a little to prevent its slipping. If the hive-body were hinged to the bottom-board at the back it would work well to tip it up from the front; but as this is not the case, and the bottom-board projects in front with the most forms of hives, it will be found much more convenient to tip it up from the back as in Fig. 2.

In all localities that I am familiar with the

bees always gathered propolis enough to cement the supers to the hive-bodies solidly in a very short space of time, and I do not find it necessary to make use of the Cyrenius hive-lift. I have been taken to task by some friends for saying this, implying that I wanted to "kill" a good thing. I

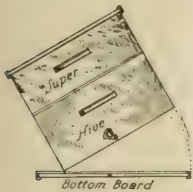


FIG. 2.

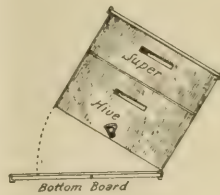


FIG. 1.

certainly don't. But if it is possible and practical in many localities to accomplish the same object without going to the trouble of affixing the hive-lift, why use it? In localities where no propolis is gathered (and I am glad to learn that there are some), the hive-lift is a necessity.

The last question of my New Jersey friend relates to keeping moth out of extracting-combs. I might refer him to the standard text-books. But as I was taken to task at the Geneva bee-keepers' meeting for saying what I did in the apicultural press as regards bisulphide of carbon versus burning sulphur, perhaps an explanation would be proper. I purchased bisulphide of carbon at our country drugstore. I was obliged to pay 35 cents per pound. At this price it was too expensive to use in quantities necessary to kill the wax-moth larvæ in my extracting-combs and I preferred to use sulphur as I had heretofore, particularly as I had failed with the bisulphide of carbon in accomplishing the object of using it in different proportionate quantities on the different stacks of combs, but perhaps not strong enough. I placed the drug in a sauce-dish on top of the combs, and covered up all as close as practical. Some friends thought I should have done differently. I can assure them that I usually employ the easiest method. Long years ago I found that sulphur fumes would settle, being heavier than air, and I have always burned sulphur on top of the stacks of honey or combs, and thus destroyed the wax-moth larvæ, and naturally would do the same with the bisulphide of carbon, for this is of the same nature. At the Geneva convention I was told that bisulphide of carbon could be had in Syracuse at 10 or 12 cents per pound, and that it ought not to cost me more than 14 at the most. Our old friend Betsinger said he would not "monkey" with sulphur when he could buy the bisulphide as cheaply as he could, and as long as the latter was so much simpler to use. When I can buy bisulphide of carbon at 14 or 15 cts. I think I shall use it again, especially as there is no danger of staining section honey with it, which is the case when burning sulphur in too large quantities.

Extracting-combs need no looking after in this climate during the winter months; and if kept carefully covered up or in a tight room they will be all right till needed during the honey season. The trouble commences after the combs are taken off from our hives.

We must then fumigate them from time to time till cold weather comes again. The *modus operandi* is simple enough. In an empty hive-body we either burn a quantity of sulphur on top of a stack of combs, covering up tight, or we evaporate bisulphide of carbon. Our friends across the water burn the bisulphide of carbon. There is no danger connected with this. It burns as alcohol would. The liquid is not explosive; but when the bisulphide has formed a gas, then is the time we have to exercise care or we may produce a destructive explosive. A room should be aired out in which bisulphide of carbon has been evaporated before coming in with a lighted lamp or striking a match.

Naples, N. Y.

COMB HONEY BY THE TWO-QUEEN SYSTEM.

Strong Colonies for Comb and Weak Ones for Extracted Honey; the Advantage of a Dual Colony in Each Hive.

BY A. K. FERRIS.

[This article follows right on from the one given on page 586 in GLEANINGS for May 1. From now on this system of non-swarming will be given in consecutive issues. For further particulars see editorial elsewhere.—ED.]

It has been well said that "it is more necessary to have a strong colony to produce comb honey profitably than extracted." In other words, run your weak colonies for extracted and your strong ones for comb honey. But with the two-queen system weak colonies are a thing of the past, as we have noted in the preceding articles on extracted honey. Strong to exceedingly strong colonies are all we deal with during the flow. On the other hand, a weak colony shows less disposition to swarm than a strong one. For this reason many run their strong colonies for extracted and their weak ones for comb.

In the two-queen system we take advantage of *both* conditions, and turn both in our favor. In the first place, we have taken a very strong colony and made two weak ones with only a thin partition between them, each having a queen and each receiving heat, one from the other, and consequently both winter well; yet the fact remains that they are in reality weak colonies, and they therefore show no disposition to swarm unless their part becomes crowded; but as each receives the benefit of the other's heat they build up exceedingly fast in spring. In these hives with only a thin partition between the two swarms, the spreading of brood can be practiced earlier, and without the danger that is found in a single colony. In this way, when each half has worked up to five or six frames of brood, and is strong in bees, I

never hesitate to add a full story of combs, alternating them with the combs of brood. This induces the queen to lay to her full capacity; and, as nearly all have noticed, a queen in a weak colony will just spread herself when she does get the chance. I am fully aware that many do not believe in the spreading of brood; and I agree that, if practiced to excess, it is a detriment; but if intelligently done it will well pay for the time and labor many times over. It is also a means of keeping down the swarming fever; for if the brood-nest is clogged with honey, as it sometimes is, they will sometimes swarm rather than take it out to accommodate the queen in laying. Again, when the brood is mostly in one end, change end for end with a couple of combs. This induces brood-rearing the full length of the comb. I want combs that are practically full of brood, and also all I can get of them; and the way that will get the most of them is what I want, even if it does take a visit or so more. It means, many times, the amount spent in labor, in returns later on. In this way we build up a mammoth colony, and at the opening of the white-clover flow we have all the way from sixteen to thirty combs of brood in each double colony, according to conditions and prolificness of queens. At this point I dequeen the same as for extracted honey, though some may prefer giving a ripe queen-cell instead of a young laying queen. However, with the easy way to control swarming and detecting queen-cells (described later) it is practically immaterial; and, if any thing, I prefer the laying queen as she gets to laying from eight to twelve days earlier than if a cell is given.

Queenless bees will enter the sections more readily than bees having a laying queen; but with the comb-honey attachment (described later) they will enter the sections readily any way.

Madison, Wis.

COMB FOUNDATION.

When and How to Use it; How to Prevent Sagging; a Valuable Article.

BY R. F. HOLTERMANN.

The commercial value of extracting-combs has often been under discussion, and a very varied estimate put upon them. It will be found that, if a sheet of foundation between medium and light be put in a frame, and this be inserted in the hive, and the bees draw out and build upon the foundation when the comb is completed, the bees have just about doubled the amount of wax. To a bee-keeper who has 50 colonies of bees (say he buys them), which he intends to run for extracted honey, and who has not in stock any combs for the supers, to such a person combs up to a certain number are very valuable. With nothing but comb foundation in the extracting-supers it is a difficult matter to draw the bees into the super. To put up a comb of brood, and replace it by a

sheet of foundation, is, under such circumstances, common and perhaps the best practice, but it is very far from the equal of having the drawn comb. How much, then, can a person afford to pay for combs built in proper frames, and on comb foundation wired? Until I had at least one-third to one half the number of surplus combs required for the first extracting-super I would pay 25 cts. for each comb, and, of course, as much less as I could get them for.

As years go by I have less and less inclination to put any thing but full sheets of foundation in frames. Even in the production of comb honey, when all that is for or against the practice of starters in the frames of the brood-chamber has been weighed in the balance, in my estimation the practice is found wanting unless one can secure at least \$1.75 to \$2.00 per dozen for No. 1 and "Fancy" comb honey, sections $4\frac{1}{2} \times 4\frac{1}{2} \times 7$ to the foot.

There are many bee-keepers who balk at the idea of buying full sheets of foundation for their hives; there are many who are not prepared to make such an outlay upon bees of which they know little, and of which profitable returns are to them problematical. Truth to tell, I have not much use for bee-keepers who are not prepared to put time, thought, or money into their business. I never rebel at people who keep bees about me so long as they keep them properly; but the slipshod bee-keeper is a constant menace to those who are about him, be he a bee-keeper on a small or on an extensive scale. If any of the readers of GLEANINGS are inclined to keep bees on "the cheap," grudging the expense of foundation and the like, let me say, comb foundation is to the hive what a good solid foundation is to a brick or stone house. Put a poor foundation under the house, and it is a constant and ever present annoyance, menace, and, in the end, loss to the builder. Or for the bee-keeper not to buy comb foundation for his apiary, on the ground of expense, after getting good hives would be something like the dairyman building fine well-ventilated and properly constructed stables and barns, and then running around buying \$25.00 cows which, for the same feed and care, will give him only half the milk in return that \$50.00 cows would give.

To those who are beginners it might be well to say that comb foundation is valuable over the empty frame in that the bees have a guide to build straight comb, and in that the bees have a greater inducement to go into the compartment where the foundation is placed, be it brood-chamber or super, providing the frame is properly spaced. I say "providing the frame is properly spaced," because of an experience I have had. My hives and supers are 17 inches in width inside; these normally contain 12 frames. In spacing the super frames I now put ten frames in the 17-inch space. The bees will take to foundation spaced 12 frames to 17 inches much better than when the foundation is spaced at the rate of 10 frames to 17

inches, yet after the comb is once built I find no difference in the readiness with which the bees enter the supers with frames more widely spaced. It may be that, when building the comb, the bees want to construct it so that it is right for a brood-chamber, while, when entering the supers for a honey-flow, it is with the immediate object of storing surplus. No doubt many may think that we find wide combs in box hives. True; but there are then reasons which compel the bees so to build. In the above, let me say when reference is made to the 17-inch spacing for 12 combs I do not mean to say foundation in this way is more readily accepted than when spaced 1½ in.; but I speak of greater variation. That bees will enter frames with foundation more readily than when there is none, can be seen by sections. Those with drawn-out comb and foundation are sometimes filled or almost filled out with honey before the empty section has been touched. This is particularly true if the flow is moderate or light. I will admit that, in a very heavy flow, the bees sometimes appear to delight to build comb, and will build it in an empty frame when there is still plenty of room for storage in the combs at each side of it. To build on such a flow is, however, unsafe and unwise; and, more, such a comb is almost if not invariably drone comb.

Another advantage in comb foundation is, of course, that material is supplied the bees which would require honey, and the time and energy of the bee to produce. I am inclined to think, but am not positive, that the secretion of wax, while largely voluntary, is partially involuntary. If involuntary, it is so only after and during a good honey-flow, when the bees have become thoroughly fat; for bees will vary just as much individually in percentage of weight as any other animal when in and out of condition. When the heavy honey-flows are on, where bees gather from 15 to 26 lbs. of surplus in a hive, then the bees can not build comb rapidly enough to store and ripen the nectar, and, through lack of storage room, the bee-keeper must lose a portion of what he might harvest had he given the bees comb foundation.

The time when bees are most disposed to draw out foundation is after they have swarmed. If short of drawn comb, such stocks should be given foundation in the brood-chamber and super, and, by taking away partially drawn comb, putting these in the supers of colonies not swarmed, and the swarm kept at comb-building as long as they take readily to the foundation.

Another very fair way to force bees at the beginning of the honey-flow into the supers, and accept foundation, is to uncapped all the honey capped in the brood-chamber. If the brood-chamber cells are occupied with either honey or brood, and it would be useless to super them unless they were practically in this condition, the bees can not find a place for the leaking honey, and they are forced to accept the foundation in

the super, and build comb in which to store the honey.

As to the method of fastening in foundation, I prefer the hot-plate machine by means of which the edge of the foundation is heated to the melting-point. The hot plate recedes, and the foundation falls upon the under side of the top-bar and is there attached. Next to that I use a rubber bulb and glass tube of large size. By means of this the melted wax and resin is distributed along the edge of the foundation and the lower side of the top-bar. I use two large boards, each having three minor boards over which the frame will half slip. The foundation is first placed upon this; the wired frame next, and the foundation is inserted, and the wire put imbedded before the frame and foundation are removed. Of course, a bee-keeper with only a few hives, and inexperienced, has a reasonable excuse for using a groove in the top bar, or some such device; but an extensive bee-keeper is not only thus weakening his top-bar but is wasting large quantities of foundation, and worse than wasting it, for it is much needed on the lower side of the sheet in the frame. Foundation should not buckle, but touch at the sides; better still, the upper half touch the lower, almost so. When this is the case the bees attach the sheet to the side-bar almost as quickly as they go on it, and relieve the sheet of a good deal of strain and a proportionate danger of sagging. The sheets could be cut off in this way, even by an automatic cut-off machine. I should like to see foundation made so the mill will roll out a sheet as wide as the Langstroth frame inside the side-bars. By hanging the sheet in as it comes from the mill, it is much stronger than when turned the other way. However, unless swarms are thrown upon the foundation, when there is an extra strain, I find three strands of horizontal wire and light brood foundation with the Weed process all right. I have to say *Weed* process, for it is less liable to sag than the old dipped process—at least, of such as I have made and used.

WHY FOUNDATION STRETCHES.

In the prevention of sagging foundation, there are a good many points to be considered. Some of these I know, and probably there are others. Naturally, beeswax is not subjected to the same strain which a sheet of foundation suspended only from the top is. The bees build a little septum at a time, and immediately add cell-walls to strengthen it. The comb is attached to the top, and circles more or less toward the center as it is built. When the swarm is put into the new hive, or enters it of its own accord, it is generally the heat of the day, and the bees are much excited and give off great heat. What can we expect but sagging, with a hive standing in the sun, poorly ventilated, and with excited bees clustering on and covering these sheets of foundation? When a swarm is put upon foundation the hive should, for 48 hours, be shaded. There should be plenty of bottom ventilation as

well as in the super; and an empty extra brood-chamber without frames put under the proper or true brood-chamber is a very great help, not only to the proper drawing-out of the brood-chamber, but to make the bees contented in the hive. Next, to get evenly built combs the bees must not be given too much room. This is true of brood-chamber, extracting and comb-honey super. Give the bees no more foundation than they can well cover, and they will do their best work. If more surplus comb is desired, honey must be left in the combs already full, and foundation added. Many a time I have seen bee-keepers add frames with foundation just before extracting, only to have the bees after extracting first utilize the drawn comb, and perhaps chew holes in the sheets of foundation, these holes to be filled with drone-cells when the comb is built out.

By means of taking away a portion of the frames in the brood-chamber, two days after the swarm has been thrown upon them, and replacing with dummies, the same beneficial results can largely be secured that are sought by hiving the swarm on starters and the drone-comb done away with. Whether in brood-frames, surplus combs, or sections I see in economic bee keeping no place for any thing but full sheets of foundation, and I have to buy every pound I use, or at least have my own wax made into foundation, which is the same thing. In moderate flows or in heavy flows I see the need alike. It should be avoided, to have foundation in the hive when the bees do not require it.
Brantford, Canada.

[This is one of the best and soundest articles on foundation that we have ever published, and I commend it to the careful attention of every reader. Especially would I place emphasis on Mr. Holtermann's treatment of a newly hived swarm, to keep it contented and from overheating and stretching the foundation.—ED.]

FOUL BROOD.

Some of the Late Statements Condemned;
Italians not Proof Against
the Disease.

BY J. E. CHAMBERS.

During the past year I have noticed many articles appearing in GLEANINGS, at different times, claiming that foul brood could be cured simply by changing queens; and lately Mr. Simmins and even such an excellent authority as Mr. Alexander, seem inclined to support that theory—see page 1318, Dec. 15, and page 22, Jan. 1. Without desiring any controversy with any one, I wish to say, for the sake of the pursuit, that I consider such doctrine sure to cause disappointment and even ruin; for you, Mr. Editor, are not far wrong when you say, page 23, that you can not understand why honey that remains in the hive where foul brood has been ram-

pant, and which has the germs of the disease in it, will not reinfect the new brood. I have had a good deal of trouble with foul brood in my own apiaries, and I am as certain that any treatment, no matter what it may be, that does not contemplate the removal of every drop of infected honey from the hive will be a failure. For several years I made numerous experiments, in many cases boiling the honey and feeding it back, in order to satisfy myself whether or not it was as contagious as report said. In all cases I took away every drawn comb, and gave foundation; but in every case the disease returned after a short time. I also tried the plan of taking away all combs of honey, but leaving the empty combs and allowing the bees to rear and mate a young queen. In a few cases the disease was apparently cured; but, I think, it always returned. However, I found out that, if every particle of pollen as well as honey was removed, the dry combs would be safe to use. But I would not advise the novice to take any chance with even these, for, to my certain knowledge, while I do not doubt the entire sincerity of all who believe that a cure can be effected by simply allowing the diseased colony to rear a new queen, I say emphatically it is a great mistake, and in saying this I am aware of the belief among many that these men who are authorities of no mean order should know more about foul brood in the infected countries of England and America than a mere novice; but to such I only want to say that I have had five years of steady work and experiment to rid my apiaries of the scourge, and I have succeeded to my entire satisfaction, but not by the methods advised. The old reliable McEvoy treatment, rightly administered, does the work every time.

Another foolish and in some cases fatal mistake is the belief that Italians are in any way proof against foul brood. During all these years I had one apiary of Italian stock from over a dozen of the best breeders in the United States, and here right among these bees, said to possess such immunity, is where the disease first started—brought, as I believe, from a distance of several hundred miles; but whether or not the infection was in the candy or carried by the bees and queen I am not able to say. At any rate I know it was not known here until brought by Italian bees; and I also know that it remained in that apiary as long as there was an Italian colony left; and I also know that very few of my Carniolan colonies were ever affected by it; and it never gained any foothold in my three Carniolan apiaries, but the Italians were wiped out or I had to requeen with pure Carniolan stock, since which there has been no foul brood in this yard. However, I do not claim that the Carniolans are proof against it, for I know that there is not a race of bees on the face of the earth that is proof against it. When once well started, the boasted Italians were in my case as helpless to resist its ravages as a rabbit would have been

when caught between the jaws of a panther. From what I know I have been forced to the conclusion that the most that can honestly be claimed for any race is this: The prolific races are better nurses, and rear more brood, and are, therefore, more inclined to clean up the brood-combs, spread out more in the main brooding season, occupying more of the formerly unused combs, and, consequently, are able to stand the ravages of the disease longer. But to say that any of the races are able to resist it when well started is, in my humble opinion, very simple.

In order to ascertain how far right I was in this matter I took several powerful colonies, and, after cutting a hole through a comb in the center of the brood-nest, I fitted in a small piece of the diseased brood from infected colonies, and in every case the disease appeared within two to three weeks, and that is just how immune the best colonies of Italians I ever owned were.

Now in conclusion I want to say that all men have a perfect right to their say; but when a doctrine is dangerous to the interest of our beloved pursuit, I think if there are any who know they should step forward and sound a warning; and this much I positively know, that *Italian bees are not proof against foul brood; neither is there a possibility of curing the disease as long as there exists a drop of the diseased honey in the hive.* Put that down in your little book, and keep it for future reference. I am willing to stand back of this, for with me it is not guess-work, nor jumping at conclusions; but, on the contrary, it is from the most trying experience of my life.

Vigo, Texas.

[If you will read over again what Mr. Alexander and Mr. Simmins have said I think you will see you have read more into their statements than the actual construction of the language specifies. Neither Mr. Simmins nor Mr. Alexander has claimed that the mere removal of a queen will cure the disease. Both state that such removal was a help, and should be used only in connection with some other helps or conditions that assist in bringing about a cure. One of those conditions was a broodless hive for a period of three or four weeks, during which the bees have an opportunity to polish up the cells. Neither did either one of them, so far as I can discover, make the bald statement that Italians are proof against foul brood. On the contrary, they simply stated they were better able to stand it. Mr. Alexander or Mr. Simmins, I do not remember which, included Carniolans with the Italians.

But there is another factor that perhaps you do not take into consideration. Mr. Alexander, if you will read all he has ever said, made no claims concerning *foul brood*. That to which he refers was distinctly *black brood*. As I have elsewhere pointed out in this issue, it now appears that the black brood of New York may be the foul brood of England but *not* the foul brood of Ohio and

Wisconsin. If this is so, it is only within late years that we have had what is really European foul brood, and that, so far as I know, has been confined to certain counties in New York. The foul brood of Wisconsin, Ohio, Michigan, and elsewhere, is quite a different disease. Mr. Alexander, referring to this, told me personally that he did not know what his cure would do with the foul brood we have in Ohio.

There has been any amount of proof adduced to show that Italians resist this black brood (or European foul brood) better than ordinary black bees; but no one, so far as I know, has ever made the statement that Italians are absolutely proof against it.

Respecting foul brood, or the kind that is found in Wisconsin, Ohio, Michigan, and Canada, I think all of us will agree to your propositions. The most that any of us have ever said, and I said it myself, was that there was a *possibility* that the Alexander treatment *might* cure the Ohio foul brood. But, as you say at the outset, I expressed my doubts.

For authority for the statement that the black brood of New York and the foul brood of Europe are alike, you are referred to the bacteriologists at Cornell University, and to the bacteriologist in the Department of Agriculture, working under the direction of Dr. Phillips.—Ed.]

FOUL BROOD.

Curing Diseased Stocks Without Medication;
Why Do Not the Stores Again
Start Disease?

BY SAMUEL SIMMINS.

[In January 1st issue, page 22 of this year, appeared an article from this same writer in which he showed that he has many years past advocated some of the principles so successfully carried out by Mr. E. W. Alexander in the curing of the disease known as black brood. In the footnote that followed I expressed my doubt as to whether the treatment would prove effective in the case of foul brood such as we have known in Wisconsin, Michigan, Ohio, and, years ago in the days of Moses Quinby, in New York. If Mr. Alexander and Mr. Simmins are talking about the same disease it explains why they agree.—Ed.]

Many bee-keepers, including editors, having heard it said that foul brood and other diseases can be and have been cured without medicinal application, and with no destruction or mutilation of combs or hives, say at once the thing is impossible. In this they are unlike the editor of GLEANINGS, who, while somewhat skeptical about the matter, leaves his mind open to all the facts which may yet be presented. The one thing we all hope for is that the said cure may presently be effected under his own personal investigation; and this, doubtless, will occur in good time.

I quite agree with the editor that it is most unfortunate so much valuable material has been sacrificed in the past; but this terrible destruction was necessary where the owners had not yet known or realized the better way; otherwise even greater troubles would have occurred in those localities.

It certainly appears strange, at first sight, and incredible to many, that the stores already in the hive do not continue to cause trouble; but right here let me state that some scientists have been unable to discover any germs of disease in honey taken *carefully* from a foul hive. Cheshire discovered only a very limited number in various samples.

It must be considered that honey is mostly a germicide; and when we realize that the cure without medication is adopted only during the active season, and that by my method of swarming I leave only the young bees on the diseased combs without a fertile queen, the bulk of the old store is used up by these youngsters in warm weather, and as soon as they get a fertile queen the combs are seen to become one mass of brood.

Next, we have to consider that the spores, if existing accidentally in small numbers in the honey, are destroyed as they germinate during warm weather, as they must then do, for the reason that the germs, having nothing to thrive upon in the honey, can not be reproductive; while the foul cells, being already cleaned out by the queenless bees, or those having no fertile queen, there is no further addition of spores to the honey.

To my own mind the matter of the stores is not nearly so great a marvel as the further and continued production of clean, pearly-white larvæ in the very cells the bees have so recently cleared of the foul matter.

But even this, again, is not so remarkable as the fact that certain queens can be placed at the head of foul stocks, with no preliminary preparation, and no interval, and yet soon after the bees of the new strain begin to appear the whole trouble gradually and surely disappears.

No one will disagree with the editor when he says that "we have demonstrated, time and again, that honey from a diseased hive will carry infection to another one perfectly healthy." But only think for one moment *how* this honey is removed from the diseased hive. Suppose the bees are robbing it, rushing excitedly over every thing and poking their tongues into every cell, crowding into dense clumps of living, writhing masses like something gone mad, which, indeed, is usually the case. Is it any wonder they take the plague back with them, even supposing the honey itself contained not a single germ of disease?

Then, again, if the honey should be extracted what is to stop diseased matter being added in the process, and such as never was in it while it stayed quietly in the hive along the margin of the diseased portions?

Suppose you take a knife, hoping to cut away the diseased brood, as many have needlessly and incautiously done. Don't you see that the knife cutting through some foul matter also passes through some possibly hitherto untainted honey, leaving it running for the bees to clean up? But leave the bees (of the same hive) to do the cleaning-out business and they neither mutilate the

combs not mix up the tainted matter with the stores.

I am strongly convinced that, in many cases of disease, when not far advanced, neither the honey nor the frames, nor any part of the hive, is affected beyond the space occupied by the actual malady.

Cheshire once told me how he took in hand a stock with its combs as bad as they could be with foul brood, and that in a few weeks he presented it to a committee of bee-men, in a perfectly healthy condition. This experiment was published far and wide at the time, and he claimed that it was solely by the feeding of phenol in the syrup that the cure was effected. Others have tried and failed utterly when using that agent; but my late friend did not himself grasp the great cause of his success.

The stock was almost depopulated, and had no queen. That was accident number one, and of necessity he gave a new and vigorous queen. The bees were far too miserable, and reduced in numbers, to hope to build up at all; therefore he gave them combs of healthy bees and brood, and that was accident number two. He, therefore, quite unconsciously, added the three most valuable items that would certainly help on to a successful issue—a new queen, fresh clean brood, and healthy bees. If these invaluable features in the case had only been realized by him, and insisted upon, many others would have succeeded, just as he imagined he had done when using phenol.

Heathfield, Eng.

[It is possible that a good deal of the honey in the combs of diseased colonies is not affected except through some manipulation of the apiarist himself. One can easily see how honey could be contaminated in the ordinary process of extracting, and throwing out possibly some brood with the honey. In any case, the average bee-keeper had better assume, in order to be on the safe side, that all honey from the infected hive may be diseased.—ED.]

LIGHTER GRADES OF BROOD FOUNDATION CONDEMNED.

Why it is Always Advisable to Imbed the Wires; Some Objections to the Shortened Top-bars.

BY E. F. ATWATER.

On page 208, Feb. 15, there is a discussion on the advantages of lighter grades of foundation. This is so contrary to my experience that, in my opinion, it is full of error. Even with fully wired frames the man who uses full sheets of light brood foundation is a heavy loser; and the worst of it is this loss continues as long as the combs are in use unless they are always used above an excluder so no brood is ever reared in them. But I want my combs all so perfect that they can be used in the brood-nest and mature *the maximum of brood in a given comb*

area. Look at that last statement of mine again, and remember that in it is expressed the whole story of most profitable use of foundation.

I have been "through the mill," in using such light foundation, with two, three, or four wires, with one, two, three, or four wires imbedded or not imbedded; and I say, avoid such light foundation, and imbed the wires; then *wax* the wires in place so that this line along the wire, usually the weakest place in a sheet of foundation, will then be the strongest. When Mr. Scholl confesses that he does not imbed the wires he gives away the whole plan, for he must leave the foundation not imbedded, so the sheet can *sag*; and a brood comb built on such a sagged sheet of foundation is a more or less sorrowful affair, and *always* unprofitable, no matter how much you "save" on first cost of foundation.

The theory of loose wires to allow sag is another idea that I want to discuss. The result may be a *straight* comb, all right; but if light brood foundation is used with those loose wires you lose enough brood area every year to offset, many times over, the increased cost of *medium brood* foundation, which is the lightest that can be used with the *best* results. What folly to pay out so much good money on hives and foundation, and then not have the maximum of brood-space in those hives, through a lot of sagged combs! Not only this, but the queen does not like to lay in these stretched cells, so you will not get brood so near the top-bars, and some of them will be changed into drone-cells.

As we have had foundation from several of the leading makers, Weed process, and of our own make also, you can't very well say that my experience with the light foundation was because of an unsatisfactory article, though I have bought some very poor foundation from one maker.

SHORTENED TOP BAR FRAMES.

Now a word on your footnote to Dr. Miller's *Straw* on page 200, about shortened top bar frames. You say that lack of finger room is the only objection to such frames. Let me give you a few more. Old hives, if slightly warped, allow frame-ends to drop down. When buying bees, sometimes the hives are a little too long (as you made them years ago), and we meet the same trouble. I asked you once if you could shake a big bulging frame of honey by grasping the top bar just inside the ends, but you did not answer. I guess you could not do it unless you thrust your fingers through the comb, under the top bar. The feature of a bee-space around the end of the top bar is very desirable; but I will not sacrifice any of that now too short projection by which we handle our combs. The only feasible way, I *think*, is to cut the rabbet $\frac{5}{8}$ or $\frac{1}{2}$ wide, instead of only $\frac{1}{8}$, then nail on a cleat $\frac{1}{2}$ to $\frac{3}{4}$ thick, $1\frac{1}{2}$ to 2 inches wide, across each end of the hive, *a la* Dr. Miller, or cut out the rabbet entirely, using a cleat on the principle which I illustrated on page 789, 1901.

Then we can use the full-length 19 inch top-bar, with staple for end spacing under the projection, and secure all the advantages for rapid handling without any sacrifice, and such a cleat on any hive strengthens the only weak place in the Dovetailed hive.

The only change with our old frames will then be to drive a staple under each end of the top-bar projection. I will be one to use such hives and extracting-supers if others will also adopt them, and I believe this to be the best solution, by far, of this problem.

Meridian, Idaho.

[When wired frames are mentioned, either by Mr. Atwater or by Mr. Scholl, I assume that both refer to the horizontal plan—that is to say, the end-bars are pierced, and the wires run parallel with the top-bar, and about two inches from each other.

What Mr. Atwater says in regard to the light weights sagging, making drone foundation when secured on horizontal wires, is true to a great extent; but light-weight foundation can be used providing *perpendicular* wires are secured in the frames; and we have been thinking for some time that we ought to devise some simple and cheap plan for securing wires to the top and bottom bar. If placed two inches apart on a perpendicular line there will be very little trouble from drone comb. Years ago we used such a plan of wiring, and now recall that we had great solid cards of *worker brood clear up to the top-bar*. I am not so sure but the Dr. Miller splints may be a partial solution of the problem. This is a good field for discussion, and we should be pleased to hear from our subscribers.

I will admit that there is one other objection to the use of a short top-bar, and therefore accept your correction; but in "this neck of the woods" at least, nothing but regular standard hives are used. But this difficulty of short top-bars can be entirely overcome, even when the hives are too long. Nail a thin strip of wood flush with the top of the rabbet, in each end of the hive, of sufficient thickness so that the top-bar will reach comfortably across without letting the frame drop down. We used to do this with old hives that we bought years ago of the farmers. The increase in the bee-space back of the end-bars will cause no appreciable trouble from burr or brace combs.

But I admit that the nicest solution of the whole matter is to cut out the rabbet entirely, nailing a cleat clear across the top of the hive to close up the space cut out. I have always conceded this; but, as you remember, I contended that, in view of the many thousands of hives put out, and I might say millions, having covers with downwardly projecting cleats, it would be impracticable for a manufacturer, at least, to start this innovation, because his customers would complain that the old stuff would not fit the new. But any bee-keeper can have his hives made to order, with rabbets cut out, with long top-bars and long covers to reach over the cleats.

Shake the frames having short top-bars? Why, no. I did not know that I had failed to answer your question on this point. Just the other day I was at one of our outyards, and observed that I found it most convenient to hold the Hoffman frame by the end-bar instead of by the top-bar. By giving it a quick shake all the bees can be dislodged, and the widened projection of the Hoffman end-bar gives a splendid hold.

If an extracting carrier-box is used, frames can be stood end bars up, and conveyed to the extracting-house, when they will be the right way up to be handled by the one who does the uncapping, thus saving the quarter twist.

But I have shaken many frames by the top-bars; and it is the most natural thing for me to grab between the end-bars, and I do not need to jab into the honey either. If the bars are $\frac{3}{4}$ in. thick there is plenty of finger room.

After all, this is a matter of getting used to a thing. Why, these fellows who have *always* used closed-end frames having no projecting ears to the top bars are compelled to grab the frames in the manner I have described, and they wouldn't shake by the bars even if they had them.—ED.]

WAX-RENDERING.

How to Manage Large Quantities; a Bee-cave.

BY ISAAC BARBER.

I have about one ton of slumgum. Some of this is nearly as heavy as wax, and some has but little wax in it. I bought out a large apiary, and I find barrels and boxes filled with this wax refuse. Some of the chunks are quite large, smooth, and hard. I think the wax has been rendered out in barrels by the use of a steam feed-cooker. I should like to know the best way to get the wax out of this, if you will kindly inform me. I have a good steam feed-cooker and two German wax-presses, plenty of barrels, tubs, and pans for holding wax.

We have some beeswax that we tried to refine. We put water and sulphuric acid and beeswax in a barrel. The hired man turned on the steam and boiled it for quite a while. When it cooled it was about like thick meal mush. Now, what can be done with it to make it marketable?

We have a cave in a dry clay bank about ten feet deep, eight wide, twenty four long; a ventilating-tube four inches square and sixteen feet long, in the back end of it. It reaches to within two feet of the bottom of the cave, and straight out at the top; double doors to the cave. We have 115 colonies of bees in this cave. The thermometer stands at 52. Will it be safe to leave them at this temperature? There is no roaring of the bees, but they are still and quiet. I have kept the ventilator closed except a day or two, and I thought they were not quite as still near the ventilator as at the other end of the cave. I am afraid of ventilating-

tubes, as I lost quite a number of colonies that sat next to them years ago. This is a large apiary I have just bought out, the owner having died. I know he has wintered bees successfully in this cellar for years; but I don't know whether he gave them ventilation or not. He told me that something dug some holes at one end of the cellar, and that quite a number of swarms died that received direct ventilation from those holes. From the experience of this man I am satisfied that bees can be successfully wintered in this cellar; but I don't know as to the ventilation.

Rodney, Iowa.

[The method which you followed in refining your wax was not quite correct. You should first put your cakes of beeswax into a tank or kettle containing a little water, and then boil the water until the wax is pretty well melted, and then keep the wax at a temperature near the boiling-point until you are sure that all is reduced to a liquid condition; then add your dilute sulphuric acid, and be sure that you do not add too much. The wax which you had left from your attempt at refining was evidently what we call "water-soaked," as you say it was in fine particles resembling mush. You should heat this up in a tank containing no water; and in doing this be very careful that you do not burn the wax. In this way you can reduce it to a firm solid cake. If it is now clean it is ready for market; but if not you should treat it in the manner described above.]

In reference to a method of rendering wax from a great quantity of slumgum, if this ton of slumgum which you say you have contains chunks very rich in wax—that is, if parts of this mass of slumgum had been partially rendered—I believe your best way would be to pick out these chunks of wax and melt them up separately. If I am right in understanding that this is the case, I would suggest that you follow the method I have just described, and then strain out the impurities. This will save running the richer portions of the slumgum all through the press. You could take these strainings and press them—an operation which would, of course, take but little time. The rest of the slumgum you would probably have to run through the press in order to get practically all the wax. I would suggest that you follow the plan given in the directions which we are now sending out with the presses. You will see that we recommend melting up the slumgum in another kettle or boiler when a large quantity is to be rendered, and then dipping this melted mass into burlap bags and pressing three of these bags at a time by the use of our cleated division-boards.

In reference to the cave in which you have placed 115 colonies of bees, I will say that, in my opinion, a temperature of 50 degrees is rather high, and I should suppose that you would need to use a ventilator. As long as the bees are quiet, however, you can be pretty sure that they will come through

the winter in good shape. If they are less quiet when the ventilator is open, I should think that some arrangement might be attached to the ventilator to keep out the wind, if there should be any, or the direct cold air.—Ed.]

----- ALSIKE.

Some Cautions and Suggestions Concerning it.

BY J. A. CRANE.

I have read with a great deal of interest the various ideas which have been presented by different writers in regard to the alsike-clover question. While admitting the desirability of having a large acreage of this excellent honey-producer, I wish to sound a note of warning, and I speak from a farmer's point of view, having been for 21 years in the ranks, and 12 years in the bee-ranks.

Several years ago the alsike craze struck this section of the country hard. One or two farmers who had land adapted to the growth of alsike made some heavy crops of alsike hay, of a very superior quality over the common red clover, being much finer of stalk, and more profuse of leaves and heads, being eaten clean by all kinds of stock, while the stems of red clover were left. As soon as the people saw or heard about this, alsike seed was soon at a premium, being sown on all kinds and conditions of soil, the result being disappointing in a large majority of cases, resulting in condemnation of alsike in all directions except by the few who had happened to hit the proper combination.

Now about the idea of furnishing free seed for farmers to sow fields of alsike. My advice would be to go slow by the majority of bee-keepers unless you know that the soil on which it is to be sown is proper for alsike. I have grown alsike clover whose stems were over six feet long, but that was on an old onion-patch that had been heavily fertilized, and the soil was full of humus, and naturally moist and friable. If you can get a chance to have such land seeded to alsike, by all means furnish seed free if necessary.

My plan has been for a long time back, when seeding a piece of land, to mix in a little alsike, say 10 lbs. of alsike to the bushel of clover, the alsike seed being so much finer than red clover that I get many plants to the acre; and where conditions are right it makes a good addition to the hay crop, and in other spots it will, perhaps, be about like white clover; but it will be full of blossoms, and I never could find that the bees preferred the heavy growth to that growing in swampy soil. In this way we can keep the land full of clover year after year, as it seeds itself much like white clover. A good many of the farms around here have been treated in this way till now the pastures and roadsides are well sprinkled, and, together with white clover, make a fair location for bees.

I would try by all means to get as many

farmers to sow some alsike with their other seed as I could induce to do it. The bees will get a longer pull at it in this way; for when alsike is sown alone it is cut two weeks before other hay, thus losing the best part of the honey crop; for I believe that, other things being equal, the best part of the honey-flow from any source is after the middle of the season of bloom rather than before.

Marion, N. Y.

----- THE CONTROL OF SWARMING.

Requeening on a Large or Small Scale; How to Do Away with the Swarming Fever.
A Reply to J. E. Crane.

BY C. W. DAYTON.

I find on page 571, in the article by Mr. J. E. Crane, the following: "Destroy all old queens of first swarms, allowing them to return." Indeed, that is brief management. If the swarm is allowed to return as soon as they please, the bees will *still* retain the swarming fever, and realize their disappointment, and will sulk more or less, sometimes for several days, even until the virgin queens begin to hatch, or until the issuance of the second swarm. The right way is to put the swarm in a screened cage or hive for eight to ten hours, queenless, then they will forget about the queen they came out with, and these hours of uneasiness will divest them of the swarming fever or mania, and when they return they will go to work as industriously as if they had not swarmed.

Mr. Crane also says, "There would likely be but little trouble with a few colonies; but when you try to manage a hundred colonies in one yard in this way, your patience will be sorely tried." I find the opposite of this to be the actual fact. The more swarms there are, and the more they mix up, the better the system works. One swarm separate is far more trouble than five swarms all in a bunch. I *want* the queens to be balled. That will show me where the queens are, so that they can be picked out. Queens in mixed clusters are very seldom balled in a vicious manner, and "soon stung." They are balled only lightly to show them they are not befriended. Then if the queens persist in staying they may be stung, after a time. This gives the apiarist time to attend to them as he likes. At the time of the issuing of the second swarm there will be plenty of young or virgin queens available. In nearly all second swarms there is *but one virgin*. If there is more than one it is because of some interruption of the regular course of procedure, such as inclement weather or the meddling with the colony by the apiarist, etc. The young queens can be obtained from the cells we destroy. Some are found just gnawing out, having been held prisoners in their cells perhaps two or three days by the bees of the swarm; yet all the time there may have been one virgin hatched out and coursing through the hive on purpose to let the bees

know that they may swarm at any moment, and have a queen.

If a single swarm comes out it may settle down in a quiet cluster with the queen in the middle of the bunch. This will depend upon whether they have their future location already picked out. If so they will remain clustered only long enough to be sure the queen is present. The queen makes her presence known by running through and through and over the outside of the cluster, leaving her scent on the bees. With more than one swarm in a cluster it causes matters to be very unsettled. Then when bees from several swarms are caged together it is all the more confusing in their swarming. The more confusion the better. It abstracts the bees from their own intentions. When first caged they will buzz and bump against the screen for awhile, but finally settle in a compact quiet cluster, and the queens will remain quiet. Then the bees can be poured out of the box on a smooth space of ground, and the queens picked up and caged in a few moments. When all the queens are secured, set the box down on the ground, open side down, and in an hour or so the bees will cluster in it again. Then put the screen on to confine them until it is time to let them go home, which should be near night. Wait until the bees find out that they have no queens, then they will *want to get out* and return to *their own hive*, thinking that their own queen did not issue with them. Open the screen only partially so that they can escape slowly. Do not throw them out in a pile on the ground. They are now dissatisfied with the strange cluster they are about to leave, and they will not go in with another cluster of strange bees unless it is by the confusion of a mass of bees together. They will not cluster "on other hives."

I began this season with over 300 full colonies in one apiary. On three sides are hills or mountains, but the ground on which the hives stand slopes upward on three sides, amphitheater-like. When the swarms issue they drift toward the center and cluster upon some small-sized trees all together, usually. If I am nailing frames or putting in foundation I do not stop my work until I see the swarms settled into a cluster, sometimes 50 pounds or more of bees. Then the cage is enlarged sufficiently to hold the whole bunch. I lay the screen on the ground while I hold the box or open cage in my hands. Give the body of the tree a good sharp kick, which knocks the bees off on the ground. Then set the box, with open side down, right in the middle of the pile of bees, and in an hour the bees will be on the inside, nicely clustered. Then turn the box right side up so quickly that the clustered bees do not have time to fall out, and clap the screen on. In an hour or two more they will be quietly clustered again, when they are ready to pour out and secure the queens. All this takes but a few moments. While the second swarms are absent from their hives, and the combs nearly bare of

bees, I go through the brood-combs to destroy the cells and secure young queens for requeening. Five days later I introduce young laying queens taken from fertilizing nuclei, and the colonies will not swarm any more, even if their hive is *greatly contracted*. Ripe queen-cells can be put in instead of laying queens if desired.

They do not "repeat the circus as long as a queen can be had to cheer them on day after day," as Mr. Crane states on page 571. That kind of circus is found in the systems intended to prevent swarms, but not in the above-described system. Mr. Cruickshank is working toward this system, but has not reached the most advantageous parts of the system. The bees should be *sent back home with a disposition to resume work*. Instead of swarming, drizzling along day after day for several weeks, it can all be completed within two or three days, and that when every colony swarms. The highest results demand this management. It is system. These other *things* there is so much about in the bee-papers are not systematic—guesswork, disappointment. Every colony is different from another. In the system above, every colony is like the next one throughout the apiary. In management, in numerical strength, in ultimate results, the apiarist can say, "I know that swarms (bees) can be *controlled* to the advantage of the apiarist."

Chatsworth, Cal.

HOW WE KNOW THAT BEES HEAR.

Some Facts that Seem to Indicate that they do.

BY WM. M. WHITNEY.

I hope I've not been the cause of an unpleasant mix-up between Prof. Bigelow and Dr. Miller in my query some time ago regarding certain sounds seeming to arrest the attention of bees. On page 1291, Dr. Miller, in reply to my query, makes the statement quoted by Prof. Bigelow on page 233, which the professor by implication seems to question.

Dr. Miller, in his reply to me, seems to misapprehend the import of my question, or perhaps I did not make my meaning clear. I do not pretend to be much of an entomologist, nor even much of a bee-keeper, but I do like to find out things. I have never doubted that bees hear sounds; but the query with me is, do not certain sounds cause them to halt when other sounds would not, as in the case cited by me? This case was so marked that there could be no mistake, as it was tried over and over again.

Prof. Bigelow's questions to Dr. Miller, at least by inference, it seems to me, cast a shadow of doubt as to bees being able to hear at all. I had always supposed that all animal life possessing the power of producing audible sounds also possesses the faculty of hearing; or, in other words, that each species capable of uttering sounds had a language of its own which could be heard and readily

understood by every other member of such species. The common cricket, I am sure, can hear. When a boy, living in the log home in New York, it was common in the evening to see the crickets come from under the hearthstones, seemingly enjoying the opportunity of giving us a free concert. It was an interesting and amusing exhibition to me, the appearance of these black shiny little choristers, arranging themselves to give us a serenade. I often amused myself trying to imitate their sounds, which seldom failed to arrest their attention; therefore I think they can hear, and it is quite evident to me that the honey-bee can also. Whoever doubts it, let him attempt to lift a frame

of comb from a populous colony where it is necessary to push aside the bees in order to get hold of the ends of the top-bar, and by carelessness or haste he pinches a bee so that it squeaks, and observe how quickly other bees hasten to the rescue. Don't take my word for it, but try it yourself. If you are not presented with arguments sharp enough, that bees hear sound, please let me know. Why the quack, quack of the young queen as she passes over the comb, and the response of her rival if they have not the sense of hearing? I have witnessed this same phenomenon while holding for observation a frame of comb containing some bees, queen, and queen-

cells a few days after a prime swarm had emerged. It was extremely interesting to witness the uneasy, excited actions of the queen as she passed along over the comb, putting her head into a cell here and there, and uttering the peculiar sound, something like a very much suppressed *konk* of the wild goose; then the response of the imprisoned queen in the cell, and the clustering of the bees to prevent results which would prove disastrous to carrying out their plans. The next day a swarm issued as I expected. Who among practical bee-keepers thinks that bees do not hear? Will brother Bigelow tell us what he thinks about the matter?

Lake Geneva,
Wis.

[Mr. Whitney is entirely correct in stating that when one pinches a bee so that it "squeals" its companions will rush to the



DR. LYON'S CAPTURE.—SEE NEXT PAGE.

rescue. Indeed, a cry of pain from an injured bee is quite liable to be followed by a sting or two from other bees.—ED.]

A PHOTOGRAPH OF A LIVE BEE SIPPING NECTAR FROM A PETUNIA-BLOSSOM.

BY D. E. LYON.

The accompanying illustrations are of a Caucasian bee sipping nectar from a petunia-blossom, and of a swarm of bees. The bee on the blossom was alive when I took the picture, and not a dead bee posed for the



'A CAUCASIAN CAUGHT IN THE VERY ACT.

occasion. The swarm was one that came from a neighbor's apiary, and clustered on a raspberry-bush back of the house. I cut a limb off the bush and hung it over the clothesline to photograph the bees.

Rye, N. Y., May 27.

[It is very difficult to get a live bee on a blossom and catch it with a camera. This is the second time Dr. Lyon has succeeded. He is to be congratulated.—ED.]

A GOOD REPORT FROM A NORTHERN-MICHIGAN BEE-KEEPER.

The Importance of Putting the Very Best Honey in the Very Neatest Package.

BY IRA D. BARTLETT.

I began my bee-keeping career in the spring of 1895, at which time I was eighteen years of age, with one colony purchased of a farmer near me. Later on he lost his entire apiary by foul brood. I increased to two colonies the first season, wintering them successfully, and increased to seven the next year. We got no white honey this year, but the buckwheat yield of honey was something unusual.

All of my seven colonies were well supplied for winter, and out of one super on one hive I extracted during the fall flow 175 lbs. I have never since had any thing like it, and during the last three years we have gotten very little if any buckwheat honey.

I kept increasing until I had upward of 100 colonies, buying out several small apiaries, but never selling any bees. I lost very few colonies during the winter, but in the spring I usually lost some by robbing or dwindling through various causes; and as I always make it a point to keep all good strong colonies during the honey flow I would unite my smallest swarms with some rather weak colony, and get them ready for the surplus boxes.

It would be almost impossible to tell here how I manage; but I can simply say that I learn to know my bees and try to give them just what they require. Of course, I have to run over the yard often, but it pays.

I have averaged about 100 lbs. to the colony one year with another. My best year was 1902, when I averaged through the yard 160 lbs. I sell my honey to the merchant almost entirely, putting up the extracted in glass, and my comb I pack in the no-drip shipping-case, 24 sections to the case.

I winter by packing my bees in a special



AN APIARY THAT AVERAGES 100 LBS. OF HONEY PER COLONY.



FIG. 1.—A BEE-KEEPER'S TRANSFERRING PARTY AT LUNCH.

winter hive to hold four colonies, packing all around with kiln-dried planer-shavings. I leave them in this packing until nearly swarming season, when they are placed on the summer stands.

I am looking after some 215 colonies this spring, but I expect to increase to 500 right away. The photograph shows my home yard of about 160 colonies. I find that, with a little help, I can manage a greater number.

I might write a long article on how I sell my honey, but will not take up space here; but let me say, don't be careless and put your honey on the market unless it is the best and the package the neatest, and live up to every agreement you make with your purchaser.

East Jordan, Mich.

A TRANSFERRING EXCURSION.

Transferring Sixty Colonies from Boxes to Modern Hives.

BY WM. A SEISER.

I enclose four pictures of a transferring excursion that we made to Salem on the 1st of May. Fig. 1 shows the party under one of the apple-trees, with the lunch spread out on boxes, the ladies sitting on the grass and

seats, and the gentlemen standing in the background.

You will notice in Fig. 2 a box hive turned upside down. The super on the old box was a soap-box, and you can see the printing on the box, as it is inverted. The box into which we are drumming the bees is made exactly to fit flush on the inside of the bottom of the hive. Norman Mattson is to the right, drumming with two sticks on the one side, and the writer is on the left, drumming with two sticks on the other side, with one of the guests assisting, holding the drumming-box down. My plan is to have each one of the sticks hit the side of the box with a slight jar at different times — not simultaneously. I have gotten better results from this than from any other way.

I have forgotten exactly, but think we transferred, in all, fifteen colonies that day. We had some sixty colonies in all to transfer. The other picture shows the beautiful apple-blossoms and the tree under which our operating-table was placed; a pile of drone comb as we threw it in a heap, and a barrelful of combs in which there was no honey nor brood, to be melted, and some of the cans into which we could put the chunk honey, and about a dozen of the hives in the apiary on the other side of the wire fence. I am sorry this picture did not take in the operating-table and some things on the other side of it. The last picture shows one corner of the apiary, which we have enclosed on two sides with a board fence.

Philadelphia, Pa.

**IF I WERE TO START ANEW, WHAT
STYLE OF FRAMES, SUPERS, AND AP-
PLIANCES WOULD I ADOPT?**

Would Adopt 8-frame Lock-cornered Hive, Staple-spaced Frames, 4x5 Plain Sections.

BY J. E. CRANE.

This reminds me of the question that often comes to us all: If I were to begin life over, how would I live? If we could only begin with all the experience of the years that are past, how much greater might be our success! It is just forty years this very winter since I bought my first hive of bees. How many different styles of hives, frames, supers, boxes, etc., I have used I can not tell. Could I have begun with my present experience it would have made a difference of many thousands of dollars, I am sure. Were I to begin again I would doubtless use a single-board hive of size to hold eight Langstroth frames, with improved bottom-boards, for comb honey; or for extracting, ten frames. I would have them lock-cornered too. Such have always had a very substantial look; but within a few days I have come to have a respect for lock corners I never had before. It was on this wise:

Wishing to use the sides of an old tea-chest I tried—yes, and after a time succeeded in knocking it to pieces. It was of soft lumber, $\frac{3}{8}$ thick, and nailed with small (I

think) one-inch nails; had been transported half around the earth with merchandise, and since its arrival in the Occident had been used for various purposes, and yet every corner was perfect, and came apart with more difficulty than an ordinary box hive $\frac{3}{8}$ thick nailed with heavy nails.

As we have a good deal of propolis in this section I think I should prefer a plain Langstroth frame. A staple below the ends of the top-bar to keep the frame from slipping endwise, and staples both at top and half way down at sides, to keep them properly spaced would be preferred. I don't think I would care to have the sharp edge of sheet iron or tin for ends of frames to rest on, as, in a yard I bought last spring, where these are used, I find with many the space back of the metal so filled with propolis as to make them a nuisance. I forgot to say that I would have all frames for brood-chamber wired, or a thin strip of wood for an upright in the center of the frame from the top bar to bottom. These strips are more easily put in, and just as good, so far as I can see, to prevent sagging and do little if any harm. Top-bars should be at least $\frac{5}{8}$ inch thick.

For a super I would use a shallow box five inches deep, with corners locked the same as a brood-chamber. It should be 20 $\frac{1}{2}$ inches long, and 12 inches wide inside, and hold 30 plain sections 4x5.

The bottom should be covered with slats the proper distance apart for the sections to



FIG. 2.—BOX-HIVE TURNED UPSIDE DOWN PREPARATORY TO DRUMMING THE BEES OUT.



FIG. 3.—THE TRANSFERRING-TABLE UNDER THE APPLE-TREE.

rest on. One side of the super should have, near the top and bottom, double-pointed tacks driven in so as to engage the edges of the sections, keeping them just $\frac{1}{8}$ inch from sides of super; also one side of the following board should have at top and bottom double-pointed tacks or a thin strip of wood $\frac{1}{8}$ inch thick to keep the section edges just that distance from the board. I have used wedges for pressing the following-board against the sections, and also forcing the sections and separators closely together. There is little fault to find with wedges; but if I were to begin anew I think I should prefer springs if they were not too expensive.

From the size of the super you see I would use a section 4×5 outside, and $1 \frac{3}{8}$ thick, and plain. There are several reasons for using a clamp or super and section of these sizes. The super would just fit the top of the brood-chamber, and fit the sections. The sections could go in either lengthwise or crosswise, if preferred.

I should prefer the $4 \times 5 \times 1 \frac{3}{8}$ plain, as, with a carton, it would average an exact pound; is very popular in some markets; cuts up better on the table than a thicker one, and will, I have reason to believe, be filled quicker than a thicker one. I have 200 supers holding 28 sections $4 \frac{1}{2} \times 5 \times 1 \frac{1}{2}$ plain, making a very thin comb, as sections go; and I am unable to see but bees fill such a clamp as soon as one holding but 24 sections of the same capacity, but $\frac{1}{4}$ inch thicker.

For some reason bees will fill a thin section, and seal it quicker, than a thick one of the same weight. A tall section also gives room for a larger number on top of the hive, which is often an advantage.

I would use a slatted separator with projections on the sides to engage the edges of the sections, and so keep the sections just a bee-space from the separator, thus giving the bees a chance to pass along the sides of the combs and edges of sections from one of the supers to the other. So well has this pleased me that I have, within a few years, thrown aside all my old separators, and made over all my old supers, and made new separators for some 1200 supers, so I could use a four-beeway section on all, without regard to expense, and have no reason to regret it.

Over the hive comes a roof, and I now think I should have it covered with tin, or sheet iron, painted on both sides, and projecting a little beyond the rest of the hive. I mean that the edges of the roof should project, not the edges of tin alone.

I shall include in my fixtures an escape-board $\frac{1}{2}$ inch thick. On the upper side it should be around the edges $\frac{1}{2}$ inch thicker to make a bee-space under the super. It should be large enough to cover the top of the brood-chamber, and have a Porter bee-escape in the center of it. Enough of them should be made so as to be able to take off supers rapidly, and free them from bees.

I would also have a good supply of honey-

boards, so made of thin lumber as to compel the bees to go up into the super from the sides of the brood-box, and thus prevent their carrying up dirty wax from below when finishing sections above old combs. Among appliances I would include a good honey-extractor, as there is always more or less honey that should be extracted as unfinished sections, etc.

I have always made my own extractors; but were I beginning anew I would buy a first-class machine. A four-comb Cowan will do the work very satisfactorily.

Another appliance I would get as soon as I had a few hives of bees; and that is, a good wax-extractor. I made one of these a few years ago, and am surprised at the amount of wax they save; but after using it I was chagrined to find out how many hundred pounds of wax I had lost for lack of a good press. I find my old combs average $\frac{1}{2}$ lb. of wax for each Langstroth frame emptied.

I have never used drone-traps and that sort of thing, believing it much easier and more economical to reduce the drone comb in a hive, or cut off the heads of drones before they hatch than to rear great broods of them and then catch and kill them afterward.

Whether few or many colonies are kept, I should want some conveniences for rearing queens so as to rear them from my best colonies, both for the pleasure and profit.

There is another matter I should speak of

before closing; and that is, that whether hives, frames, supers, sections, etc., are made at home with a Barnes saw or at a near-by factory or by a manufacturer of bee-supplies, I would have them made as accurately as possible, with good machinery and by equally good mechanics. Few things are more provoking and irritating than ill-fitting hive fixtures. If you set a brood-chamber on a smooth level table or floor, and have it stand on one end and side and have the other end and side rise from the floor till one corner rises from $\frac{1}{8}$ to $\frac{1}{4}$ inch, it makes it unfit for use.

Unless the supers are properly made they too will be "on the wind," and putting the two together leaves a space large enough for bees to fill with propolis, or robbers to enter in some unguarded moment, and, before you are aware, ruin, perhaps, your best stock.

I would not stand a variation of more than $\frac{1}{8}$ of an inch from the right size, and that would be just $\frac{1}{8}$ too much.

I am not sure whether I would order from supply-dealers or not, as I have sometimes received samples I would not use if they were given me, but rather order a single sample, and, if it pleased me, and could be duplicated with sufficient accuracy, order of them; otherwise get what I wanted near home, where I could oversee the work, and have it done right.

Middlebury, Vt.



FIG. 4.—THE TRANSFERRED BEE-YARD.



FIG 1.—THE CORRECT WAY OF SETTING A SUPER OR UPPER STORY ON A COVER TO AVOID BEE-KILLING.

HOW TO HANDLE HIVES AND FRAMES WITHOUT KILLING BEES.

Why the Bee-killing Practice Should be Avoided; Self-spacing vs. Unspaced Frames.

BY E. R. ROOT.

In our last issue our senior editor expressed pity and regret that so many bees are maimed and killed in handling them. I myself have seen bee-keepers show an utter disregard for the lives of their little pets. One man told me once that when it was cheaper for him to kill a few bees—that is, when he could make more money by sacrificing the lives of a few of his live stock—he did not hesitate to mash and maim; that he killed only a few hundred in a year, and he considered his time worth many times the lives of those bees. I suspect that there may be some truth in this if we consider *only* dollars and cents. But there is an ethical and humanitarian side to this question; and I am not so sure but that, if we plan rightly, getting into the correct habit of working, we can avoid killing any bees and yet not waste any time.

A good deal depends on the kind of hives, frames, and other implements used. But the kind of supplies does not make so much difference as one would suppose. One who is not familiar with handling a closed-end frame will kill more bees than one who is. It is probably true that one who is not accustomed to loose unspaced frames will maim not a few of the inmates of the hive by carelessly drawing these same frames out of the hive because they feel different and handle differently.

As we are now right in the midst of bee-handling, a few suggestions to beginners may not be amiss to even a few of the *veterans*. The novice, at least, should begin to form correct habits of working. He should always have a tender heart, for, as I shall try to show, a regard for the lives of our little servants will save many a sting.

HOW TO OPEN A HIVE AND TAKE OFF SUPERS WITHOUT KILLING AND MASHING BEES.

The accompanying illustrations give some hints as to how this may be done. With a screwdriver or hive-tool pry the cover up gently. When a crack has been made about $\frac{1}{8}$ and not more than $\frac{1}{4}$ inch wide, blow in a few puffs of smoke. If the bees are gentle, only one whiff will be necessary. If they are cross, use just enough to drive away the few bees that will be aroused by the breaking loose of the propolis between the cover and the hive. Lay this on the ground, top side down. We will suppose in this case we wish to lift off the extracting-super or upper story for the purpose of examining the brood-nest. Remove this in the same way the cover was lifted off. If the frames are closed-end (or part closed-end like the Hoffman) the super may be stood up on end; or it may be set down on the cover catercornered; but before the super actually comes in contact with the cover, give it a slight side twist. This will serve to brush off any bees that may be between the edges that come in contact. I said, set the super down on the cover catercornered. The purpose of this is to reduce the edges of contact to the smallest point possible. Let one corner strike the cover cleat with a bearing surface of not more than $1\frac{1}{2}$ inches. The other end

should rest on the other cleat so that the bottom edge of the super and upper edge of the cover cleat cross in the form of a letter X. The actual point of contact will then be only at the intersection of the X. This leaves the whole under side of the super and pretty nearly all the edges at both ends and sides with a clear bee-space, for the cleats project $\frac{3}{8}$ inch beyond the under surface of the cover now upside down; and even if a part of the super and top of the cover were black with bees, no harm will be done. Over and over again I have seen bee-keepers set their supers flat on the ground, often uneven. The result is a lot of killed and mangled bees. This is made the worse if there is no bee-space on the under side of the super or hive. As most modern hives have the bee-space on the top and not on the bottom it follows that the practice kills many bees.

Now we will proceed to open the brood-nest. A puff or two of smoke over the top of the frames will drive down any "insurgents" that may be disposed to offer attack. As the hive is one of the closed-end type it will kill bees if any thing will, so I take one of this sort.

We will select the frame we desire to remove, and with the screwdriver gently break loose the propolis connections of the frames on either side. We will now pull aside the frames *en masse* next to us, and push the other set *en masse* away from us. With the space thus made on each side of the

frame, we lift it out and examine the character of the brood; and if we find eggs we conclude the queen is present; but if no eggs are found on either side of the frame we pick out the set of frames next to us *en masse*. As we have not broken the propolis connections they will all hang together in one solid block, as shown in the illustration Fig. 2. We examine the two brood surfaces and set it back in the hive. If we are not entirely satisfied then as to what the queen is doing, we look over the two exposed surfaces of the other set of frames. Usually one such examination is sufficient to give us all the information we desire. As a rule, one frame picked from the center of the brood-nest will tell me all that I wish to know as to what the queen is doing, the amount of honey gathered, etc.

The operator, you will note by the above photos, puts the single frame removed on the ground, leaning it against one leg. In doing this he is careful to see that he kills no bees. As the other nine frames—four in one bunch and five in the other—were handled without separating them, no bees were mashed, because no frames were spread and put back together again.

The act of lifting up the two sets of frames will give a practical man an idea of the amount of honey there is in them; and if he now holds them up to the light, looking *between* the frames, first at the top side and at the bottom, he can give a pretty fair estimate as to the amount of brood, and



FIG. 2.—HOW TO HANDLE CLOSED-END FRAMES WITHOUT KILLING BEES.

honey too, in the whole four or five frames as the case may be, especially if they be less than the Langstroth depth.

Unless one desires to find the queen and clip her or destroy her and introduce another, there will be no need for one at any time to look for the queen, much less pull all the frames apart.* The mere presence of eggs seen on one of the brood surfaces examined, laid in regular order, is sufficient guarantee of her presence; and a practiced eye will soon tell whether she is doing her duty as a good mother ought to do.

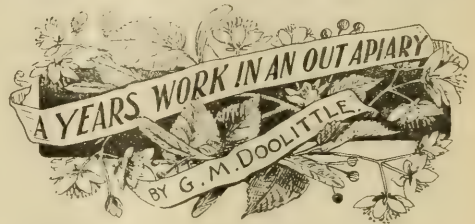
I have heard this hue and cry time and again about how closed-end frames will kill bees. If one is to examine every bit of comb surface, I am free to admit that he will increase his chance of bee-killing. But why waste valuable time in hunting the queen or going over every inch of brood surface when the examination of frames in the manner indicated will suffice?

As the particular style of closed-end frame shown in the illustration is pivoted in the center there is very little chance for killing bees when putting them back into place. Even if the end-bars are completely smothered with them, they can be set down, the action itself brushing them out of the way, when not a bee need be killed. We will suppose that we have put back both sets of frames *en masse*. If the combs are not bulged apart, and there are not too many bees, we can space them just far enough apart—that is, the two sets of them—to leave just barely room enough to slide in the frame we first took out, and which we have leaned against ourselves. This will brush all the bees off the end-bars, and not kill a bee. If the combs are slightly bulged, space the two sets of frames apart as far as they will go. Pick up the smoker, and with one or two whiffs at each end of the hive drive the bees away from the end bars. Do the same with the frame that is still out and is yet to be inserted. Quickly put it in place, and while doing so blow smoke down near the end-bars; and if you then hear bones crack it will be your fault unless time is more important than a few bees.

I dislike smashing bees between end-bars, for two reasons; first, from a humane point of view; and, second, because the little carcasses of the bees, even when mashed down flat, leave a space between the end-bars in which the bees will be sure to chink propolis. Next time the frame, by reason of the chinked-in propolis, will be much harder to remove.

Hoffman frames may be handled in precisely the same way as the closed ends shown here in the illustration. When one uses the old unspaced Langstroth he will have to work on a little different plan; and even then he will be liable to kill bees under the

projections of the top-bar if wooden rabbets are used, unless he blows smoke along the rabbet, or brushes away the bees that may be in the way. The main thing to observe in handling unspaced frames is to space such frames carefully; then when one desires to remove one frame he squeezes those on either side together slightly until room is secured. But with such frames it is impracticable to handle frames *en masse* as shown in the illustrations. This *en masse* method of handling big chunks of the brood nest when fixed or spaced frames are used saves the lives of a good many bees. An unspaced frame must be fingered into place one at a time, and not four or five at a time as may be done with the self-spacers.



CHAPTER VI.

HOW TO SAVE UNNECESSARY LIFTING IN TAKING OFF FILLED SUPERS OF HONEY.

But favorable weather did not come and continue; for on the very next day in the afternoon another rainstorm commenced, and bad weather continued the most of the time during the next eight days, at the end of which the clover bloom is nearly past. We now have a few days of fine bee weather, still and clear, with hot days and nights, which the bees improve as best they can on the few nectar giving flowers which are still in bloom. The first blossom-buds on the basswood-trees commenced to open on the sixth day of July, and I hoped that the good weather would continue right along; but with the afternoon of the seventh a two-days' rain commenced, which kept the bees in the hive nearly all the time. It is now the tenth day of July, and 15 days since my last visit to the out-apiary. As there is a prospect of a fine day I start to make my sixth visit to that enchanting place. Before going, however, I catch and cage three just-laying queens, from as many nuclei in the home yard, that I may be prepared to give them to any of the nine colonies I made at the last visit, which may, by any means, have failed to get a laying queen from the cells then given, taking them, together with a load of supers, with me. As the basswood is now nearing full bloom I am hoping for better weather, the same as the farmers are, who, all along the road, are opening out their hay, which "got caught" out in the rain. Arriving I find the bees rushing out of and into the hives, almost like mad in their wild scramble for the basswood

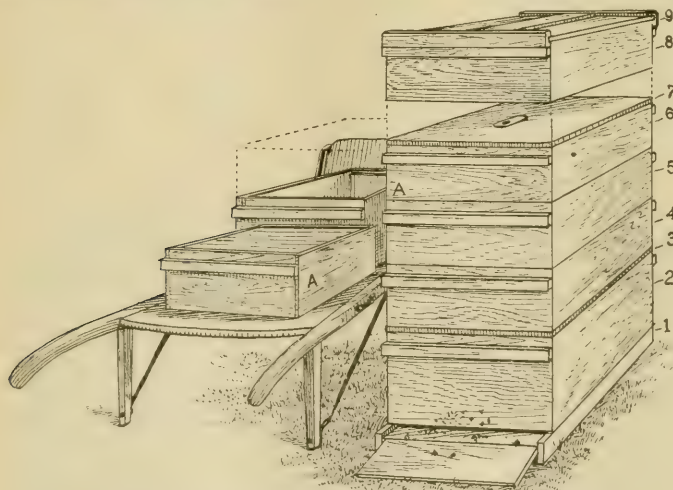
* If one is not looking for disease it is a waste of time when running for honey to pull apart all the frames except to clip or remove the queen, and even then an expert will often locate her on the first two or three frames. The course of her egg-laying will show where she ought to be. Frames should be handled as little as possible, and hives should be handled more.

nectar, which, to me, seems so thin that it is hardly worth the gathering, owing to the bloom having been kept wet continually for the past sixty hours. While the "scramble" for this thin basswood nectar is just as great as was that for clover nectar at my last visit, yet the number of bees going into and out of the entrances to the hives has lessened somewhat, owing to the death by old age of quite a number of the bees which were on the stage of action at the time the colonies were "swarmed," while, as yet, none of the emerging bees are quite old enough to become field workers.

The first work is to look after these thirteen colonies, so that, should there be any supers ready to come off, they can be put on escape-boards the first thing, this giving the bees time to leave the sections so these filled supers can be carried home with me. I find that each one of the thirteen has one super fully completed, ready to take off; and several of them have a second super nearly so; but as I wish to take off no sections not fully sealed over, at this time in the white-honey harvest, these nearly filled supers are allowed to remain on the hive. The taking-off at this time is done thus:

fact, with as little fatigue as is possible, and very much less than will occur when supers, hives, etc., are handled from the ground. The supers being now all off the hive and on the wheelbarrow, they are rearranged in putting back as follows:

The one that was at the top, the same being the one which was put on at the last visit, if the bees have worked in it at all, as they have in nearly all of them, is set back directly on the brood-chamber, and on top of this is put the one which is nearly completed, and on top of the two I place the empty super, or super of empty sections, just brought on the wheelbarrow. The board having the bee-escape in it is now put on, and on this the completed super is set. Having things arranged thus, and working in this way, no useless motions are made or lifting done that counts for naught. The cover is now put on, and another escape-board and super of empty sections gotten, when I go to the next hive, treating that in the same way if it is in the same condition. If I find that any have done less work, then the nearest completed of the two supers, not as yet fully finished, is set on the brood-chamber, the one little worked in top of



DOOLITTLE'S SCHEME OF USING A WHEELBARROW TO SAVE
HEAVY LIFTING.

I put on the wheelbarrow (every apiary should have a wheelbarrow ready for use at a moment's notice) an empty hive, and beside it I put an escape-board, and on this escape-board a super of sections filled with foundation. The wheelbarrow is now brought up close to one of these colonies that has a super ready to come off, when the supers which are not ready are set on top of the super on the wheelbarrow, and the completed super set on the empty hive. By using the wheelbarrow, and working in this way, there is little if any bending of the back when lifting the filled and nearly filled supers, so the work is done quite easily—in

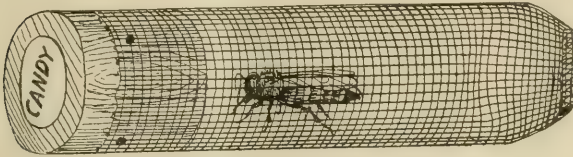
that, and the empty one from the wheelbarrow on top of this, with the escape-board and completed super above the three, as before. The thing sought after is to give room in such a manner that we shall not have a lot of unfinished sections should the season prove poor from now on, and at the same time provide plenty of room for the largest yield from basswood that is likely to occur in our locality; or, in the terms of ancient parlance, have the "pot" right side up, should there be a great "downpour of porridge." The old saying is, that "a burnt child dreads the fire;" and having been severely burned several times during the past by put-

ting an empty super under a partly filled one, just at this stage in the basswood bloom, which resulted, through a poor season afterward, in my having all the sections in both supers worked in, yet none completed in either, I am, perhaps, over-cautious now on this point. However, I think it better to use great caution at all times about putting an empty super under a partially full one, and especially so after having found that by putting the empty one on top better results can usually be obtained. I next look after the three colonies made by "shook" swarming at the fifth visit, exchanging supers and adding the third, where needed,

the same as was given when telling how the thirteen were treated at that time. These have the supers containing the bait sections nearly completed, and I am tempted to take them off, but finally conclude to leave them, which proved the best thing to do, the way the season turned.

DOOLITTLE'S CANDY METHOD OF INTRODUCING.

I now look after the nine colonies made at the last visit, and an examination shows that all have laying queens but one, so I have two of the three brought, to carry back



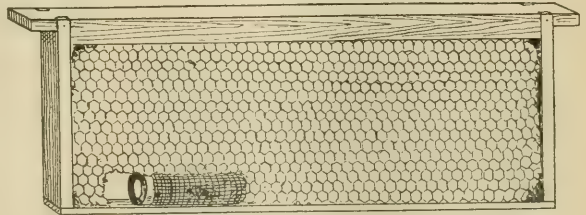
DOOLITTLE'S HOME-MADE INTRODUCING-CAGE.

home. To the one having lost its queen a frame of young brood is given, taken from one of the others, and one of the three queens I have in cages is given to it. The removable stopper in this cage is one which I call a "candy cord," which is made by boring a five-sixteenths hole through a piece of an old broom-handle one inch long, or some other piece of wood that will fit into a round wire-cloth queen-cage, the cage being made by rolling a piece of wire cloth, fourteen or sixteen mesh to the inch, around said broom-handle or the finger, and "locking the edges so it will retain the size wanted. This "cork," made from the broom handle, has the hole filled with "queen-cage candy," made by stirring and kneading powdered sugar and honey together till a stiff dough is formed, as is described in all of our late literature on bee-keeping. This inch in length of hole is filled with the queen candy, so the bees can liberate the queen at a time when she will be likely to be accepted by the bees, and at the same time not require my coming to

the out-apiary to look after the matter, as would be necessary by other ways of introduction. As a rule it will take the bees about 24 hours to eat the candy out of an inch in length of the five-sixteenths-inch hole, which is about the right length of time in this case to warrant safe introduction.

Having the queen all ready for the hive, a center frame is removed, and, after shaking the bees off, the cage is crowded between the bottom of the comb and the bottom-bar to the frame, seeing that there is nothing in the way of the bees having free access to the candy end of the cage, when the frame as thus prepared is set back in the hive and the hive closed.

Owing to the length of time between visits, the above, and the giving of queen-cells, is about the only way that queens can be successfully supplied to queenless colonies at out-apiaries. If I think any of these new colonies, or those having upper stories of brood, will be apt to need more room than they have, I now put on at the top a hive containing wired frames filled with foundation, so that they can draw them out suitable for more reserve combs, and fill them with honey should an extra good yield follow. In this way all are prepared for what-



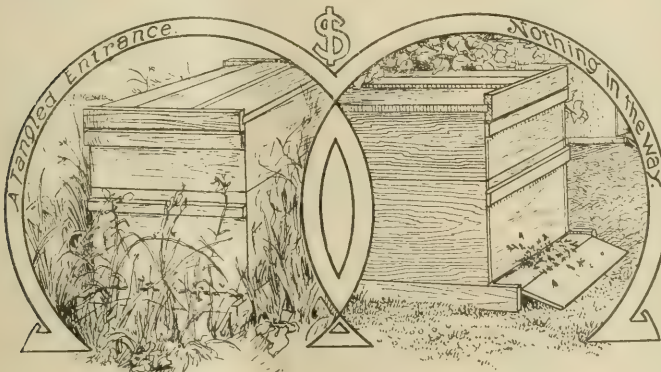
MANNER OF PLACING CAGE ON THE COMB.

ever may come, be the same wet or dry, cold or hot, a rich or a poor season, without feeling that I must go to the out-apiary with any change of weather that may occur.

WHAT IT COSTS THE BEE KEEPER TO LET

GRASS AND WEEDS TANGLE UP THE

ENTRANCE.

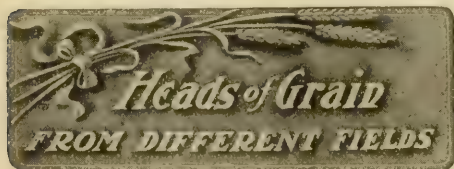


I next look after the "dooryards" in front of all the colonies, making sure that none will be bothered in their flight by grass or weeds, as well as to look after any little odds and ends that may need my attention before leaving. This keeping of grass and weeds down in front of the hives is quite an item here in New York, as they spring up almost by magic in a wet season like this one. From some experiments I have

made, by allowing the grass to "block" some hives for this purpose I find that, where badly tangled, the colonies in such hives will not store more than two-thirds as much honey during a good basswood yield as will those having a free flightway.

I am led to speak of this for the reason that I have found in many apiaries which I have visited during basswood bloom the bees crawling or hopping from spear to spear of grass or weeds, for from one to three feet from their entrance, before they could arrive at home with their loads. Heavy-loaded bees "tangle" much worse than those with no loads, and it seems cruel to make the little fellows struggle so to reach home, to say nothing about the apiarist's loss in honey. The looking after all of these things is often what makes the difference between success and a partial or entire failure. By this time the bees in the supers above the escape-boards will have nearly all run out of them, and the few remaining will go out during my wheeling them to the wagon, loading and getting started. The load and the mud make slow driving the order this time, and it is about 1:30 P.M. when I arrive at home.

In the above the reader has an account of what was done at the sixth visit. To be sure, there is considerable sermonizing mixed in, but this seems necessary for a full understanding of the matter.



THE J. E. CHAMBERS NON-SWARMING PLAN;
WHY WAS IT NOT A SUCCESS?

I have read with the deepest interest Mr. J. E. Chambers' article in the May 1st issue. When his non-swarming plan with the attachments came out in the Nov. 15th GLEANINGS I was so impressed with it, and it looked so feasible, that I made up 50 sets of the attachments and had them ready this spring when the swarming season came on.

Last spring I found myself with only 19 colonies out of some 70, because of the previous dry year, and I bent all my efforts to increase, with the result that I had 120 colonies by fall—about two-thirds of them made with a nucleus box between the middle of June and the last of October. This year I wanted all the honey I could get; and, to get the most, I wanted to prevent all the swarming I could; and because it looked so feasible and Mr. C.'s assertion of its almost certainty to prevent swarming, I prepared myself as above. But when I put it in practice I was most woefully disappointed. I think I must have operated upon thirty or perhaps

more colonies. At first, when they had queen-cells started, and eggs or larvæ in, and later when every indication pointed in that direction, but had not made the move yet, and in every instance, it was an utter failure—always swarming out from below as soon as the young queen was ready, and sometimes attempting it from above. Three or four cases, before the young queen swarmed, I removed the old queen with a frame of brood and honey and adhering bees, and put them on a new stand. After the usual time the young queen took up sway in the old hive; but the whole operation was as bad a setback as if the swarm had gone off, which they did in many cases, as I could not be there to watch them. Knowing this would be the case, I was the more eager to try some plan that would give me control. I think I followed to the letter the drawings, specifications, and manipulations given in the Nov. 15th GLEANINGS, except the few cases indicated above. In this last issue the chute differs from the other one in that it has a wire screen which brings the exit at the top of the chute while the other is at the zinc below. The last one operates in his queen-rearing hive described in an issue between these two.

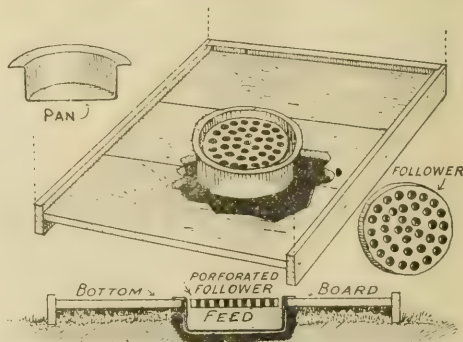
Now, I can not see where I failed, and yet I failed utterly. Toward the last of July, and through August and into September, I have tarweed honey, and I can not help it. Upon this I am planning to make my increase.

A. J. BURNS.

Lusardi, Cal., May 10.

FEEDING COLONIES BY SETTING THE HIVES
ON BOTTOM BOARDS WHICH CON-
TAIN PANS OF SYRUP.

In nearly every bee-journal I take up the question is asked, "What is the best way to feed bees?" Now, there are many ways. My way I have never seen in print; and as it may help others I send my directions. I can feed an eight-quart pan of syrup in one



night, and no robber be any the wiser. In the first place, my bottom-boards are independent of or separate from the hives. I have a few bottom-boards made expressly for feeders. I go to the tin-shop and have the tinsmith make a few eight-quart pans

with perpendicular sides, with a flanged rim. Then I take a compass and strike a circle $\frac{1}{2}$ inch smaller than the inside of the pan, on a board, saw it out and bore it full of holes with a $\frac{1}{4}$ -inch bit. This is a follower-board.

Next I compass outside of the pan, then take the bottom-board and strike a circle a little larger than the outside of the pan; then go to the colonies I wish to feed, dig a hole in the ground beside the hive that will admit the pan; place my bottom-board over this, and drop in the pan.

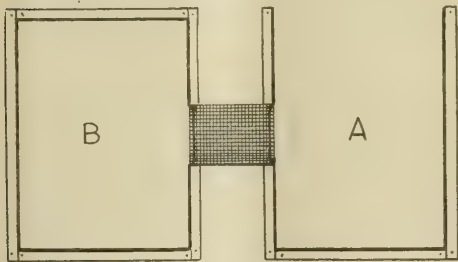
After the bees are done flying for the day I bring out my syrup a little warm, fill my pan, lay on the perforated follower-board, and place the colony of bees over the pan of syrup. In the morning very early I set them back on the stand and remove the feeder. If you wish you can feed two colonies at one feeder. Take off the cover of the lower hive; put on a queen-excluder, and set another weak colony over the zinc queen excluder. When you once have these supplies they last a lifetime. The bees will carry up eight quarts in one night, and not lose a bee by drowning.

CALVIN CRAIN.

Sparta, Mich., Feb. 26.

A DOUBLE-BOTTOM-BOARD-PLAN OF KEEPING DOWN INCREASE.

Mr. Root.—I am sending you a diagram of a double hive-bottom that I have used for some years. This bottom is large enough for two hives side by side, and is used when no increase is wanted. It has given good satisfaction in my yard.



A colony is placed on bottom marked A. When it casts a swarm, or when I brush a swarm from it, the old hive is moved over to the bottom marked B, and the swarm is placed on A. The entrance from A to B is closed, and the little runway between the two hives is closed with wire cloth to give the bees in the old hive a chance to ventilate but not get out.

As soon as the new swarm gets nicely started, open the entrance between the two hives, take the super off the old hive and put it on the new one. Leave the wire cloth on the runway between the hives, compelling the bees of the old hive to go through the new one to get out, since there is no other entrance.

When the young queen from the old hive undertakes to make her wedding-flight she is killed by the bees of the new swarm.

If a second queen should hatch she is treated in the same way. When the bees in the old colony find themselves hopelessly queenless they will join the new swarm. When the honey flow ceases, the bees from the new swarm will carry the honey out of the old hive and put it in the super of the new one. Now stack up the empty combs in a suitable place for next season.

Willamette, Ore.

JOSEPH EGGE.

[From a hasty examination of your plan I am inclined to believe it would work very satisfactorily. If you say it does, of course it would. Whether it would be better than some of the other plans for keeping down increase I leave each one to decide for himself. It is my impression that a young queen, when she enters the other hive for the purpose of getting out into the open air to mate, would in many cases supplant the old mother. I have seen so many instances of this kind that I have almost come to the conclusion that the young upstart is generally given the preference—that is, if the bees take any hand in it. It has been my belief that the young queen will go through the hive, find her old mother, and proceed to kill her, as she is usually stronger, and, on the principle of the survival of the fittest, the weaker is displaced. Possibly the bees may assist one or the other of the combatants.—ED.]

A CURIOUS BEE-TREE.

I should like to tell of a curious bee-tree I found to-day. While searching for a United States stone bench-mark in a woods my attention was caught by a swarm of bees working in a witness tree to this stone. The stone was set in 1882, and two trees blazed as witness trees. One of these, a box-elder, had decayed at the blaze, forming a cavity on the inside; but the outer wood was alive, and had grown a thick fold around the blaze, leaving an opening about 12 inches high and 8 inches wide. Now, what caught my eye at once was this: That the exposed combs (and the opening was full of them) were all *edgewise to the outer air*, just as in a modern hive. I was at once reminded of an article in a recent number of GLEANINGS relative to the reasons for placing frames lengthwise and not crosswise. The day had been warm, and the bees were flying outdoors; but although I was at work for some time within five feet of them they did not bother me. The opening was 4 feet from the ground. The bees were rather small, and tinged yellow nearly all over except on the back.

W. M. ANDREWS.

Greenville, Miss.

THE YELLOW SPIDER.

Last summer I had some experience. As the goldenrod was in bloom I found that dead bees hung thereon. By diligent search I found the yellow spider spoken of on page 232.

RUDOLPH LICHTWER.

Milltown, N. J., May 7.

BEE-KEEPING IN THE STATE OF WASHINGTON.

In reply to the query of E. J. Johnson, p. 442, I would state that I have lived in Clarke Co., in the southwestern part of Washington, for nearly thirty years, and to the best of my knowledge there is no one in the bee-keeping business exclusively, it being principally carried on by the farmers who own a few colonies apiece, usually not more than twenty; and when they use a hive that is recognizable as such it is usually of the Langstroth eight or ten frame size.

Our principal honey-plants, I believe, are white and alsike clover, a low scrubby bush called here buck-brush, which has a small bell-shaped pink flower, followed by a round berry which is white when ripe; willow, the soft and vine maples; fruit-bloom, and, in the wilder parts, fireweed. In the eastern part of the State there are alfalfa, sweet-clover, catnip, and horehound. Besides the above-named flowers there are numerous other varieties of lesser importance, but in no part is the quantity large enough to warrant extensive bee-keeping.

In regard to the fir-trees it was only once, several years ago, that I noticed the bees gathering what was apparently an exudation from the trees, and I believe it was only from the white firs that it was gathered; and the grade of honey produced was unsalable, being of a dark resinous nature, and partly candied, or, rather, granulated, when it came off the hives. This, I believe, was the result of a very dry time when there was little or no nectar obtainable from the usual sources. JOHN B. ADDISON.

Washougal, Wash.

HONEY IN THE BROOD-NEST WHEN RUNNING FOR COMB OR EXTRACTED HONEY.

On p. 84 W. K. Morrison says, even where extracted honey is run for in the orthodox manner, there is too much honey in the brood-nest and too much swarming. Whether I run my apiary in a correct manner in Mr. Morrison's estimation or not, I find my colonies of bees that I run for extracted honey just opposite the statement he has made above. I use the Langstroth frame in the brood-chamber, and queen-excluder above. I find those I extract from do but little swarming, and that the brood-chamber has been so filled up during the breeding season with brood that there is but little honey for winter. It is all stored in the extracting-frames above, and I have to hold in reserve full extracting-frames of honey for their winter use; and he says it is needless to say the conditions are worse when comb honey is sought for. The bees keep piling in honey in brood-combs till actually the colony dwindles to a mere handful of bees. I can not see where his shallow-frame hives are going to prevent them from dwindling, for the more young bees we have the less the death-rate. They must have plenty of room to rear brood if they are strong colonies, and we must have strong colonies when the honey-flow comes if we get a good yield of

honey; and I believe it is generally admitted that it is not the shallow hive that winters best in our northern climate on the summer stand.

I have found nothing that has been better for my use than the Langstroth frames, and ten of them in a hive; but the next thing of great importance is a prolific queen—one that will keep these frames full of brood, and I have not found any better than a Carniolan queen to do it.

Harrison, Ohio.

J. G. CREIGHTON.

IS IT NECESSARY FOR A QUEEN-BREEDER TO HAVE A LARGE NUMBER OF IMPORTED BREEDERS?

The Chambers cell-building hive may be all right, but why all this multitude of imported queens? It seems to me useless when he can get the number of queens desired just as well from one or two as from fifteen, and certainly home-raised queens are just as good as imported, for cell-building; and if the imported is kept in a small mating-box, such as I use, it is as handy, or more so, than to have a large hive to look over for larvae of the right age to graft with. Also, he will find the wear and tear will be much less on his breeder than if kept in a large hive with a full colony. All I do when I want to start a lot of cells is, four days before, to put a clean card of worker comb in with my breeder, and I have larvae just as I want them in a small, convenient frame to handle, and of the right age to graft without a hunt all over a large frame for what I want, as I sometimes have to do.

Hartford, Conn.

A. W. YATES

HOW SOME PEOPLE HANDLE BEES.

The outlook for the bee industry in these parts is not encouraging, because of the great losses in bees. This loss is due to the short honey crop and to careless methods in handling. Our surplus honey is gathered from white clover, and is principally gathered in June; and by the slipshod method of handling bees here they are seldom in condition to store any surplus honey. The seasons of 1903 and 1904 were good for surplus honey, and everybody was buying bees and going into the business, thinking all the knowledge necessary for handling bees was to know how to hive them and take off the surplus honey. To give an idea of the way some parties handle bees in this locality I will give a brief description. This includes a majority of the bee-keepers of these parts. They leave the colonies on the summer stand all winter without any protection, with the super on filled with sections. A great many use the old box hive, and think it superior to the frame hive; and a great many of those who use the frame hive never look inside nor make any effort to control swarming. It is even no uncommon thing to hear bells and pans rattling during the swarming period.

Republic, Mo.

GEO. W. BRYANT.

THE ALEXANDER PLAN FOR BUILDING UP
WEAK COLONIES; USING BURLAP AT FIRST
INSTEAD OF EXCLUDING ZINC TO PRE-
VENT FIGHTING.

I have read Mr. A. A. Clark's article, p. 658, concerning his failure with Mr. Alexander's plan for weak colonies. My bees are a mixed lot, some of them a clear black. I tried four colonies, putting a piece of new burlap on top of the strong colonies, closing up the entrance of the weak ones, then setting them on the burlap. Part I left closed in 24 hours, and the others 48 hours. As I had been sick all winter, and not very strong, I was about a week doing the work, and did not commence it until they had been out of the cellar two weeks. After 24 and 48 hours I removed the burlap and put in its place the queen-excluder. I couldn't see that the bees fought, and I think it is a big success. One of the weak colonies is nearly full of brood now. Another full colony had no queen. I found one colony with less than a teacupful of bees, with a good-looking young queen. I put the burlap on the queenless colony, with the hive containing the few bees and queen on top of the burlap, the bees being shut in the top hive. In 48 hours I took away the burlap and let them go together without queen-excluder. In two days they were carrying in pollen in fine shape.

Mt. Pleasant, Mich. H. S. WHEELER.

VERTICAL VS. HORIZONTAL WIRING.

I have just read Dr. Miller's Straws, p. 412, regarding horizontal vs. vertical wiring of brood-frames. In looking over the bees of a friend a few days ago I noticed that the frames they were on (L. frames with $\frac{3}{4}$ top-bars) were wired vertically, and it soon occurred to me that these combs had not sagged the least along the top-bars, as many of my horizontally wired combs in Hoffman frames did; neither have I found any combs in those twelve ten-frame hives in which the foundation had bugled while it was being drawn out by the bees.

My horizontally wired combs do not nearly, in average, come up to those combs, for which I can only blame my style of wiring. After reading Mr. E. F. Atwater's article in the *Review* and Dr. Miller's comment in the before mentioned *Straw*, together with what Dr. Miller has to say bearing on this matter in his "Forty Years Among the Bees," I have decided to give vertical wiring a trial this season and then compare results.

J. G. BAUMGAERTNER.

New Memphis, Ill.

ANOTHER PLAN FOR GETTING BEES OUT OF
THE WALL OF A BUILDING.

The article on page 433 reminds me of my first bees which I got two years ago the same way. I have since learned a better way, however. Often one does not wish to damage a building, and it is a sticky job, even if you do not get stung. My way is to stop all holes but one. Over this put a Por-

ter bee-escape. This should be done on a bright warm day. In about an hour there will be a lot of loaded bees trying to get in. Have a hive ready the same as catching a swarm with a brood-frame with brood and eggs in. Set the hive as close to the escape as possible. Now drive in the bees with your smoker. It is very little trouble. They will take possession, and start a queen. The bees will go in as fast as they come out, and inside of a month all will be out. Then you can take off the escape and they will bring out the honey and store it in the hive. It takes very little time, and does not damage the building. You don't get stung, and you have a good queen. ALBERT I. MILLS.

Ignacio, Colo.

A QUESTION CONCERNING REASON AND IN-
STINCT.

Allen Latham, in *American Bee-keeper*, tells of a small colony of bees that waxed up their entrance all but a small passage, and asks if it was reason or instinct that prompted them to do this. I will relate some of my experience along this line. I found a bee-tree about four years ago in the month of June. They had not been there more than one month. They had their entrance waxed up all but just room enough for one bee to enter at a time. Again, I found two bee-trees last June. Owing to my being very busy I did not cut them. They are standing yet. One of the trees has an entrance on the south side some six feet up from the ground. They have no more wax around the entrance than is usual in this locality. The other has an entrance some 15 feet from the ground. The entrance on the north side of the tree is large enough to get my fist in. The bees have closed this entrance all but a small passage. Was it reason or instinct that prompted them to do this? I am bound to say, as probably Dr. Miller would, "I don't know."

Furlington, Texas.

W. M. JONES.

HONEY IN BROOD-COMBS.

Is honey extracted from combs in which brood has been hatched unfit for human food? A prominent bee-man tells me that it is not; but from what I have read in *GLEANINGS*, I believe that a large number of bee-keepers practice this method. It is more convenient, many times, to do this than always to extract from white combs in which a queen has never laid. L. A. H.

[Honey from combs in which brood has been reared is always a little darker than honey from fresh combs, so they should be used only in cases of necessity. If such combs have not been used very long for brood rearing, however, the honey may not be enough darker to make any material difference in the selling price. As you say, it is not always possible to use combs which have never been used in the least for brood-rearing — ED]

BEE-KEEPING IN WESTERN NORTH CAROLINA.

Last season was a poor one here. Most bees are going to die from starvation except those who have them in standard hives and have given them proper attention. I have a few colonies of blacks and Italians in fine order, but I had to take supers from the Italians and give to the blacks, for stores. Italians go far ahead of blacks for me.

I had a few colonies of Italians in 1904 which filled three supers of fine honey. My neighbor had some that did the same. He was taking GLEANINGS, and we tried to keep posted on our bees. While our bees were doing this, others around us got scarcely any surplus. I lay it all to reading the plans laid down in GLEANINGS, and a good strain of Italian bees. Bee culture is in its infancy here yet; but I think it is growing nicely. We have a good market for all the surplus honey we can get, right at home. We get from 10 to 15 cts. per pound, according to color and quality. The finest and most surplus we get is from the sourwood, a noted tree with us for its fine-flavored white comb honey. We think it the finest honey in the world, although it does not give us a crop every season.

Honey plants and trees of this section are maple, poplar, blackgum, holly, persimmon, fruit-trees, blackberry, grape, plum, sumac, and various other small plants. The pea is getting to be quite an item here for bees in a late fall crop.

MONROE MOOSE.

Stony Point, N. C., Jan. 22.

DOES FEEDING PAY?

As the bee business is still new to me, answers to the following questions would be a great help:

1. When a queen's wings are clipped, and a swarm issues from a hive, the queen will, of course, fall to the ground in front of the hive. Now, suppose the bee-keeper were away, perhaps to be gone four or five hours; would the queen, after the bees had returned to the hive, find her way back, or would a part of the bees cluster about her and take care of her, or would she be apt to be lost or die?

2. In feeding for the purpose of stimulating brood rearing, how would it be to take a thin board the size of the hive (outside measurements), and cut a round hole in the middle just large enough to admit either a pint or quart pepper-box feeder, then tack two narrow pieces of tin across the hole each way? Now fill your pepper box feeder; put the board on top of the hive in place of the cover, with tin strips next to the frames. Put the feeder, top down, in the hole, and the tin strips will hold it a bee-space from the frames. Now put an empty super on, and a cover over all. Then every day you can take the cover off and quickly change the empty feeder for one with syrup. I have never tried this; in fact, I never fed bees in my life; but I should just like to know if you think it would work all right

and if it would be as good as any other kind of feeder for stimulating brood-rearing.

3. In the A B C of Bee Culture, page 160, under "Feeding and Feeders," it says, "Whenever possible, feeding should be avoided." Does that still hold good, or do you think feeding a little every day in the spring will pay? or is it better to keep the bees warm and let them take care of themselves as far as feeding goes, if they are fairly strong and have a good supply of honey?

NORTON C. MILLER.

Girard, Pa., April 9.

[1. In the great majority of cases the queen will find her way into the hive. If hives are set flat on the ground, or on low hive-stands fitted close to the ground, with an inclined runway to the entrance, the queen will be very sure to find her way back.

2. The plan you describe is essentially the one we have used for years in our own bee-yards, with this difference, that we do not make use of the strips of tin, for the ordinary pepper-box feeder as put out by supply-dealers has a bee-spaced rim of tin so that, when the feeder is set down on the frames, it will be held a bee-space above them.

The advice still holds good; but you must take into consideration seasons and circumstances that are present at the time. In the spring, stimulative feeding, if not practiced too early, will generally be found to be profitable, especially if the bees are not abundantly supplied with stores. Unless the bees have stores in super, or more honey in the brood-nest than is usually found, stimulative feeding in the spring pays and pays well. As Doolittle has pointed out, a colony that is not "rich in stores" will curtail brood-rearing.

Yes, avoid feeding where you can. It is a far better practice to give combs of sealed stores laid away from the previous season than to stir up a colony by giving it liquid food if the nights should be at all cool; or if the weather should be variable when bees can not fly, feeding should be avoided, because it excites and stirs up a colony, often resulting in over-stimulation, causing brood to be chilled.—Ed.]

IS IT SAFE TO BUY SOUTHERN QUEENS FOR NORTHERN APIARIES?

On p. 498 I notice Mr. Coggsall advises not to bring bees from the South, as they do not stand this climate, etc., and your advice is the same. Now, is this not positive proof that northern bee keepers should not buy southern queens? As Mr. Coggsall brought his bees to this State from Georgia about the first of June, every thing was changed by fall except the queens; and as the queens were Italians reared in the South they were, without doubt, of the common Italian stock of the South. The result would be the same, according to this, as in buying southern queens.

C. L. TODD.

Hartwick Seminary, N. Y., May 10.

[I do not think that Mr. Coggs shall meant to imply that southern-reared queens were not as good as those reared in the North; at all events, we have never been able here at Medina to detect any difference in vigor of the stock or its longevity, and we have had abundant opportunity for observation.—ED.]

HOW TO PREPARE HIVES FOR MOVING BY THE CARLOAD.

Mr. Root:—Thinking that the Root Co. has had more experience in shipping bees by the carload than anybody else in the North, I should like to ask a few questions about such work. I have moved whole apiaries with a team, but never by rail.

1. Can bees be shipped on loose hanging frames, combs built without wire, the most of them old and tough?

2. Had I better place a notched stick in the bottom of the hives to prevent the frames from swinging about? or would nailing the top-bars be sufficient?

3. About how many chaff hives will a car hold?

4. What kind of car would you prefer—box or stock?

5. Bees are supposed to have the chaff cushions on at the time mentioned. Would it be safe to lay the wire screen down flat on the top-bars, or should there be a narrow rim placed on, and the wire screen on the rim?

6. How would it do to change them into single-walled hives and place a piece of thin section between the hive-body and the lid, and nail them down tight, and not use any wire over the top-bars?

7. Do you think the last plan mentioned would be a little too chilly for them that early in the season?

8. When combs are very heavy with honey, should one side be extracted?

9. About what will it cost to run a carload of bees and supplies a distance of 500 miles?

10. How long will they be on the road?

11. Should the bees be all placed in the bottom of the car, and the lighter stuff placed on top?

12. Should the front of the hives be placed to the front or rear of the car?

13. Should they be placed solid in the car?

14. Is a man allowed to go with the car?

Friendly, Va. SAMP. WILLIAMSON.

[Yes; but we would advise piling the hives upon straw, and packing straw between the hives to cushion the jar or bumping of the car.

2. Yes; use a notched stick at the bottom and two at the top. The notches should be just wide enough to slip over bottom-bars and top-bars of those used on top. Of these latter, one should be used at each end, and tacked down right over the rabbet.

3. This is a hard question to answer, as box cars vary so in size; but at a rough guess I should say you could put at least 100 two story-chaff hives in an ordinary box car,

and probably three times as many as the ordinary single walled hive.

4. Use a box car in cool weather. In very hot weather perhaps a cattle-car might be better; but if the bees were to be exposed to the hot sun for any length of time, the box car, even in the hottest weather, would be better.

5. Do not use any chaff cushions on top of the hives at the time they are being shipped. If it is warm weather, the wire cloth should be raised above the frames by a rim two or three inches deep.

6. You could do this; but if you have room in the box car, chaff hives would be just as well. In cold weather a piece of thin section between the hive body and the lid or cover would answer just as well, perhaps, as wire cloth, and perhaps would be much cheaper to apply.

7. No. I do not think the single-walled hives would be too cool in your climate unless you were going to a place where it is very cold.

8. Yes, or take them out entirely and put in other combs not quite so heavy.

9. This question can not be answered, because you do not state in what direction nor on what road the bees are to go. Your agent ought to be able to give you definite information on this point.

10. Your agent could answer this question also.

11. The bees should be placed on a thin layer of straw to cushion them, as explained in No. 1. The hives should not be piled high—at least not more than two or three high, and lower if you can get sufficient room without tiering up.

It makes no difference which way the hives face, so long as the frames are parallel with the rails on which the cars run. This is very important. Do not make the mistake of putting the frames at right angles to the rails.

13. The hives should be cushioned between each other with straw.

14. Yes, a man can go with a car.—ED.]

BEE-SPACES BETWEEN SUPERS.

Do you recommend a bee-space between the supers? This is a great question with me. Some recommend it, and some don't, so I will take your word for it.

Helena, Mo.

E. TRACHSEL.

[By all means have bee-spaces between your supers. I do not know of any modern bee-keepers at the present time who would dispense with them. All factory-made hives, so far as I know, are provided with them. A hive constructed without them would be a fearful bee-smashing affair, to say nothing of the time it would consume in handling it.—ED.]

COMB ATTACHED TO SEPARATORS.

For two years my bees have been determined to build the honey on to the separators, and so spoil my sections for market. Now, what is the reason for that? Some

one said he thought it was because hives did not stand exactly on the level.

MRS. ORVILLE BUCK.

Farmington, Wash.

[This building of combs to separators is somewhat dependent on locality, but more on the strain of bees. By introducing a new queen into the hive that shows this tendency you may remove the comb-building propensity somewhat. Of course, if hives are not plumb the foundation will lean toward the separators in a way that will invite attachment when combs are being built out.—ED.]

CLIPPING QUEENS; IS IT ADVISABLE TO CUT OUT QUEEN-CELLS AFTER THE PRIME SWARM HAS ISSUED?

I wish to ask for information concerning bees. First, is it proper to clip the queen's wings before swarming in the spring, so as not to have the swarm leave the apiary? I have read a few articles on this subject, and have found but one where they recommended this, and that is in an article the G. B. Lewis people put out two years ago this spring. I tried this plan; and as I was not there every time when they swarmed, the queen would get in the grass, and I would lose her, probably stepping on her, or something that way, and I met with bad success, losing half my colonies, as they would be robbed by other bees. Probably I do not fully understand this system; and so in order to know the right way I write to learn it, as I consider GLEANINGS one of the best authorities I have.

Another thing I should be glad to know is, after the old swarm has left the hive do you think it advisable to go through the old hive and cut out all the queen-cells so there will be no more swarming? I believe one swarm is enough to take from one hive. If you take more than that you generally have weak swarms, and they make but little honey. I took my 34 colonies from the cellar April 7, and lost 3 out of the 34. All died of different things.

Waldron, Mich. FREDERICK M. BOYD.

[The majority of bee-keepers probably practice the plan of clipping all queens. But if you can not be present when the swarm issues you had better force a swarm artificially. In this connection read up the shaken-swarm plan as discussed in these columns about two years ago. A still better plan, perhaps, is to follow the Alexander method of making increase as described on page 423. If a colony persists in swarming with a clipped or confined queen, the bees are liable to kill her; hence the necessity of following one of these latter methods.

One swarm is generally enough from any one colony. You can, to a certain extent, prevent after-swarms by cutting out all queen-cells after the first swarm has issued, but there are several other things to take into consideration; and it would pay you, therefore, to look up this whole subject in the A B C of Bee Culture.—ED.]

THE ALEXANDER METHODS; HOW CAN THEY BE USED WITH CHAFF HIVES? SUPERCOVERS MADE FROM PAPER.

The queries I may ask may be like many others that you receive. If so, please answer in GLEANINGS. Mr. Alexander says no bee-keeper should have hives without movable bottoms. Why are not chaff hives made so it is possible to use his feeder and to build up weak colonies on his plan, which I believe is a good one. As I have chaff hives I can not try it? It looks as though super-covers could be made very cheap from paper, or like chair-bottoms, as 20 or over are sold for 10 cts. a piece. In theory and practice it has been the plea to make hives as simple as possible; but Mr. Aspinwall has taken a big jump the other way in his hive shown in GLEANINGS of April 1; but if it will do as is claimed I should like to try them, provided the price is not too high, and if bees can be wintered out of doors in this latitude.

J. S. DEAN.

Castleton, Vt.

[The regular chaff hives are made with the packing below the frames as well as around the sides. By a little changing, the hive could be so designed as to leave off the packing beneath, so that a movable bottom could be substituted. But this would probably mean that it would be more expensive on account of the extra number of small parts; and, besides, it would not be as warm in winter. With the chaff hive, therefore, some other feeder had better be used.

When using the Alexander plan for building up weak colonies it would not be necessary that the upper colony be in a chaff hive. The combs of bees could simply be transferred to a single-walled hive which could be placed above the excluder over the strong colony in the chaff hive in the regular way.—ED.]

DO QUEEN-BEES TAKE A CLEANSING FLIGHT THE SAME AS THE WORKERS?

Last spring we had a protracted cold spell with a very heavy snowfall for 14 days; and the bees, which had been unusually active prior to this, were kept in constantly until March 25. While looking at them I noticed a queen lying on a board in front of one of my strongest hives. I took her to the house and laid her on a window-stool in the kitchen. In the afternoon I went to show her to some company, but I found she was missing. After a short search I found her alive, well, and fixing up her toilet ready to take a fly. I took her back to the hive, opened it above, and noticed the workers received her in the cordial way so peculiar to their instinct. I have kept a few colonies of bees for thirty consecutive years, both for pleasure and profit; but this is the first incident of this kind that has ever come to my notice.

Muncie, Ind.

B. T. BOYD.

[Cheshire, in "Bees and Bee-keeping," Vol. I., page 143, shows that the workers are structurally compelled to take a flight in order to cleanse themselves. He then goes

on to show that the queens do not need to take a flight. He says, "The queen is an exception, so far as her capability of removing the intestinal residua is concerned, as her ovaries occupy the space taken by a pair of large air-sacs in the worker and drone, so that she on foot, and for an obvious reason, possesses the power the others acquire only when on the wing."

We are unable to say why your queen should have been found on the alighting-board, but the probabilities are that she had not been flying. —Ed.]

CROCUS-BLOSSOMS; THEIR VALUE IN THE SPRING.

I have ten colonies of Italian and hybrid bees in eight-frame and jumbo hives. The hives are located on land sloping to the south, with higher land, wooded, to the north. About 200 yards to the south of the apiary is a small plat of land in front of a greenhouse, which, some years ago, was planted with about 300 crocus-bulbs. These have multiplied, until to-day there are probably 10,000—a beautiful sight when in full flower, which they have been for the past two or three weeks. April 5 I examined my bees and found in every hive more or less unsealed honey. One very strong colony had built comb on top of the frames under a home-made Hill device, and had, I should think, at least 3 lbs. of unsealed honey in the hive. As there are absolutely no other flowers open in this vicinity, and as I have noticed the bees working very freely on the crocus flowers, I am quite sure that they gather the honey from those flowers. I have noticed the same thing to a less extent in previous years.

The question that arises in my mind is, will it not pay bee-keepers to plant some of these bulbs for making early pasturage to induce early brood-rearing? The bulbs are very cheap, increase each year, once planted need no further care, and for giving the bees early feed for stimulating brood-rearing, would, I believe, prove much cheaper than feeding sugar syrup. Of course, my location and conditions may be exceptional.

Millbrook, N. Y. I. L. POWELL.

CHANGING HIVES WHILE A SWARM WITHOUT A QUEEN IS IN THE AIR.

I had a swarm come out twice. It flew around, and, not finding the queen, it went back to the old hive. The third time they came out as before. As soon as they all got out I looked around the old hive, and then I found the queen walking around on the ground, but she could not fly with the swarm. I removed the old hive from the stand and covered it up with a sheet. I took an empty hive and put it on the old stand, placing the crippled queen in the empty hive. After the bees had flown around awhile, not finding the queen they came back, as they supposed, to the old hive, but instead they found an empty hive with their queen in it, and they were contented. After they settled I took

the new swarm and put them on a new stand; then I took the old swarm and put it back on the old stand and uncovered it. Business was then resumed as before.

Delhi, N. Y.

J. DEWITT SMITH.

HOW TO GET RID OF LAYING WORKERS.

If laying workers appear in one of my hives I move the old hive to one side and face it the opposite direction; then place a new hive on the old stand, and give a frame partly filled with honey and also two frames containing full sheets of foundation. When enough bees return to cover at least one frame I give them a frame of sealed brood, and two days later introduce a queen. Four or five days later, I shake the remainder of the bees in the old hive in front of the new hive, putting on an Alley drone-trap to prevent the drones entering the hive.

Dodge City, Kan.

P. R. HOBBLE.

A GRAPE-BASKET ON A POLE FOR A SWARM-CATCHER.

One of the handiest devices for taking swarms out of tall trees (or short ones either) I have never seen mentioned; viz., a common grape-basket. I have taken swarms from trees 60 to 75 feet tall. Take a light pole with the basket on the end, and shake the bees into the basket, and they will cluster in it. Let it down with a rope from tall trees. It can be carried in a basket very easily.

W. H. PRATT.

Sugar Grove, Pa.

OUTDOOR FEEDING; A FLOAT IN THE TROUGH TO KEEP BEES FROM DROWNING.

In reading GLEANINGS, p. 494, on outdoor feeding, I thought I would tell you about the feeder that I have found very satisfactory for outside feeding. A box or trough similar to that described on page 494 can be used. I do not like to give bees a chance to tumble each other into the syrup or honey, which I find they do on not covering the syrup. Inside of a box I fit a half-inch stock and bore it full of auger-holes, about $\frac{1}{4}$ -inch, and cover the board with wire screening; pour honey or syrup on the box, and put the board with screen on, right in the syrup-board. If the screen is tacked on well it floats on top of the syrup. If it does not settle down low enough in the syrup for the bees to reach, put a weight on the board so it will settle low enough for bees to reach.

W. G. ASBELL.

Sussex, Can., April 29.

THE PLAN OF HIVING ON STARTERS OF FOUNDATION UNSUCCESSFUL.

I should like to hear from some bee-keeper who practices hiving on strips of foundation. I use one-inch strips, and usually find them gnawed down by bees, and combs built crosswise. I also find altogether too much drone comb.

Dorset, Ohio.

B. J. HOLDEN.



Remember the sabbath day, to keep it holy.—Ex. 20:3.

Blessed is the man that walketh not in the counsel of the ungodly, nor standeth in the way of sinners, nor sitteth in the seat of the scornful.—PSALM 1:1.

It seems probable that dirigible balloons are going to be quite a feature of our city parks and other resorts; and our dailies last week were giving notice that there would be a number of ascensions from Luna Park, Cleveland, during the present week, commencing on Sunday, June 3. As soon as I noticed the opening flight would be made on Sunday, I said to Mrs. Root that there would very likely be an accident, and perhaps the aeronaut would lose his life. May be some of you will call me superstitious when I insist that Sunday is *not* as good a day for such reckless feats of daring as some other day. I do not think I am superstitious or unreasonable; and I am well satisfied myself that Sunday is no different from any other day except as community at large make it different. Our nation has decided that our American Sunday is to be a day of rest. I would accept it as the day that God told us to remember and keep holy. The man who has no regard for the feelings of Christian people, especially church-going people, is a man who will be likely to have trouble any way. He is not a person, in my opinion, to be intrusted with such risky business as going up in a dirigible balloon. It is a sufficiently reckless undertaking in the present stage of invention to be undertaken any day in the week. Whoever does it should have careful advisers and careful helpers—men who can look over the apparatus and see that every thing is all right, and as safe as we know how to make it. Such men can not be found who will volunteer their services for a Sunday ascension. When the *Leader* for this morning, June 4, announced that the air-ship broke in two when about a thousand feet up in the air, I do not believe I had much of a disposition to say, "There, I told you so;" that is, not in a way that I would want to boast that my prophecy or prediction had been fulfilled. I mean this: It is just about what we might reasonably expect the result to be with the average man or men who will lend themselves to such an undertaking on Sunday. Before I knew that their initial flight was to be made on that day I had planned to make a trip to Cleveland to see it, although I confess I am not much interested in any machine that has to be pulled up in the air by a balloon to enable it to fly.

Our second text admonishes us to be careful about the company we keep—the crowd

we are in. I very much dislike to travel in any way on God's holy day; and I especially dislike it because of the crowd I am forced to go along with or be classed with. I do *sometimes* travel on Sunday. I suppose ministers often feel almost obliged to patronize electric cars on Sunday in order to make their appointments; but I hope—and, in fact, I believe—that our good ministers are very careful to avoid accepting any appointments that necessitate Sunday travel. In the same way, I would try to avoid using the electric cars to get to church; first, because we are giving the car people an excuse for Sunday traffic and the managers for their Sunday work. Second, because of the low character of the crowd we are almost sure to get in with.* If I could not get to church in any other way than by the electric cars I do not know but I would patronize them; but I would try hard to keep out of such a condition of things.

In this same Cleveland daily that mentions the collapse of the air-ship and the narrow escape from death of its operator (he was taken up unconscious, but escaped with his life), we have another item of news that I wish to give you:

DIVER'S CLOTHES STOLEN AS HE RECOVERS BODY.

While watching his father fish from the pier at the foot of Willson Avenue yesterday, Frank Fiere, six years old, No. 1161 E. 61st Street, fell through a hole in the dock and was drowned. More than a hundred persons were close by. Several of them saw the boy fall, and heard his cries, but none attempted to rescue him.

Flynn & Froelk's ambulance was called. John Thrasher, one of its crew, volunteered to recover the body. He stripped, and dived three times. The third time he recovered the body.

Thrasher left his clothing on the dock. While he was under water some one stole all of it except his trousers and coat. These were thrown into the lake.

The Fieres are Hungarians. The father is a laborer.

Now, friends, it will repay you if you read the above over carefully. Even if it is a brief sketch of a sad accident, it throws considerable light on a good many matters. We do not know much about this father; but we do know he did not hesitate to go fishing on Sunday and take along his six-year-old boy. It seems to me he must have been a stupid heartless father to allow that boy to be playing on a dock where there were holes he might fall through. We also wonder that he permitted the boy to get so far away that he did not see him fall nor hear his cries. A *hundred* persons were close by. What were they doing there on Sunday?

* Here is something I have just clipped from the *Cleveland Plain Dealer* in regard to the crowds one is pretty sure to meet on Sunday travel:

"The New York Tribune remarks that it would be a very good thing to station policemen on all Sunday street-cars returning from pleasure resorts. It would be a good thing—just as good a thing in Cleveland as in New York. When it comes to street-car hoodlums Cleveland won't take a back seat for any one."

Why do the *Tribune* and *Plain Dealer* specify Sunday street-cars returning from pleasure resorts? Because, as everybody knows, the class of people who visit resorts on Sunday are a lower class and a tougher class than go to resorts and excursions held on week days. One might think that even resorters should be a little more dignified and manly on God's holy day; but it seems to be just the other way. My friend, do you want to be in that kind of crowd? do you want to be classed as one of them?

What sort of people were they, any way? The paper tells us that several saw the boy fall, and heard his cries; but not one of the hundred attempted any rescue. Is such a thing really possible in any city in the United States? Were there no *women* in that crowd of a hundred or more? Were there no *mothers* there who could make a fuss and call on some of the men to save the boy? Surely there were plenty of swimmers in that crowd; but not one did any thing or made any attempt at rescue. It certainly was an unusual crowd. God forbid that there should be many such crowds in this land of ours.

After the boy was dead beyond possible resuscitation somebody called an ambulance. Then, and not before, a man was found (with the ambulance) who volunteered to recover the body. By the way, I have often wondered why people the world over make such a fuss and go to so much expense to recover a dead body. I would not mind risking life and risking money without limit to save the *life* of a man, woman, or child; but what can anybody do with a *dead* body—that is, compared with the importance of saving a living body? This man Thrasher dived three times before he succeeded in finding the body of the boy. What did the crowd do meanwhile? Did they have ropes or clothing tied together, or something of that sort, to assist the diver in getting out with the body? Did they encourage him with sympathy? Was a purse made up for the man who was willing to dive down into the cold water to get even a dead body? We are not told any thing of the sort. What did this crowd of over a hundred people do? Why, they *stole his clothing* while he was under the water in pursuit of the boy who was dead! (I do not know exactly why, but in some way it reminded me of the soldiers who cast lots for the clothing of our crucified Savior when he was silent and still, nailed to the cross.) The vest, perhaps, contained his watch and money. The trousers and coat were of comparatively little value so they were thrown into the lake. But why did not somebody tell the diver, when he looked around for his clothes, *who* it was that had stolen his "raiment"? Come to think of it, why did not somebody in that crowd of a hundred *protest* against such inhuman work? The last sentence informs us that this father and son were Hungarians. Was that whole crowd Hungarians? or what were they? Was that crowd a sample of the people who are being unloaded in the United States by the hundreds, thousands—yes, I might almost say a million—in the course of a year? They are coming here, scattering all over our land in order to become American citizens. The task devolves on us who profess to love the Lord Jesus Christ to educate and Christianize these throngs of foreigners. I believe something is being done in the way of restriction. Perhaps some are sent back who might make good citizens; and may be some are permitted to come in here among us who are hardly fit or worthy of an abiding place

on the face of the earth. May God help us if this brief newspaper sketch is a picture of some of the crowds that are peopling our land.

Now, friends, what are we each and all doing to help preserve God's holy sabbath? What are we doing to preserve the dignity and manhood of those who occupy our broad acres? A very good friend of mine was at work this morning on my automobile. He is a bright young fellow with a wife and two children. Both he and his wife are members of the church. He is a very busy man, and has a keen love for every thing that is going on in this country of ours, especially the mechanical world. He is bright and keen to grasp hold of new ideas. I think he reads quite a little in our mechanical books and papers; but I was pretty sure he did not attend church very regularly. Said I:

"John, you are going to church nowadays, are you not?"

He laughed, and hung down his head, and said he was ashamed to say he had not been much of late. He next told me of some of the obstacles that stood in his way. I told him about the clipping I have given above. I reminded him of the tendency among people who do not go to church; of the inhumanity, the stupidity, and the awful indifference among those who know nothing of Christianity and God's love. He has a girl five years old who goes to Sunday-school quite regularly, but he admitted that he did not go *with* her. I reminded him how much his keen judgment and sense of right and wrong might help in holding up the church of Jesus Christ; and I also cautioned him in regard to the danger of staying away from church and Sunday-school and from prayer-meeting. Dear reader, I felt a desire, when I was talking with him, to talk to *you* in about the same way. What do *you* think, my friend, of that crowd that let that six-year-old boy drown and did not try to save him? What do you think of the crowd that let somebody steal the diver's clothing when he was under water? Do you want to be with such a crowd or in such a crowd? Do you not believe the church, the Sunday-school, and the prayer-meeting will be a better place for you and your wife and children on God's holy day? I know all about the excuse that some of you make, that you are shut up on week days, and that you greatly enjoy a June morning out in the open air or out in the country. But, my friend, I do not believe that any of you have to be shut up more than ten hours a day on week days—perhaps some of you only eight. There is lots of time in June, in the morning and evening. At our house it is light enough to see to get around at half-past three in the morning. Then there is lots of time in the evening before it gets dark. Does not that give you time enough to be outdoors? Then, again, the ordinary church service now seldom lasts over half or three-quarters of an hour. Sunday-school takes only one hour, or let us call it that; the Endeavor meeting and the evening se-

vice may take two hours more—that is, provided you have an evening service in summer. Most of you can get quite a little exercise in going to these places and coming home. You can see your neighbors' yards and shrubbery on the way to church and back again. Some of you can go out to your own woods on Sunday afternoon between services; or you can get outdoor exercise by going to see somebody who is sick or old—perhaps some relative whom you can brighten and encourage. May be there is somebody around you who would be glad to have you read the Bible to him. Invite your friends to go to church. Ask your minister what you can do to help him. Take a class in Sunday-school. That, surely, will give you "exercise," especially with such a class as I had yesterday. There were fifteen boys who averaged about a dozen years old. I had a good nice talk with them. They enjoyed it, and so did I; and the memory of their bright faces has been with me almost ever since. I am away from home so much that I do not have any regular class in Medina just now; but I am a sort of supply teacher to fill vacancies.

THE NEW ROOT GENEALOGY.

About 35 years ago a pretty good-sized book was published called "The Root Genealogy." It included the greater part of the Roots in the United States at that period. We succeeded in carrying our ancestry back to England. They came over to America some time before the Puritans landed. Well, just now a much larger book is being compiled; and if any one who sees this is in any way connected with anybody known by the name of Root, Roote, or Roots, the compilers of the book (Root Genealogy Co., Woodmen of World Building, Omaha, Neb.) will be glad to hear from such party. Here is what they say in regard to their work of collecting notes:

Ernest R. Root:—We are beginning to think there are more Roots out of the book than in—at least one-third of all the replies we receive do not have a direct connection. We are now engaged in the Canada quest, and shall doubtless find descendants from the solid old tory, Solomon Root, who left Hebron, Ct., for Canada during the Revolution. There were quite a number of Roots during the Revolution who were counted tories; but I don't think we are descended from that stock.

Our A. I. Root (A. I. Root of Omaha, Neb.) sails for England June 6, and will endeavor to look up some early family history. C. M. Root.

I have thought best to give this notice because so many are writing to me whose name is Root or who are connected by marriage to some one of that name.

SHEPARD'S CHICK FOOD

is a mixture of carefully selected, thoroughly cleaned and graded broken grains and seeds. Complete ration for little chicks until old enough to eat wheat. Makes them grow faster and feather out quicker than any other feed. Feed dry, and what the flock will eat up clean. Easy to feed. Easy to get. \$2.25 per cwt. Sample on request.

O. C. SHEPARD CO., Medina, O.

BANKING BY MAIL

To accommodate the large number of people who keep money at home, or in a local bank where it is earning little or no interest, this bank receives deposits by mail on exactly the same terms as though made in person. Deposits may be sent safely by postoffice or express money-order, New York draft, check on local bank, or currency. We will on request write you how you can bank safely and conveniently by mail, no matter where you live.

4 PER CENT INTEREST on SAVINGS

Assets of over one half million and the management of prudent men of solid financial standing give this bank every element of safety.

THE SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

JOSEPH HORNE CO.

Pittsburgh, Penn.

Men's Negligee Shirts, \$1.00

Now while we are aware of the fact that every merchant carries a dollar shirt, yet such shirts are not to be confounded with our famous Staghead brand at the dollar price.

We personally superintend the making of these shirts; we see to it that they are made of materials that will launder, that will give good service; we allow no skimping; we demand that they fit perfectly.

The colored shirts are made of madras—there are stripes of different widths and colors on white grounds, and many small figure effects on white and colored grounds.

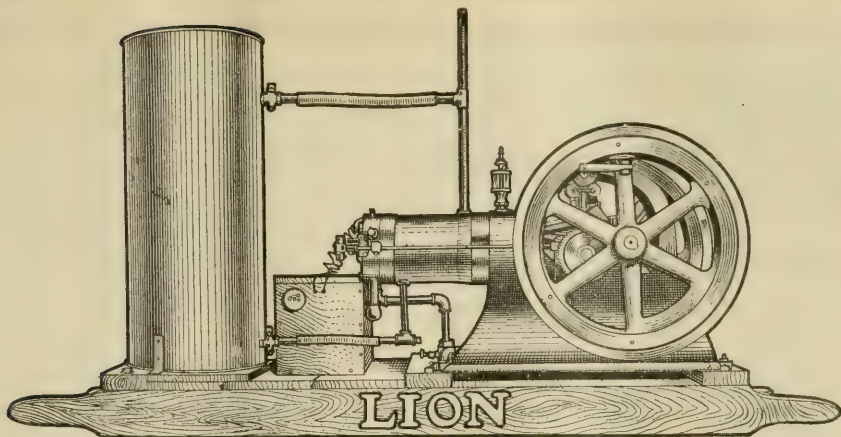
There are shirts with attached cuffs and others with the cuffs detachable.

At this same price of \$1.00 we make a specialty of a white negligee shirt; made of a good grade of cambric, pleated bosom without cuffs or with cuffs attached.

The man who wants the best shirt \$1.00 can buy should let us have his order for two or three of these shirts at once.



EXTENSION AXLE NUTS CURE WABBLERS.
Make old buggies run like new. Quick sellers.
Very profitable for agents. Exclusive Territory.
Hardware Specialty Co., Box 535, Pontiac, Mich.



IT'S READY TO OPERATE

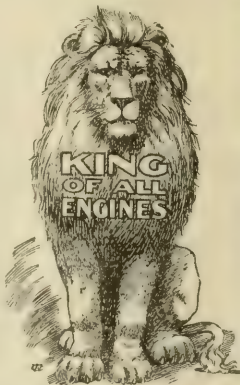
There's no firing-up—no waiting for steam with a **Lion** Gasoline Engine. It is **always ready to operate**. Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

The Lion Engine

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

We sell direct from factory to buyer, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion** engine and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion** engine. It is free if you mention this paper when you write.

Lyons Engine Company
LYONS, MICHIGAN



85 BEST Farm Gates SOLD to ONE MAN

and are now in actual everyday use on his farm. This certainly is pretty strong evidence of the superiority of the BEST GATE. A good gate is necessary to complete the fences on a well kept farm. It will more than pay for its first cost in one season in the time and labor it saves the farmer in passing through it, or in driving from one field into another.

Shelbyville, Ind., March 3, '06.
Best Gate Co., 67-69 E. Jackson St.

Shelbyville, Indiana.
Dear Sirs:—Please deliver to bearer, Albert Luther, six 12 ft. BEST Gates for Fairland farm. This will make eighty-five BEST gates bought of you for our farms in this county, many of which have been in use several years. They are light, durable, and do not sag or warp, and have not cost one cent for repairs. In view of these facts, I will continue to buy BEST Gates, and no doubt will have one hundred or more in use before fall. Very truly yours,
J. B. HAMILTON.

The BEST Gate

is certainly just what its name implies—it is the BEST for any purpose. It is light, strong and convenient to handle. The frame is made of select hard pine and strongly braced. There are TEN STRANDS OF HIGH CARBON COILED SPRING STEEL WIRE on this gate which are attached to the frame work with a PATENT RACHET so as to allow for tightening when needed. You cannot reproduce this gate for less than 50 PER CENT MORE THAN WE ASK. We sell the BEST GATE

Direct from Factory to User

and PREPAY THE FREIGHT as far as 300 miles from Shelbyville. PRICE \$5 and upward according to the size of gate. The illustration below shows the strength of THE BEST GATE. It is not an exaggeration for this gate will hold a weight of more than 700 lbs. without buckling or sagging. Write for our booklet, it describes The Best Gate more thoroughly than we can in this advertisement.



THE BEST GATE CO.

Dept. L

Shelbyville, Indiana.





This is but a Block---

It shows, however, what can be made with one of our hollow concrete-block machines.

We have machines for making blocks of many different styles and at many different prices.

Send for our new booklet showing styles of houses and block-making machines.

Yours for the asking.

Medina Concrete Company
22 Court Street, Medina, Ohio

A Great Bargain

On account of death of owner about 85 colonies of pure Italian bees, and a large amount of supplies for sale at 50 cents on a dollar.

D. F. KRECKLAN, 2423 Lyndale Avenue, North, Minneapolis, Minn.

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

MYERS
The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.
Ashland, Ohio.



Deming's Sprayers

are the ideals for many thousand fruit growers. Get the best. Something for every purpose. Knapsack, Hand, Bucket, Barrel, Etc. Also Power Outfits. Every approved device for right working. Agitators, superior nozzles, etc. Send for free catalog. The Deming Co., 230 Depot St., Salem, O. Heaton & Hubbell, Western Arts., Chicago.



Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar, by mail.

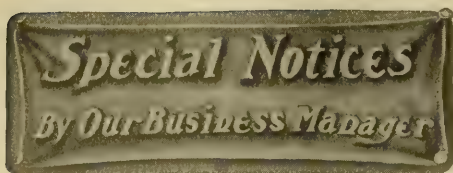
A Good Bee-hive!

is made of the best grade of white pine, accurately cut, so it will go together without the use of tools, except a hammer. Such is the kind of hives we make, and such is the kind you get when you buy from us. It is a cinch that we can make lower prices than you can get from any dealer, as you can save the middleman's profits when you buy direct from the manufacturer. We are manufacturers, and sell direct to the consumer. Send us a list of your wants, and let us make you prices. We guarantee every thing we sell to be satisfactory, or refund the money. We have large stocks of Dovetailed Hives, Sections, Shipping-cases, Foundation, Veils, Smokers, etc., on hand, and can ship promptly.

Minnesota Bee-supply Company

John Doll @ Son, Proprietor

Power Building No. 20, Minneapolis, Minnesota



**BEE-KEEPERS' FIELD DAY AT JENKINTOWN, PA., JUNE 26;
RATES FROM BOSTON AND PITTSBURG.**

So great was the enthusiasm at the meeting held at the Jenkintown exhibition apiary last September, and so numerous were the calls from different parts of the United States, asking us when we would have another such meeting, that it has led us to plan for even a larger and more complete demonstration than was ever held in this country before. The kindergarten method of seeing as well as reading is up-to-date, and we now desire our readers to see these expert writers demonstrate what they say.

THE MEETING will be held at our exhibition apiary all day, commencing at 9:30 A. M., and continuing until 6 P. M., gathering under the trees, with the operators on elevated platforms; also several large circles roped off around the hives in different parts of the apiary, giving the opportunity for a large number of people to see the manipulations around each circle at one time. From the advices we have already received, there is prospect of a much larger attendance this year than ever before. We have also engaged a large hall in the town, within a few minutes' walk from the apiary, where we will meet should it rain, and also hold an evening meeting. Dr Lyon will exhibit here live bees on the screen, moving pictures, etc. The evening session will give a fuller time for discussion and review of the work of the day.

PLACE.—Jenkintown, Pa., a delightful suburb, ten miles from center of Philadelphia, and the home of Mr. Wm. A. Selser, is reached by the Baltimore & Ohio R. R. from the south; L. V. R. R. from the north; New Jersey Central R. R. from the east, and the P. & R. R. from local points. Parties coming through Philadelphia can take a Willow Grove trolley on either Eighth or Thirteenth Sts., and for 10c can ride direct to the field, getting out at the Jenkintown toll-gate.

ENTERTAINMENT.—Arrangements have been made by the Root Co. to provide, free of cost to the visitors, lunch at noon and evening; and for those coming from a distance, arrangements will be made at one of the good hotels for accommodations to stay over night, at the rate of \$1.50 to \$2.00 per day. Reduced rates on the railroad can be had by writing any of the undersigned. We are negotiating with the railroad to run a special train from New York city to the apiary, costing each one \$2.40 for the round trip, and a special train from Washington.

Mr. F. H. Farmer, 15 Chardon St., Boston, and Mr. Alvin Spindler, Park Bldg., Pittsburg, have kindly consented to complete arrangements for the party from Boston and Pittsburg. Please communicate with them for particulars and let them know of your intention of being present.

RATES FROM WASHINGTON.

The special train leaves Washington over Pennsylvania R. R., at 7 o'clock A. M., June 26, and will stop at Baltimore an hour later, at the Union Station only. If parties desiring to take this train from Washington or Baltimore will notify our Washington branch by the 23d, we can secure a marvelously low rate of \$3.90 to Philadelphia and return, provided we can get 100 beekeepers to take this train. The train returns at the close of the meeting, about 9:45 in the evening. A short trolley ride between the railroad station and the apiary on arriving at Philadelphia. This rate either from Washington or Baltimore can be secured only through our Washington branch. If the required amount is not secured, the next rate is the club rate of \$5.40 for the return trip. This will be a rare opportunity. Please be prompt in advising Mr. H. G. LaRue, our manager, 1100 Maryland Ave., Washington, D. C., of your intention of taking this train.

RATES FROM NEW YORK CITY.

Special train over the Jersey Central New York, will leave New York at 8 o'clock on the morning of the 26th, and a special low rate of \$2.40 has been secured direct to the apiary and return to New York, leaving the apiary about 9 P. M. This low rate is obtained only through our New York branch, and these special tickets are not for sale at any of the ticket offices. Please notify Mr. L. W. Boyden, care of The A. I. Root Co., 44 Vesey St., New York, as early as possible, of your intention of taking this train, and make arrangements with him.

Parties in Eastern New York and the New England States should join the New York delegation at New York city.

Tickets for the special trains at New York and Washington may be obtained up to 15 minutes before leaving time, at our offices, and thereafter of our managers at the Central of New Jersey depot in Jersey City, and the Pennsylvania depot in Washington. At Baltimore they may be obtained at the Union Station on arrival of the special train.

FROM WILLIAMSPORT.

Parties from this vicinity may obtain information and railroad cards for reduced rates of E. E. Pressler, Williamsport.

Further information and particulars will be given by writing to

The A. I. Root Co., Medina, O.
L. W. Boyden, 44 Vesey St., New York. Phone—543 Cortlandt.

H. G. LaRue, 1100 Maryland Ave., S. W., Washington, D. C. Phone—6021 M.

Wm. A. Selser, 10 Vine St., Philadelphia, Pa. Phone 2443-A Market. Jenkintown. Phone—19-A Ogontz.

Gentlemen:—

This will advise you of my intention to be present at the Bee-keepers' Field Day, June 26.

NAME _____

ADDRESS _____

If others attend with you, state number ().

(The above, if filled out and sent us at once, will greatly assist us in laying our plans for your entertainment.)

Special Notices by A. I. Root.

FIRST NATIONAL CO-OPERATIVE SOCIETY (THE CASH BUYERS' UNION).

We clip the following from the *Rural New-Yorker*:

"The plausible scheme of the Cash Buyers' Union of Chicago was to sell small lots of their stock to farmers in order to make them partners in the company. These stockholders were to have 10 per cent discount on every thing they bought, and big dividends on the stock. This was called the co-operative plan. The farmers of the Middle and Western States bought and paid for over a million dollars' worth of stock, and bought several hundred thousand dollars' worth of goods from the concern. Now it has failed, and there is about \$40 in the treasury and not enough assets to pay the debts of the concern. The farmers lose their million. Other co-operative concerns are now springing up on the same basis. The plan seems to appeal to some promoters. The result of the farmers' experience with the Chicago concern should be your guide."

Mr. Calvert informs me that some of our subscribers have lost money by investing in this same Cash Buyers' Union; and he says further that, while no one has complained in a way that would seem to attach blame to us, several have said they probably would not have invested had they not seen their advertisement in GLEANINGS. For some time we accepted their advertisements and bought most of our groceries of them, which were quite satisfactory. Later on I felt uneasy about them, and finally objected to their methods of wanting to sell stock, etc. They repeatedly tried to get large advertisements in GLEANINGS. At one time they wanted 20 pages. The matter was referred to me, and I replied in substance, "We do not want 20 pages of advertising from anybody in our journal, no matter how good the parties are, and no matter how much money they offer." Our advertising pages, as well as every other page in our journal, are for the benefit of our subscribers. We consider them our neighbors—every one of them; and we not only individually, but as a firm, try to "love our neighbors as ourselves." At the time we did the advertising for them they were quoted well, and little or no complaint was made in regard to their methods of doing business. Their groceries were of good quality, prices unusually low, and there was no good reason for refusing their advertisement until they began to urge farmers and others to go in with them and "get rich quick," etc. Since this matter has come up I have gone over our advertising pages very thoroughly for the past year; and I am glad to see such a clean lot of people offering only such goods as (with very few exceptions) bee-keepers naturally want to buy.

Here is something more which the *Rural New-Yorker* quotes from a western paper:

"On February 26, Judge Bethea, of the United States Supreme Court, appointed Edwin C. Day receiver for Cash Buyers' Union First National Co-operative Society, Chicago, on the charge that \$1,000,000 in stock has been sold to farmers throughout the country, and that there is a cash balance of only \$100 on hand. Postoffice inspectors state that the company owes \$250,000 on merchandise accounts, and that there was no credit on hand, and nothing coming in."

The *Rural* adds:

The farm papers which helped this concern sell \$1,000,000 of its stocks to their readers by carrying its advertisements will not be likely to publish notice of the failure. The *Rural New-Yorker* has persistently refused the advertising, and, while we could not get definite information about them to justify us in publishing them as frauds, the schemes were such that no one familiar with them could be in doubt of the ultimate result. We had several private inquiries about the concern during the past year from farmers who believe in looking into things before parting with their money, and in all such cases we advised leaving them alone.

JAPANESE, SILVERHULL, OR COMMON GRAY BUCKWHEAT —WHICH IS BEST?

In our last issue, the paragraph below from the Cornell station was omitted for want of room:

"Each of these varieties has produced the largest yield in certain tests. It seems that there is adaptation of variety to soil or climate, or, perhaps, to weather conditions, that has not yet been worked out, that produces these contradictory results. However, the yielding quality of the Japanese variety is usually conceded to be superior to that of the others."

The above explains why it is that some buckwheat-growers put the Japanese away above the older kinds, while others claim it is inferior, both for honey and flour, to the silverhull or even the common buckwheat. Like many other things, certain kinds seem to be particularly suited for certain localities. Therefore it behooves every buckwheat-grower to try all three kinds on his lands; and so with almost any other grain, fruits, etc. Decide which is best for yourself by practical test of the different varieties.

BUCKWHEAT FOR SOWING, BOTH JAPANESE AND SILVERHULL.

Just now we have a very good stock on hand of both the above kinds. The silverhull has, of late, given the best results in our locality. As mentioned elsewhere, I think it would be a very good plan for you to try both kinds. Every bee-keeper who does general farming ought to grow buckwheat, because he thus kills two birds with one stone—yes, sometimes three of them. He gets some honey, more or less grain, and clears his ground of foul weeds.

The present prices of either kind are, two-bushel bag, \$2.25; bushel, \$1.25; half bushel, 65 cts.; peck, 35.

Be careful about ordering buckwheat to go long distances by express, as the charges that way are frequently more than its value. Better get it by freight, and order a little while before you need it. Better still, have it come with other goods to save transportation. Pound, by mail, prepaid, 15 cts.; trial package (4 oz.) by mail, 5 cents.

In Northern Michigan buckwheat is sown in June; but here in Ohio it is mostly put in in July. Some very good crops have been secured when sown the first of August. Where sown so late you may get blossoms for honey, but you will be liable to lose your grain by frost.

"OUR FARMING," BY T. B. TERRY.

We have been having for years a big call for this excellent book, and of late the demand seems to be increasing. Well, just now the publishers have gotten out an edition in paper covers that we will let you have for 40 cents. If wanted by mail, add 6 cents for postage. The cloth-bound book is 75 cents; postage 10 cents extra. Besides the above books there is a new book by Terry, just out, which is a collection of his most valuable articles for several years past, taken from the Philadelphia *Practical Farmer*. I do not know of any better book for rural people, and I might almost say anybody else, for the price, than this, entitled "What I Do, See, and Hear." In a hasty looking through its pages, almost every item is of intense interest to me. In fact, I hate to lay it down. Very likely some allowance should be made because T. B. Terry is a particular friend of mine; but I do think he has a remarkable faculty for making every sentence he writes of real practical value to every man, woman, and child. The book (320 pages) contains his health notes as well as items about farming, gardening, fruit-growing, and almost every thing around or about the home. I should be very glad to see the book have a large sale, because I am sure it will do a world of good. Price in cloth covers, 40 cents. Postage extra, 8 cents.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

BEE-KEEPERS' SUPPLIES

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers,

Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.



New Metal-spaced Hoffman Frames are Here in Stock

Conversation with Wilson

"Hallo, Mr. Wilson! Have you been to dinner?"

"Yes, thank you, Mr. Smith; just got up from the table, and thought I'd come over for a little talk while the horses are feeding. Say, Mr. Smith, I am going to have a big crop of honey, and I have a notion to send it to Pouder as soon as I take it off the hives. What do you think about it?"

"Well, Pouder will buy your honey if you wish to ship it to Indianapolis; but I believe that you can establish a home trade for every pound that you can produce. I get 20 cents for every section of my comb honey, and 15 cents a pound for all of my extracted. Of course, where my neighbors want a little for sickness I never charge any thing; but do you know, Mr. Wilson, that I do not have enough to go around, and I had to send to Pouder myself for several cans to supply my home trade? It is a long time till honey comes again, and you will be surprised how they will come for miles when they once learn that you have it on hand."

"I am aware that the market is now almost bare of honey; but don't you think there will be a big crop of honey this year? It looks as

if California would have a big crop of honey this year, and won't that affect the price of honey here? The other evening Bob was reading in the Indianapolis News about one of those big prizefights being postponed on account of a down-pour of rain. Bob will read all that stuff in spite of all I can say. I just thought that, when California has those heavy rains, it means lots of honey."

"I'll tell you about that, Mr. Wilson. You and I need never fear any thing about any overproduction. This is a great country, and we shall have a demand that exceeds our supply every season. Haven't heard of any one having any more corn than he could dispose of, have you? Another thing, considering the modern hives and equipment that we now have, we could even afford to reduce the price on honey, for we get twice as much honey now as we did ten years ago from a single hive, and at the same time honey is growing in better demand every day."

"I guess you are right about this matter. I must be going. Let me know when you are ready to send your order to Pouder again, and I will have some brood foundation and some of those new metal-spaced Hoffman frames included with your order."

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight; always be sure to attach name to package.

CATALOG FREE

WALTER S. POUDER,

513--515 Massachusetts Ave.,

INDIANAPOLIS, IND.

Bee = keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

Good Goods, Low Prices and Prompt Shipments

are the **POINTS** in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

Page & Lyon Mfg. Co., New London, Wis.

Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

BEES AND QUEENS—Orders booked now for spring delivery.

HONEY AND WAX—We handle honey and wax. Write for particulars.

The A. I. Root Co.

Northwestern Branch,
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

DO YOU KNOW

That the sale of Dittmer's Foundation has increased so much that we were forced to double our melting capacity in order to fill orders promptly?

There is a Reason for This

It is because Dittmer's Foundation is tough, clear, and transparent, and has the natural color of beeswax.

AGENTS FOR DITTMER'S FOUNDATION:

W. D. Soper.....Jackson, Mich.
Bee and Honey Co.....Beeville, Texas
E. H. Taylor ... Welwyn Sta., Herts, Eng.
E. Grainger & Co.....Toronto, Ont., Can.

Our warehouse is well stocked with all kinds of bee-keepers' supplies.

Beeswax always wanted.

Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trestler Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.



Over a Million Lewis Sections

in stock since Jan. 1st, 1906.
Dadant's Foundation and all
other goods in proportion. Im-
mediate shipments.

Get your goods in a hurry—
before the ink on your order
gets dry—by sending to

A. G. WOODMAN CO.
GRAND RAPIDS, MICH.

DAILY EXPRESS TRAINS:

Adams Express.....	12
American Express.....	9
United States Express.....	22
National Express.....	12

DAILY FREIGHT TRAINS:

P. M. System.....	20 and extras
M. C. System.....	6
Gd. Trunk System.....	10
L. S. & M. S. System.....	6
G. R. & I. System.....	12
G. R., G. H., & M.....	10
G. R., H., & L. M.....	10

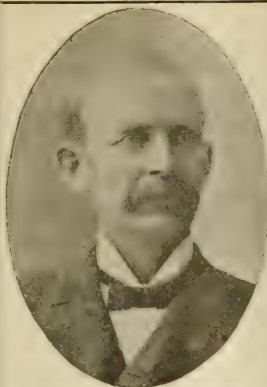
Bee-keepers' Supplies!

Lewis' famous "Beeware," Root's Smokers and Extractors; Dadant's Comb Foundation, etc.: Queens and Nuclei in Season, Large and Complete Stock; Prompt Service. We will meet all competitors who handle first-class goods. Catalog with practical hints free.

"Mandy Lee" Incubators and Brooders!

Whether you are experienced in artificial incubation or not, these incubators will give you gratifying results. The "Mandy Lee" brooder is the only brooder made which applies direct contact heat to the little chicks' backs. Our free incubator catalog describes them. Prompt shipments.

C. M. Scott & Co., Indianapolis, Indiana
1004 East Washington Street



Established 1881

YES!

Same Place 1906

THIS IS THE MAN WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year. ♣ ♣ ♣ ♣ ♣

Geo. E. Hilton, - Fremont, Mich.

Increased Business Compels Larger Space!

So we have just doubled our capacity in the building at 141 Ontario Street, where we carry a full line of

Poultry-supplies and Lewis' Popular Beeware

Catalogs on application. ORDERS FILLED PROMPTLY AT FACTORY PRICES.
BEESWAX WANTED.—28c cash or 30c in trade.

ITALIAN BEES in modern hives with select queens for sale; also pure Italian queens.

York Honey and Bee Supply Company Not Inc.

H. M. Arnd, Mgr.

141 Ontario Street, Chicago, Ill.

Phone North 1559

BINGHAM
Original
Direct Draft
CLEAN
Bee Smokers



Pat'd 1878, '82, '92 & 1903

Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and last; don't spit fire; don't go out; don't daub themselves all over. We are the most extensive *exclusively* bee-smoker makers in the world.

T. F. Bingham - Farwell, Mich.

Chico, California, October 28th, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.

J. M. RANKIN.

If You Live

in Central or Southeastern Ohio or Western West Virginia you can save freight by ordering Root's bee supplies from me.

E. W. Peirce, Zanesville, Ohio

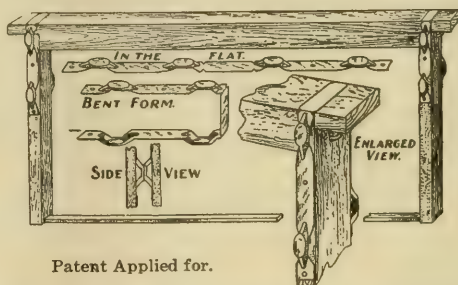
Marshfield - Hives - and - Sections

kept in stock; none better. DITTMER'S foundation and all kinds of bee-keepers' supplies sold right. Thousands of shipping cases, 24-pound, 13 cts.; fancy white basswood, 16 cts. HONEY and BEESWAX wanted. Send for free list, and save 20 per cent on your order.

W. D. Soper, Route 3, Jackson, Michigan

Metal-spaced Hoffman Frame

IN GREAT DEMAND.



Patent Applied for.

Has come to stay. Can be used interchangeably with regular Hoffman frames. Has all the advantages of the regular Hoffman. Is not affected by propolis. Can be handled without pry or screwdriver. Has no rights or lefts, and, therefore, can not be put up wrong. See full description in 1906 GLEANINGS, page 16.

PRICES.—Metal-spaced Hoffman frames—100, put up, \$4.50. In flat—10, 35c; 100, \$3.00; 500, \$14.00. Metal spacers only—30c per 100; \$2.50 per 1000. Hives with metal-spaced frames, 5c extra each body, 8 or 10 frame, put up or in the flat.

The A. I. Root, Company, Medina, Ohio.

PENNSYLVANIA

Ours is the largest bee-supply house in the western half of the State. Every thing which the bee-keeper will need is in stock awaiting your order.

ROOT'S GOODS

AT ROOT'S PRICES

You can save time and expense by ordering from us. .

Best shipping facilities. .

Complete stock.

Do not put off ordering to-day what you will urgently need a little later on in the season.

Frank W. Prothero

Successor to Prothero & Arnold

Dubois, Clearfield Co., Pennsylvania

WISCONSIN - BASSWOOD

FOR SECTIONS

We make them and the very best of **Dove-tailed Hives, Shipping-cases**, and a full line of Bee-keepers' Supplies always on hand. We make very prompt shipments. Let us hear from you.

Marshfield Manufacturing Company

Marshfield, Wisconsin

I. J. STRINGHAM

OF 105 PARK PLACE

New York

furnishes every thing a bee-keeper uses. Strong colony of bees, with tested Italian queen, in Dev'd hive complete, \$8.00; in a chaff hive, \$9.50. Three-frame nucleus, with Italian queen, \$4.00. Silk-faced bee-veil, 40 cts. postpaid. Italian queens, 85 cts. Catalog of bee-supplies free.

Apiaries, Glen Cove, Long Island.

INCREASE.

Don't depend entirely upon swarming for your increase. It's too slow and uncertain. But how increase? Swarthmore tells of a way in his delightful little book entitled "Increase"—a natural way, simple and safe, no labor, little trouble. Colonies formed on this plan will work like prime swarms, and store a surplus. No up-to-date bee-keeper can afford not to have a copy of this work. Price 25 cts. a copy postpaid.

SIMPLIFIED QUEEN-REARING.—A revised edition of this book just out. It tells the honey producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just an effective and economical plan for the bee-keeper who works for profit. Price 25 cts. a copy, postpaid.

CELL-GETTING.—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life, and vividly showing all the labor-saving points in the best cup system ever invented. Price, postpaid, 50 cents.

Swarthmore Queen-Rearing Tools.

The simplicity of these devices places the art of queen-rearing in the hands of the average bee-keeper. Every honey-producer can be his own queen-rearer. Full directions go with each outfit. Here is a chance not only to rear your own queen but for your neighbors at a profit.

Prices of Complete Outfits:

Outfit No. 1—Experimental

POSTPAID, \$1.50

- | | |
|-----------------------|--------------------|
| 1 Cell-bar, | 1 Holding-frame, |
| 16 Waxed Flange Cups, | 12 Transfer-cages. |

Outfit No. 2—Amateur

POSTPAID, \$3.50

- | | |
|-----------------------|--------------------|
| 2 Cell-bars, | 1 Holding-frame, |
| 35 Waxed Flange Cups, | 18 Transfer-cages, |
| 1 Needle, | 1 Cell-stick. |

Outfit No. 3—Professional

BY FREIGHT OR EXPRESS, \$7.50

- | | |
|------------------------|--------------------------|
| 2 Blank bars, | 2 Cell-bars, |
| 3 Holding-frames, | 1 Incubating-cage, |
| 1 Cage-pocket, | 1 Grace Cell-compressor, |
| 1 Grafting-plug, | 100 Flange Cups, |
| 2 Double mating-boxes, | 2 Swarth. nursery-cages, |
| 1 Bar-holder, | 24 Transfer-cages, |
| 1 Swarm-box with lid, | 1 Needle, 1 Stick. |

Prices of Separate parts: post. extra

Bar-holder	\$.10	.04
Blank Bar	.05	.04
Bottle Feeder	.10	.05
Bulb Filler and Feeder	.75	.08
Breeding-queen Hive	1.00	
16-hole Cell bar	.10	.02
Cage-pocket	.25	.09
Flange-cups, unwaxed, 1c each; per 100 ..	.75	.09
Flange-cups, waxed, 2c each; per 100 ...	1.75	.14
Grace Cell-compressor, each	1.75	.14
Grafting-needle, each	.15	.01
Grafting-plug, each	.10	.01
Grafting-stick, each	.10	.01
Holding-frame, each	.10	.05
Incubating-cage, each	.35	.07
Double Mating-boxes, complete, \$1.00; 10 ..	7.50	
Nursery-cages, complete, waxed cell-cup ..	.35	.05
Nursery-cages, no cups	.25	.04
Swarm-box, with lid	1.00	
Swarm-box, lid only	.25	
Trap-box	.50	
T Stands, each	.10	.06
Transfer-cages	.10	.02

The A. I. ROOT CO.

AT ALL BRANCH HOUSES.

FOR SALE BY ALL DEALERS IN BEE-KEEPERS' SUPPLIES.

QUEENS

By Return Mail at the Following Prices for the Balance of this Season. Golden or Leather-colored Italian.

Our folks say that your queens are extra fine.

The A. I. Root Co., Medina, Ohio

We have good reports from your stock from time to time. George W. York & Co., Chicago, Ill.

On every hand I hear good words of Quirin's queens.

B. S. K. Bennett, Los Angeles, Cal.

Your queens did finely. It was one I purchased last year that gave me over 600 pounds of honey.

J. L. Gandy, Humboldt, Neb.

The breeder is surely a very fine one; her daughters do grandly. Campbell & West, Hartstown, Pa.

I had a queen of you last year which produced bees that beat anything ever seen in this part of the country. E. L. Messenger, New Haven, Conn.

The nuclei you sent J. A. Adams did just splendidly. Each colony stored at least 75 pounds of honey.

F. P. Merritt, 13 Breckenridge St., Lexington, Ky.

A few years ago I bought a queen from you which proved to be the best I had for years. H. C. Shirley, Cashier of Liberty Bank, Liberty, S. C.

I have had the pleasure of seeing the results of your queens at Mr. George W. Stanley's apiary, at Souffletown, Ky., and that is why I am ordering this half-dozen. C. W. Brenner, Newburg, Ind.

I bought a queen from a neighbor last year who said he got her from you. She made me 193 sections of honey after July 4th—the best my other queens did was 64 sections. C. E. Woodington, St. Anne, Ill.

With great respect I write to you in regard to your dealing and queens. If you want any references you can refer to me, as I can't recommend you too highly. Your queens are the best I ever saw. I have one hive of bees among my 45 colonies containing a queen from you that \$50.00 will not buy.

Morris Coon, Route 2, Locke, N. Y.

The two-frame nucleus you sent me was put in a hive May 25th. In July I brushed a swarm; had a swarm in August, and took off 75 boxes of honey. I consider this a wonderful record. I had four nuclei from different parts of the country, and yours was far superior to any of them. They are very gentle, easy to handle, hustlers to work. All bees and queens needed by me will hereafter come from Quirin-the-queen-breeder, Bellevue, O. S. A. Peck, Box 124, Northumberland, Pa.

	1	6	12
Select queens.....	75	\$4.00	\$ 7.00
Tested queens.....	1.00	5.00	9.00
Select tested queens.....	1.50	8.00	15.00
Breeders.....	3.00	15.00	
Straight five-band breeders....	5.00		

Safe delivery and satisfaction guaranteed of all queens. Any queen not satisfactory may be returned any time inside of sixty days and another will be sent gratis.

Address all Orders to

Quirin-the-Queen-Breeder
Bellevue, Ohio.

CARNIOLAN and ITALIAN QUEENS!

Ready to mail by April 15th. Quality of the highest, prices the lowest. Write me.

Grant Anderson - Sabinal, Texas

ITALIAN QUEENS AND GLEANINGS.

For \$1.10 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

W. T. CRAWFORD, Hineston, La.

Continuous Selection

of queens best fitted for the man who is working for honey is what has brought the

Extra Honey Queens

to the present high standard they now occupy. Although these queens are GOOD I am always trying to breed a better one.

Prices

One.....\$1.00 Six\$5.00 Twelve ..\$9.00

Francis J. Colahan

Bernardo, San Diego Co., Calif.

COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.

Yellow from Tip to Tip!!!

My Adel bees and queens are yellow all over.

Every queen a breeder, and guaranteed to produce all golden queens and bees; non-swarmlers, gentle, great hustlers; \$1 each.

Catalog ready.

H. Alley, Wenham, Mass.

Queens - Italian - Queens

and bees from Root's Red-clover stock and Golden Italian queens. Better than ever.

Untested.....60c each; six, \$3.50

Selected untested.....75c " " 4.00

Tested.....\$1.00 " " 5.00

Selected tested.....1.25 " " "

Two-frame nuclei with untested queen..2.00

Orders filled in rotation. . Send orders to

E. A. Simmons, Greenville, Ala.

Tennessee-bred Queens

From Extra Select Mothers

Three-band from dark leather imported; Moore's long tongue or my own; Golden from Laws, Doolittle's, or my own; Caucasians and Carniolans from direct imported. No disease. Contracts with dealers a specialty. Apiaries from 3/4 to 7 miles apart. Write name on postal, and get circular and what others say.

JOHN M. DAVIS

Spring Hill, Tennessee, U. S. A.



RED-CLOVER QUEENS AND ITALIANS BETTER THAN EVER.

Average queen, 75 cts. Untested, \$1.00; tested, \$1.25. Guaranteed to work red clover.

"Our red-clover fields are swarming with your bees," says G. W. Slaybaugh, York Springs, Pa.

Laying queens ready by return mail. Guaranteed to work red clover as well as white.

Send for my new circular; it's free. Root's Bee Supplies for sale. **G. ROUTZAHN, Biglerville, Pa.**

CARNIOLANS our SPECIALTY

WE HAVE bred this race of bees for twenty years, and find they are among the gentlest bees known. Very hardy and prolific, and the best of honey-gatherers, and their combs are of snowy whiteness. We are wintering 50 select imported and 200 best select tested Carniolan queens for early orders.

Also breeders of Golden and Leather Italians. One untested queen, \$1.00; six for \$5.00; twelve for \$9.00. Tested, \$1.50. Best breeder, \$3.00. Best imported, \$5.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in U. S. or Canada. Descriptive list free.

F. A. Lockhart & Co.,

"\$100 Offered for a Carniolan Queen"

We will pay the above sum to any queen-breeder or bee-keeper who can furnish us with a breeding Carniolan queen that is not over one year old, and can prove that she is in no way related to our strain of Carniolans. This queen must be in color a light bronze, large and prolific; her bees very gentle, and every one to have silver-gray bands. Our breeding Carniolans are as described above, and we are willing to pay a good price for a queen that will produce stock in every way equal to our own, and not in any way related.

Lake George, New York

CAUCASIAN QUEENS.

Try one or more of my gentle Caucasian queens, said to be the gentlest race of bees in the world, having a sting. The demand for these queens is good; in fact, orders are rolling in now. All orders filled in rotation, as received. Special prices on large orders. Untested, \$1.25 each; warranted tested, \$3.00 each. Ready in June. I control all bees within three miles of my apiary, and can promise pure stock. A few choice nuclei can be furnished with a fine queen, when wanted.

Money-order office, Olive Branch, Mississippi.

W. T. LEWIS, Lewisburg, Mississippi.

Superior Queens!!!!

—Before June 15— —After June 15—

Italian and Carniolan

Untested.....	75c; \$8.00 per doz.	60c; \$6.50 per doz.
Tested.....	\$1.00; 11.00 per doz.	75c; 8.00 per doz.
Select Tested...	1.25; 12.00 per doz.	1.00; 11.00 per doz.

Caucasian

Untested.....	\$1.00; \$11.00 per doz.	75c; \$8.00 per doz.
Tested.....	1.50; 16.00 per doz.	1.00; 11.00 per doz.
Select Tested...	2.00; 20.00 per doz.	1.25; 12.00 per doz.

Write me a postal card for my circular.

Chas. Koeppen, Fredericksburg, Virginia

DOOLITTLE & CLARK

are booking orders for their famous Italian queens. Now is the time to order breeders. Send for circular.

Grade.....	One	Three	Twelve
Untested.....	\$1.00	\$2.50	\$9.00
Select Tested.....	1.50	4.00	14.00
Tested (1905 rearing).....	2.50		
Select Breeding.....	5.00		
Extra Select Breeding.....	10.00		
Two-frame Nuclei.....	2.50	7.00	25.00

DOOLITTLE & CLARK

Borodino, Onondaga Co., New York

Every Bee - Keeper Knows the Worth of a Good Queen

Knows the worth of a good strain of bees, and also knows how worthless is a poor queen and inferior bees. Try our strain of three-banded Italians. They are bred for business, and will not disappoint you. Home-bred and imported mothers. Tested, \$1.00 each; untested, 75 cts. each; \$3.00 per dozen. Send for price list.

J. W. K. SHAW & CO.

Loreauville, : : : Louisiana

Queens! Balance of this season at 20 per cent discount; three or five banded; untested only. R. O. COX, Rt. 4, Greenville, Ala.

Quality Queens

Are the Best Italians yet.

Send for circular.

H. H. JEPSON,

182 Friend St., - Boston, Mass.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. **OUR MOTTO**—"Whatsoever ye would that men should do to you, do ye even so to them."

MALAN BROTHERS, Luserna, San Giovanni, Italy.

QUEENS OF MOORE'S - STRAIN - OF - ITALIANS

produce workers that fill the supers and are not inclined to swarm. . . .

Stewart Smillie, Bluevale, Ont., Can., says: "They fill the supers and are not so much inclined to swarm as others. I have been buying queens for fifteen years, and your stock was the only one that was any good to gather honey."

Untested queens, \$1.00 each; six, \$5.00; dozen, \$9.00. Select untested, \$1.25 each; six, \$6.00; dozen, \$11.00. Safe arrival and satisfaction guaranteed.

J. P. MOORE, Morgan, Pendleton Co., Ky.

Red-clover Italian Queens Exclusively !!

No better honey-gatherers in existence. Select untested, 75c; tested, \$1.00; three-frame nucleus with queen, \$2.00. To prove the quality of my stock I will send two trial queens for a \$1 bill. **F. M. Mayberry, Obelisk, Pa.**

MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, \$1.00; six, \$5.00; twelve, \$9.00. Tested, \$1.50; six, \$8.00. Best breeders, \$3.50. Safe arrival guaranteed.

W. H. Rails, - - - Orange, Calif.

Red-clover Queens from Westwood Apiary

will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.

Henry Shaffer - - - Westwood, Ohio

Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws apiaries, and double your crop of honey.

I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season. I also offer another car of bees the coming season.

PRICES: Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

W. H. LAWS, BEEVILLE, BEE CO., TEXAS.

Caucasian-and-Italian-Queens from California

Prices: CAUCASIAN—One tested, \$3.00; one best breeding, \$6.00; one imported from Caucasus, \$7.00. ITALIAN—One untested, \$1.00, six for \$5.50, 12 for \$10.00; one tested, \$1.50; one best breeding, \$5.00. Caucasians bred from the best imported breeding queens. Italians bred from breeding queens we procure from principal breeders of this country who have the best honey-gatherers. Nuclei and full colonies of bees. Send for particulars, and see our adv. in GLEANINGS, February 1st.

A. E. Titoff, Ioamosa, San Bernardino Co., California

CAUCASIAN QUEENS!

For beginners, the timid, and the city bee-keeper. Not stingless, but gentle. With this race many will master the art of handling bees. I breed HIGH-GRADE ITALIAN QUEENS also. The demand for these queens is great; the supply is limited. Write for particulars today. Address

Robert B. McCain, Yorkville, Ills. R. F. D.

Rose - Lawn - Queens \$25.00 IN PRIZES.

For the largest number of sections No. 1 comb honey produced by a colony headed by one of our "Pure Gold" queens before September 15th, 1906, \$10.00 cash. For the second largest, \$7.50 cash. For the third largest, \$5.00 cash. For the fourth largest, \$2.50 cash. In addition to the above offer we will pay 20 cts. per pound for all prize honey for exhibition purposes.

Select, untested "Pure Gold" queens, \$1.00. Select tested "Pure Gold" queens, \$2.00. Select breeding queens, \$6.00. Our very finest extra select tested breeders, in 2-fr. nucleus, f. o. b. Lincoln, Neb., \$10.00. We ship in June, 200 "Pure Gold" queens to one customer. Caucasians, Carniolans, Red Clover Italians. Rose Lawn Apiaries, Station C, Lincoln, Nebr.



Fine Italian Queens by Return Mail

Tested (or warranted tested) \$1.00 each; untested, 75 cts. each. Four or more queens, 3 per ct. discount; 10 or more, 5 per cent. No disease. Safe arrival of all queens and quality of bees and queens guaranteed. If any prove unsatisfactory I will gladly replace.

Chas. M. Darrow, Rt. 1, Milo, Mo.

From Long-tongued Imported Italians.

Untested, 75c; \$7.50 per dozen. Tested, \$1.25; \$12.00 per dozen. Breeders, \$2.00 to \$3.00. Postal orders drawn on Decatur, Michigan.

E. E. MOTT, Glenwood, Mich.

The Best Stock

Nice three-banded Italians that are guaranteed to please, or money refunded. The Robey queens now go to nearly all parts of the globe. They are being used by many of the largest honey-producers of this and other countries, who pronounce them to be very superior strain of bees. I have spent 21 years in building up this strain of bees. Warranted purely mated, in any quantity, 60 cts. each; selected warranted, 75 cts. each.

L. H. Robey, Worthington, W. Va.

Untested Queens!

Golden Italian

75 cts. each; six for \$4.00; an extra fine one for \$1.00. Warranted purely mated and good queens. . . .

J. B. Case, Port Orange, Fla.

1906 Italian and Caucasian Queens. Price list now ready. Write **E. E. LAWRENCE, Doniphan, Mo.**

Superior Stock

I make a specialty of long-tongue
Italian, Carniolan, and Caucasian,

Rearing only from best stock obtainable. My Italian queens are unexcelled; my Carniolans and Caucasians from best imported queens. All races bred in separate yards to insure purity. A postal will bring my price list for 1906.

CHARLES KOEPPEN

Fredericksburg, Va.

BEES and QUEENS

BY RETURN MAIL.

**The Three-banded
Long-tongued Strain
of Italians.**

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

Superior Qualities.

Honey-gathering, size of bees, non-swarming, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price

Quality Our Motto.

1300 colonies to select from.

Untested queens.....	75c; 6, \$4.25; 12, 8.00
Select untested queens.....	1.00; 6, 5.00; 12, 9.00
Tested queens.....	1.00; 6, 6.00; 12, 11.50
Select tested queens.....	1.50.
Breeding queens, \$3.00 to \$5.00.	

Yours for best service,

The Victor-Knolle Apiary Co.,
Hondo, Texas.

Italian and Caucasian Queens and Bees



Choice homebred and imported stock. All queens reared in full colonies.

PRICES FOR JUNE

ITALIANS

One untested queen	90
One tested queen	1.10
One select tested	1.40
One breeder queen	2.20
One-comb nucleus, no queen...	95

Untested queens in May. Safe arrival guaranteed. For prices on quantities, and description of each grade, send for free catalog.

J. L. Strong, Clarinda, Iowa, U. S. A.

204 East Logan Street

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,

Box 18, Beeville, Bee Co., Tex.

Golden and Leather- colored Italian Queens

MONTHS	BEFORE JULY 1			AFTER JULY 1		
	1	6	12	1	6	12
NO. QUEENS ...						
Untested	\$ 1.00	\$ 5.00	\$ 9.00	\$.75	\$ 4.00	\$ 7.00
Warntd. Tested	1.25	7.00	13.00	1.25	7.00	13.00
Tested	1.50			1.50		
Select Tested ..	2.00			2.00		

Breeders, \$5.00. Caucasian queens will be ready to mail July 1. Untested, each, \$1.00; six for \$5.00. War-wanted tested, each, \$1.40; six, \$8.00. We have three yards—two Italian and one Caucasian—and mean to meet the trade. Prices on nuclei on application.

D. J. Blocher, : Pearl City, Ill.

Italian Queens

Northern-bred; originated from best long-tongued "red-clover" breeders in the United States; bred in full colonies; excellent honey-gatherers; winter well, and gentle.

Untested, \$1.00; six, \$5.00. Tested, \$2.00; six, \$10.00. After July 1; 75c, \$4.00, \$1.50, \$8.00. Write for descriptive circular. Satisfaction guaranteed.

ISAAC F. MILLER,

Brookville, (R2). Pennsylvania.

Boston Headquarters

— FOR —

Bees-Queens-Supplies

H. H. Jepson - 182 Friend St.

Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:

Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

H. M. PARKER, Jr.

James Island,

South Carolina

ITALIAN QUEENS

bred from best of honey-gatherers, either three or five banded or Golden races. Untested, 65c each, 3 for \$2.00, 6 for \$3.75, 12 for \$7.25; tested, \$1.00 each, 6 for \$5.00, 12 for \$9.00; select tested, \$1.50 each; breeders, \$300 each.

J. W. Taylor, Beeville, Bee Co., Texas

QUEENS!!

Now is your chance to get the best of queens. Having caught up with my orders I can send them promptly. Untested Golden, 75c each, six for \$4.25, or 12 for \$8.00; tested, \$1.00 each; three or five banded. Write for circular and prices.

Daniel Wurth, 1111 North Smith St., San Antonio, Texas

MINNESOTA-BRED QUEENS.



Try our Northern-bred queens—nothing finer; three-banded and golden Italian queens, untested, 75 cts.; tested, \$1.50. Hardy and prolific. We want your orders, and will fill them by return mail, and guarantee safe arrival and satisfaction. Write for circular to

MENNIE & FENTON,
Pine Island, - Minnesota.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—You to own good queens; no delays; satisfaction. See my ad. on page 696

M. D. WHITCHER, Los Olivos, Cal.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.

H. F. HAGEN, 1632 Blake St., Denver, Col.

Help Wanted.

WANTED.—Employment by a reliable bee-keeper.

EDW. MARTIN, Hackett, Ark.

WANTED.—Nurses. The Western Pennsylvania Hospital and Eye and Ear Hospital offer exceptional advantages for training. References required. Apply Superintendent's Office, 1945 Fifth Av., Pittsburg, Pa.

WANTED.—Man to take charge of an apiary of 150 colonies in western Colorado. Will work on shares or make satisfactory agreement with experienced man.

BENJ. HAMMAR, Rifle, Colo.

WANTED.—Man to work with bees. Reply must state age, experience, and wages, to secure attention.

W. HICKOX, Berthoud, Colo.

For Sale.

FOR SALE.—400 cols. pure Italian bees in lots to suit. Write for prices. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Bees and bee-supplies.
J. GOBELI, Glenwood, St. Croix Co., Wis.

FOR SALE.—40 lbs. Dittmer's light brood foundation, L. size, \$18.00. H. H. PORTER, Baraboo, Wis.

FOR SALE.—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog. F. R. DANIELS,
117 Florence St., Springfield, Mass.

FOR SALE.—My apiary complete in the great irrigated alfalfa belt; no failure yet. See GLEANINGS of Dec. 15, 1903, page 1051. C. K. C., Lovelock, Nev.

FOR SALE.—Queens. I breed a superior strain of fine golden-all-over Italians. Ask for prices.
T. L. McMURRAY, Ravenswood, W. Va.

FOR SALE.—Two female fox-terrier pups, \$3.00 each, or will exchange for supplies or Italian queens.
Rural rt. S. F. HANSON, Iola, Kan.

FOR SALE.—The gentle Caucasian bees and queens bred from the best imported Caucasian queens. Italian bees and queens. Write for particulars.

A. E. TITOFF, Icamosa, Cal.

FOR SALE.—The Alexander wire bee-veil. The best face-protector on the market. Try one and be convinced. At 75c each postpaid.

FRANK C. ALEXANDER, Delanson, N. Y.

FOR SALE.—About 300 sixty-pound cans; mostly new, good condition, new cases, two cans to a case; 40 cts. per case, f. o. b. Preston.

M. V. FACEY, Preston, Fillmore Co., Minn.

FOR SALE.—Untested Italian queens at 60c, two for \$1.00; tested, \$1.00 each.

MRS. J. W. BACON,
Waterloo, Seneca Co., N. Y.

FOR SALE.—50, or less, 1½-story 8-frame hives, supers, holders, fences, complete (no sections), painted, and in perfect condition; been used one season, good as new; \$1 per hive; changing to 12-frame extracting-hives.

A. W. SMITH, Birmingham, Mich.

FOR SALE.—Special sale of sections—Wisconsin basswood—equal to the best, No. 1, \$4.20; No. 2, \$3.70. Root Dovetailed and Danz. comb-honey hives, and all kinds of supplies on hand. Italian queens and bees.

H. S. DUBY, St. Anne, Ills.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to
FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Bees; the right kind, right prices. Safe arrival and satisfaction guaranteed. Ask for illustrated Outfits for Beginners, price list, and our hints on buying bees. MASON SUPPLY Co., Mechanic Fs., Me.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season.

W. N. CANNON, Greenville, Ala.

FOR SALE.—\$5200 fine ten-acre home, steady income; oranges, and 8 cuttings alfalfa a year. Good reasons for prompt sale at this bargain. Just the place for a tenderfoot; for, growing in value rapidly, would re-sell at profit. \$600 more will include profitable bee-ranch.

G. K. HUBBARD, Riverside, Calif.

FOR SALE.—150 colonies bees, mostly pure Italians, some good hybrids; free from disease and in strong condition. Will be sold in eight-frame Dovetailed hives at \$2.25 per colony. Other business demands my attention, and I offer my bees at a sacrifice.

F. C. MORROW, Wallaceburg, Ark.

Poultry Offers.

FOR SALE.—Alger's rose-comb Brown Leghorns hold the world's record; first at Chicago International, St. Louis World's Fair, exposition at Portland, Oregon. Italian bees—Root strain direct Flemish Giant hares, very large. Red Belgians from 16-lb. buck. Get circulars.

FRED ALGER, Waukau, Wis.

Blacks and Hybrids.

Notices in this column are inserted free, and the publishers assume no responsibility for sales made. We believe, however, that every advertiser will do just as he promises.

FOR SALE.—Three hybrid queens for \$1.00
MRS. J. W. BACON, Waterloo, N. Y.

BEE-KEEPERS' DEMONSTRATING FIELD MEETING,

Jenkintown, Pa., Tuesday, June 26.

The A. I. Root Company's Exhibition Apiary.

PROGRAM.

MORNING SESSION.

PROF. H. A. SURFACE, Presiding.

- 9:30—General social half-hour for introduction, registering, classifying honey exhibits, etc. Inspection of three novel miniature apiaries: Baby Nuclei, Pearl Agnes, Danzenbaker.
- 10:00—General assembling in semicircles under the trees at the foot of the apiary. After outlining the plans of the day, the following committees appointed:
Committee on Hotel Entertainment, Judges of the Queen-hunting Contest, Judges of the Exhibits of Comb and Extracted Honey, for awarding prizes.
- 10:30—Demonstration.....PROF. H. A. SURFACE.
Transferring a colony of black bees from an old box to a standard hive, with a full explanation to fruit-growers and farmers of the value of the operation in their pursuit.
- 11:00—Demonstration.....FRANK MCGLINN.
Showing the use of bee-stings for medicine; their practical application and positive proof of their efficiency; extracting the stings with forceps, and their preparation for medical formule.
- 11:15—Demonstration.....By Experts.
The way of finding a queen and her tricks, followed by a queen-hunting contest.
- 11:45—Demonstration.....G. M. DOOLITTLE.
His methods of grafting larvæ (which have so revolutionized the queen trade), clipping queen's wings, etc.
- 12:00—Lunch and Social Hour.
Followed by the inspection of one of Pennsylvania's choice strawberry patches in full fruit; showing some ten different varieties under cultivation. At the same time there will be a honey eating contest participated in by some little darkies.

AFTERNOON SESSION.

- 1:00—Demonstration.....W. L. COGGSHALL.
Showing his rapid method of extracting honey; uncapping and handling of frames; his method of management of bees, overcoming and subduing robbing, etc. To be assisted by James McNeill, of Hudson, N. Y.
- 1:30—Demonstration.....A. I. ROOT.
Showing the Caucasian queens, their habits, and experience of a winter's work in their breeding in Florida.
- 2:00—Demonstration
Showing the Alexander method of increase, and his cure for bee diseases.
- 2:30—Demonstration.....W. K. MORRISON.
Showing a full colony of stingless bees from South America, which he traveled 150 miles up the Orinoco River to procure; giving their history, as well as the relative value of the different races of the bees of the world. Followed by a scientific talk by Dr. McGregor, of Columbia College, giving his experience in crossing the various races of bees of the world.
- 3:00—Demonstration.....N. D. WEST.
Showing the use and management of his queen-cell protectors and spiral queen-cages.
- 3:30—Demonstration.....E. L. PRATT.
Showing his improved Swarthmore method of breeding queens, nursery cages, incubator hives, caging queens, running a cupful of bees with a virgin queen in baby nuclei.
- 4:00—Demonstration.....DR. E. F. BIGELOW.
Of his celebrated Bigelow educational hive and his latest addition, the Pearl Agnes hive; demonstrating their improved features for a class of students in apiculture.
- 4:15—Demonstration.....DR. HENRY TOWNSEND.
One of the oldest city bee-keepers in the United States. He will demonstrate from a roof and give his experience of many years in bee-keeping in the center of a large city.
- 4:30—Demonstration.....HENRY TWINING.
Forcing a swarm of bees to alight on the naked arm. Mr. Twining is one of the oldest bee-keepers in this State.
- 5:00—Demonstration.....C. M. CHURCH.
Of the latest methods of rearing queens under tent cover.
- 5:00—Demonstration.....GRANT STANLEY.
Of the adaptation of the Danz. hive in securing the largest crop of comb honey.
- 6:00—Adjournment and supper.

EVENING SESSION—MASONIC HALL.

- 7:00—Demonstration.....E. L. PRATT.
Under a mammoth cage, explaining the up-to-date method of a vaudeville act about to be presented to the theatrical world, and how bees pay their own expenses outside of honey and wax.
- 7:30—Address.....DR. E. F. PHILLIPS.
Dep't Agriculture, Washington D. C.
Giving his experience in the recent research undertaken in the study of foul brood, and the way the United States government can help the bee-keepers.
- 8:00—Moving Pictures.....DR. D. E. LYON.
Showing how the interest in the industry had grown and become world-wide, with many laughable scenes, throwing live bees on the screen, etc.
- 8:30—Question-box for the day, and general conference.
- 9:00—Good-night.
Special trains leaving for New York and Washington.
(This program is provisional only. It is presumed that alterations will have to be made, but it indicates the work of the day as far as we can determine at the time of this printing.)

Perfect? What better can you wish? You can now, by use of the

PERFECT PAMPHLET RESERVER

them to get it, or write to

BIND **Gleanings in Bee Culture** AT A TRIFLING COST!

On the shelf it looks just like a book; holds one number or a volume; as simple as tying a shoe. See it at news, book, or stationery dealers. Ask
The A. I. Root Company, Medina, Ohio.

GOLDEN Opportunities!

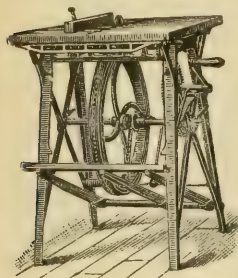
EXIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

J. W. WHITE

Gen. Indus. Agt., Portsmouth, Va.

Seaboard Air Line Railway

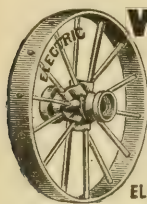


BARNES' HAND and FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

MACHINES ON TRIAL

Send for illustrated catalog and prices. Address
W. F. & JNO. BARNES CO.
545 Ruby Street,
ROCKFORD, ILLINOIS



WAGON SENSE

Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

Electric Handy Wagon.

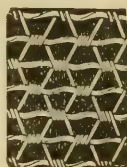
It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

ELECTRIC WHEEL CO., Box 95, Quincy, Ill.



LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address
COILED SPRING FENCE CO.
Box 448 Winchester, Ind.



FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today
COILED SPRING FENCE CO.
Box 101 WINCHESTER, INDIANA.



THE "BEST" LIGHT

Makes and burns its own gas. Produces a safe, powerful, white, steady light, at a cost of 2c a week. Brighter than electricity or acetylene, cheaper than kerosene. Over 100 styles—every one warranted. Agents wanted everywhere.

The Best Light Company,
306 E. 5th St., Canton, O.

You Need It. : : : :

If you have only a few chickens;
If you are at all interested in poultry;
If you are breeding for fancy points;
If you cater to the market trade;
If you are in the business on large scale, you need

Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. a year, but we offer it **AT HALF PRICE** for a short time to introduce it to readers of Gleanings. Send only 25 cts. and get it a year; or, if you send us \$1 for a year's subscription to Gleanings in Bee Culture, we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.

\$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size 8x11 1/4 inches) of valuable poultry, pigeon, and pet-stock reading, costing us thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

Poultry Item, Sellersville, Bucks Co., Pennsylvania

DO YOU RAISE CHICKENS?

If so, you will find The Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cts. a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

TO THE
BEE-KEEPERS
OF CANADA

WE ARE pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we are not able to offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers. Moreover, what we do list we propose to keep in large quantities, and will be able to ship promptly.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the **QUALITY**. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY

Deer Park

Toronto - Ontario - Canada

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

Root's
Bee - supplies

You know what this means. **Four carloads of new goods on hand.** Our business increased last year 100 per cent over 1904. This is proof that we are saving our customers money. Why not let us do the same for you? **Low freight rates from Toledo. Large discounts.** It tells the story. **Two per cent discount this month on bee-supplies. . .**

**Model Incubators. . .
. . . . and Brooders**

Made by Charles A. Cyphers. Poultry-supplies of all kinds. Eggs for setting and stock for sale. Our new eighty-page illustrated catalog describes all of these well-known goods. Sent free. Don't be without it. Don't delay. Send to day.

Griggs Brothers

523 Monroe St. : Toledo, Ohio

**CENTRAL AND NORTHERN
PENNSYLVANIA**

**Distributor of Root's Goods from the
Best Shipping - point in this State.
WHOLESALE - AND - RETAIL**

I sell at catalog prices, and, with the low low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also rear Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

E. E. PRESSLER, WILLIAMSPORT, PENN.

BEE-HIVES, SECTIONS

Every Thing that is Used by Bee-keepers

can be procured of us as cheaply as anywhere, and we know **Our Goods are Superior**, both in material and workmanship, to those of any competitor. **One Trial will Convince You.** That's all we ask. Get our new Illustrated Catalog and Price List. Send for one on a postal card.

The W. T. Falconer Mfg. Co., Dept. B, Jamestown, N. Y.

JENKINTOWN FIELD DAY

TUESDAY, JUNE 26

For program see page 851, this issue.

For train service see page 838, this issue.

For other particulars see editorial page.

PRIZES

To add to the interest of the meeting we wish every bee-keeper would bring samples of honey. The following prizes are offered:

- For the best single section of comb honey—One untested Caucasian queen.
- For the best 12 or 24 lb. case of comb honey—One tested Caucasian queen.
- For the best sample pound jar of extracted honey—One untested Caucasian queen.
- For the best sample pound of beeswax—One tested Caucasian queen.
- Have all honey carefully put up with label showing producer's name.
- Leave all samples with the Enrollment Committee on arrival at Jenkintown.

Wm. A. Selser, 10 Vine St., Philadelphia, Pa.

Dadant's

Foundation

It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!
No sagging; no loss.
Twenty-eighth Year.
We Guarantee Satisfaction.
Wax Worked into Foundation.

Bee-supplies of All Kinds

Beeswax wanted at all times.
Send for Our 1906 Catalog.

Dadant & Sons, Hamilton, Ill.

New Goods-Big Stock

New Warehouse, Root's Goods,
Prompt Shipment, Low Freight.

Everything for the Bee-
keeper at Savannah, Ga.

We are prepared to furnish
promptly a full line of sup-
plies, choice new stock just
from the factory. . . .

BEES AND QUEENS

We have large apiaries of
fine stock. Book your or-
ders at once as there will
be a heavy demand this
season. Catalog sent free.
Correspondence solicited. .

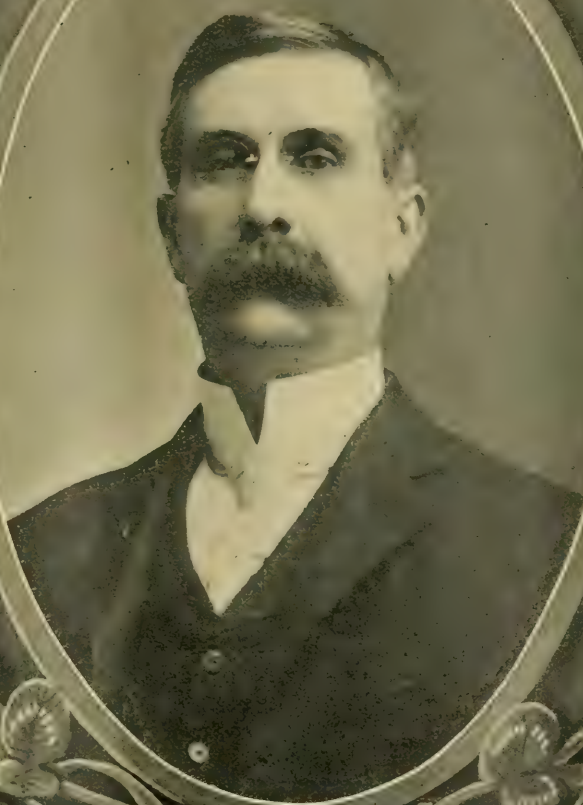
HOWKINS & RUSH

124 West Liberty Street

SAVANNAH - - GEORGIA

GLEANINGS

IN BEE CULTURE



J. C. ACKLIN

THE A. I. ROOT CO.
MEDINA, OHIO

Eastern Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

Washington, D. C.

A convenient place to get your supplies. Lowest rate by rail and water to all parts of Virginia and South Atlantic States.

We carry a full line of our goods at this branch, and give you prompt and satisfactory service. Give us a trial.

Write for catalog.

The A. I. Root Company

H. G. La Rue. . . Manager
1100 Maryland Av., S. W.
Washington, D. C.

Bee-Supplies

For Southern

Bee-Keeper's

I have been over 20 years in the bee-supply business, manufacturing hives and fixtures, and raising bees and queens. With all this experience and the excellent facilities I have, I am able to fill your orders promptly, and give absolute satisfaction. Though I make my own hives I carry a complete stock of The A. I. Root Company's manufacture. Just specify "Root's Goods" and you will get them.

Bees and Queens

I breed with scientific, intelligent methods, from the best imported and Long-tongued stock. Cheap queens may be had elsewhere. My stock is worth every cent of the price. You will be pleased with it. I GUARANTEE IT.

64-page Catalog

of Supplies and Bees sent free. Tell me you saw my ad. in GLEANINGS.

J. M. JENKINS

WETUMPKA : ALABAMA

FAIR CONTEST!

CONDITIONS

FIRST.—That subscriptions entered in contest are obtained at the fair on dates named in application below, or obtained as results of work during fair.

SECOND.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, 6 mos.) are equivalent to one year's subscription.

THIRD.—Contest closes Nov. 15th, and announcements will be made in Dec. 1st GLEANINGS.

FOURTH.—That only one agent will be appointed for any one fair.

FIFTH.—That advertising matter sent is to be carefully distributed to best advantage.

OUR agents made money at fairs last year. The work was easy, our commission liberal, and the prizes large. We supply you with sample copies and printed matter. Better make arrangements with us to represent Gleanings at your State or County Fair. Do it now before some one else gets ahead of you.

Write us, asking that your name be entered, and Fair rights be reserved for you.

Gleanings in Bee Culture, Medina, Ohio, U. S. A.

Fair Contest Department

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusively, at Root's Factory Prices.

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled. the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even, one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

DENVER.—Barring a few cases of candied comb honey, we are entirely sold out of both comb and extracted, and could use shipments of new white comb and extracted to good advantage.

THE COLORADO HONEY-PRODUCERS' ASS'N.

June 21. F. Rauchfuss, Mgr.

CINCINNATI.—The demand for extracted honey has brightened up within the past thirty days. However, there is much of last season's crop still unsold, which tends to hold down the price. There is no material change in prices since our last quotation. Quote amber in barrels at 5 to 6½. No new white-clover extracted honey on the market as yet. We find ready sale for new crop of comb honey at 14 to 15½. For choice yellow beeswax we are paying 30 cts. per lb. delivered here.

THE FRED W. MUTH CO.,

June 15. 51 Walnut St., Cincinnati, Ohio.

PHILADELPHIA.—There is no new honey arriving in this market as yet, and so few lots of old honey that we can not establish any price. Some little lots of Southern extracted honey have arrived in barrels. We quote: New Southern honey, light amber, 6½; amber, 6. Beeswax sells freely at 29. We are producers of honey, and do not handle on commission. WM. A. SELSER,

June 20. 10 Vine St., Philadelphia, Pa.

KANSAS CITY.—The market here is almost bare of honey. New honey, fancy white, sells at \$3.50, amber, a little less; no new extracted. Old sells at 5½ to 6. We expect a good demand for honey right along.

C. C. CLEMONS & Co.,

June 20. Kansas City, Mo.

ATLANTA.—Honey is coming in more freely now, and we find that sales are not increasing in proportion to the quantity of honey now arriving. We quote: Fancy white comb, 13; No. 1, 12; extracted, slow at 5½ to 6½.

JUDSON HEARD & Co.,

June 21. Atlanta, Ga.

CHICAGO.—The demand for honey, both comb and extracted, is slow. Fancy comb brings 15; No. 1, 14; off grades, 10 to 12; extracted, white, 5½ to 7; amber, 5 to 6. Beeswax, 30.

R. A. BURNETT & Co.,

June 22. 199 South Water St., Chicago, Ill.

BUFFALO.—There is very little demand for honey now. There is no white comb here. If there were it would sell well at about 15; some candied and No. 2, also some dark comb here; but trade buys only a little when forced to get some. There will not be much more trade for honey until new commences to come.

June 13.

W. C. TOWNSEND, Buffalo, N. Y.

ST. LOUIS.—Since our last there is no change noticeable in our honey market. It is very dull on all grades except that there is a good demand for choice new comb honey. We quote: Fancy white comb, 14 to 14½; No. 1, 13 to 13½; amber 12 to 12½; extracted California light amber, 6 to 6½, according to condition and quantity; Spanish needle, 6½ to 7; Southern in barrels, old, 4 to 4½; new, 4½ to 4; in cans, 5 to 5½ for old, and 6 for new. Beeswax, prime, 29½; all impure and inferior, less.

R. HARTMANN & Co.,

June 12.

St. Louis, Mo.

TOLEDO.—The market in comb honey remains rather quiet. Stock is pretty well cleaned up now. On account of the strawberry season, demand is very light. Fancy white clover would bring 16; No. 1, 15. Extracted white clover in barrels brings 6½ and 7; cans the same; amber in barrels brings 5 to 5½; cans the same. Beeswax is firm at 28 and 30.

GRIGGS BROTHERS,

June 9.

Toledo, Ohio.

MILWAUKEE.—We continue to quote honey, fancy 1-lb. sections, 16 to 18; off grades nominal, 8 to 10; extracted in barrels, cans, and pails, free from acid, 7 to 8; amber dark, nominal, 6 to 7. Beeswax, 26 and 30.

A. V. BISHOP & Co.,

June 27.

119 Buffalo St., Milwaukee, Wis.

FOR SALE.—Thirty 5 gallon cans of clover honey. Single can, 7½ cts. per lb.; two or more at 7 cts. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Extracted honey. Write for prices. State quantity and kind wanted. Samples free. HILDRETH & SEGELKEN, New York, N. Y.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage. O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT, 199 South Water St., Chicago, Ill.

STANDARD BRED QUEENS.

BUCKEYE STRAIN RED CLOVER, GOLDEN ITALIANS

By Return Mail. Safe Arrival Guaranteed.

PRICES

	ONE	SIX	TWELVE
Untested	\$0.75	\$4.00	\$7.50
Select Untested	1.00	5.00	9.00
Tested	1.50	8.00	15.00
Select Tested	2.00	10.00	18.00

Select Breeders, each

\$3.00

Two-frame Nucleus and Red Clover Queen

3.00

THE FRED W. MUTH CO.,

No. 51 WALNUT ST.,

CINCINNATI, OHIO.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.
GRIGGS BROS., Toledo, Ohio.

WANTED.—Comb and extracted honey. State quality, quantity, and price.
JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.
EVANS & TURNER, Columbus, Ohio.

WANTED.—Beeswax. We are paying at this date for pure average beeswax delivered at Medina or any branch office named below, 27 cts. in cash or 30 cts. per lb. in exchange for bee-supplies, less transportation charges. We can not use old combs. Pack securely and address plainly. Be sure to send bill of lading when you make shipment, and advise us how much you send, net and gross weights. Ship to home office or nearest branch named below.

THE A. I. ROOT CO.,
Medina, Ohio.

Chicago, 144 East Erie St.; New York, 44 Vesey St.; Philadelphia, 10 Vine St.; Washington, 1100 Maryland Ave., S. W.

WANTED.—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.
THE A. I. ROOT CO., Medina, Ohio.

JELLY-TUMBLERS AT REDUCED PRICES.

You can double your money from your honey crop by using Jelly-Tumblers of correct style, as containers and keeping your market supplied. No other glass so economical. Write for quotations.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

Chas. Israel & Brothers 486-490 Canal St., New York.

Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc
Consignments Solicited. Established 1875.

Queens from 50 Cents Up!

Bred from Root's imported Italians.
Write for prices, stating wants.

C. M. Church, Arnold, Pa.

A. H. Reeves, Perch River, Jefferson Co., N. Y.

DISTRIBUTOR OF ROOT'S GOODS FOR

**NORTHERN NEW YORK
BEESWAX WANTED**

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair,
St. Louis, 1904.



**UP-TO-DATE,
STRONGEST,
COOLEST,
CLEANEST.**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or enout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Platteville, Wis.

SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker." Grant Stanley, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

F. DANZENBAKER, MIAMI, FLORIDA

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.

POULTRY DOLLARS COME EASY.

Our large 52 to 112 page beautifully illustrated magazine, best printed and edited poultry journal, makes it easy to add dollars to your income by keeping a few hens on a town lot or make a success on a large scale, covers every thing. Contains information that will put you in comfortable circumstances if followed. **POULTRY SUCCESS** one year, 50 cts. Large illustrated poultry book free to annual subscribers. Three months' trial, 10 cts. **POULTRY SUCCESS CO., Springfield, Ohio.**

KEEP YOUR EGGS

all summer while prices are low, and sell next winter at a good profit. Write for our plan; it will interest you.
T. T. POULTRY CO., Springfield, Ohio.

GET RID OF LICE.

For 25 cts. we send formula that never fails to exterminate lice. Costs less than 8c per lb. to make. Guaranteed. Used by many leading poultrymen.
T. T. POULTRY CO., Springfield, Ohio.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

E. R. ROOT
Editor

A. I. ROOT
Editor Home Departments

H. H. ROOT
Asst. Editor

DR. C. C. MILLER,

LOUIS H. SCHOLL,

J. A. GREEN,

G. M. DOOLITTLE,

Department Editors:

PROF. A. J. COOK,

J. E. CRANE,

W. P. ROOT.

J. T. CALVERT, Business Manager

A. L. BOYDEN, Advertising Manager

Circulation 30,000.

Established in 1873.

Published by The A. I. Root Company, Medina, Ohio, U. S. A.

Reaches every State and 60 foreign countries.

Sixty-four pages.

Semi-monthly.

Terms—\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.

Postage is Prepaid by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS., 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 6/.*

Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publisher.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY.....STATE.....

DATE.....

If you want Gleanings discontinued at expiration, check here ()

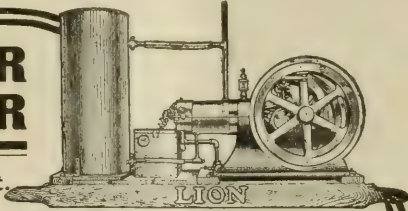
HOW TO SELL

your crop of honey is fully as important as its production. There is no "best way" of selling honey—it all depends upon circumstances. The home-market may be the best for one man, while another may be producing honey in a region where there is no home-market. All of the different methods of selling honey, together with the details, are discussed in one of the chapters of *Advanced Bee Culture*. There is one suggestion as to

how a man may sell his honey at wholesale, at an advance in price, and, at the same time, save the commission that usually goes to the dealer. Remember, too, there are 32 other chapters besides this, treating as many vitally important phases of bee culture.

Price of the book, \$1.20; or the Review one year and the book for only \$2.00.
W. Z. HUTCHINSON, Flint, Michigan.

A READY POWER AT ANY HOUR



That's the kind of a power you want. You do not have to wait for steam, or until the wind blows, before you can pump water, grind feed, saw wood or the hundred and one other jobs about the farm, if you have a **Lion Gas or Gasoline Engine**. Have you ever thought just what a saving of time, labor and money it would be to have such a practical power **always ready to operate** your various machines on the farm, in the shop, printing-office, or—anywhere?

The LION Engine

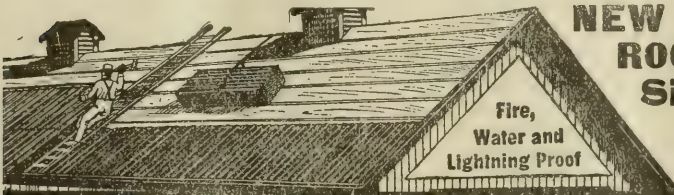


is such a power. It is **simple** in construction, **practical** in operation, and **economical** in the use of fuel. You do not require the services of an engineer, as anyone can operate it. We send the **Lion engine**

Direct From The Factory

on a **ten days test trial** and give explicit instructions and directions for setting up and operating it. Write now, stating your power needs, for our easy payment plan. Remember, we send the **engine**, not the agent.

LYONS ENGINE CO., Lyons, Mich.



NEW STEEL ROOFING and Siding \$1.75

PER 100 SQ. FT.

Metal roofing, such as we offer, is far superior to any other kind. It is easier to lay, lasts longer and costs less. No experience necessary to lay it. Just an ordinary Hatchet or Hammer—the only tools you need. This roofing at **\$1.75 per 100 square feet**, is our No. 15 Grade Semi-Hardened Steel, painted red two sides, perfectly flat, 24 inches wide by 24 inches long. Corrugated (as illustrated), "V" Crimped or Standing Seam costs **\$1.25**. We can furnish this Roofing in 6 or 8 foot lengths at **25c per square additional**. We offer Pressed Brick Siding and Beaded Ceiling or Siding at **\$2.25 per 100 square feet**. At this price—

WE PAY THE FREIGHT TO ALL POINTS EAST OF COLORADO except Oklahoma, Indian Territory and Texas. Prices to other points on application.

Send in your order for as many squares as you may need to cover your new or old Building. Time has proved its enduring qualities. Thousands of Barns, Houses, Residences, Poultry Houses and Buildings of every kind are covered with this superior material. We guarantee satisfaction. Money cheerfully refunded if upon receipt of the material you do not find it all we represent it, or if you are not perfectly satisfied in every way just send the material back at our expense, and we will refund the purchase price. If you now is the time to place your order. Send us diagram of the Building you have to cover, and we will quote you a Freight prepaid price on such Covering as we deem best suited for your purpose.

Ask For Catalog No. W688. Lowest prices on Roofing, Eve Trough, Wire, Pipe, Fencing, Plumblings, Doors, Household Goods and everything needed on the Farm or the Home. We buy our goods at sheriff's and receiver's sales.

CHICAGO HOUSE WRECKING CO.

35TH & IRON STREETS,

CHICAGO

CONTENTS OF THIS NUMBER.

MARKET QUOTATIONS.....	857	Increasing the Pasturage with Sweet Clover	884
STRAY STRAWS.....	867	Bee-keeping in Idaho.....	884
EDITORIAL.....	869	Foul Brood.....	885
What Shall the Harvest be?.....	869	Mr. Henry Shaffer.....	886
A Sequel to my Chicken Story.....	869	Hoffman Frames.....	887
Our Basswood Plantation.....	869	Papa's Swarm that wouldn't Stay Hived.....	887
Doolittle Method of Controlling Swarms.....	869	HEADS OF GRAIN.....	888
J. C. Acklin.....	870	Orange-blossom Honey.....	888
Is Black Brood Spreading in the United States?.....	871	Simmons on Foul Brood.....	888
POEM.—Langstroth.....	872	Getting Brood from Two Queens.....	888
BEE-KEEPING AMONG THE ROCKIES.....	873	Is Bee-hunting Profitable?.....	888
BEE-KEEPING IN THE SOUTHWEST.....	874	Hybrid Bees.....	889
CONVERSATIONS WITH DOOLITTLE.....	876	Caucasian Bees as Swarmers.....	889
GENERAL CORRESPONDENCE.....	877	Cloth over the Sections.....	889
Wax-rendering.....	877	Distance Bees Travel.....	889
Mating Queens.....	879	A YEAR'S WORK IN AN OUT-APIARY.....	890
The Ferris System of Producing Comb Honey.....	880	OUR HOMES.....	892
A Non-reversible Extractor.....	882	HEALTH NOTES.....	895
Feeding Artificial Pollen.....	884	SPECIAL NOTICES.....	897

INDEX TO ADVERTISEMENTS.

Banking by Mail.	Doolittle & Clark.....	908	Honey-buyers.
Savings Dep. Bank Co.....	Jepson, H. H.....	907	See page.....
Bee Smokers.	Koeppen, Chas.....	908	858-859
Bingham, T. F.....	Krechlan, D. F.....	906	Household Specialties.
Danzonbaker, F.....	Lawrence, E. E.....	908	Best Light Co.....
Bee Supplies.	Laws, W. H.....	903	Horne Co., Joseph.....
Cook, J. H. M.....	Lewis, W. T.....	906	Ulery Co., U. J.....
Falconer Mfg. Co., W. T., Back Cover	Lockhart & Co., F. A.....	908	Machinery.
Hershiser, Orel L.....	Malan Brothers.....	908	Deming Co.....
Hilton, Geo. E.....	Mayberry, F. M.....	908	Electric Wheel Co.....
Hunt & Son, M. H.....	McCain, Robert B.....	909	Empire Mfg. Co.....
Jepson, H. H.....	Mennie & Fenton.....	909	Lyons Engine Co.....
Kretschmer Mfg. Co.....	Miller, Isaac F.....	909	Medina Concrete Co.....
Lewis Co., G. B.....	Mott, E. E.....	908	Myers & Bros., F. E.....
Marshfield Mfg. Co.....	Parker, Jr., H. M.....	909	Root Co., The A. I.....
Minnesota Bee Supply Co.....	Quirin the Queen-breeder.....	907	Miscellaneous.
Muth Co., Fred W.....	Rambo, J. R.....	907	Chicago House Wrecking Co.....
Page & Lyon.....	Robey, L. H.....	908	Hardware Specialty Co.....
Pouder, Walter S.....	Roselawn Apiary.....	908	Seaboard Air Line R. R.....
Prothero, Frank W.....	Routzahn, G.....	910	T. T. Poultry Co.....
Reeves, A. H.....	Routzahn, G.....	908	Publishers, Agricultural-paper.
Root Co., The.....	Shaw & Co., J. W. K.....	908	Southern Fruit Grower.....
Root Co., The, Syracuse, N. Y.....	Shuff, W. A.....	909	Publishers, Bee-Journal
Root Co., The, St. Paul, Minn.....	Simpson, H. C.....	907	Falconer Mfg. Co., W. T., Back Cover
Scott & Co., C. M.....	Strong, J. I.....	909	Hutchinson, W. Z.....
Stringham, I. J.....	Taylor, J. W.....	909	Root Co., A. I.....
Weber, C. H. W.....	Titoff, A. E.....	907	York & Co., Geo. W.....
Woodman Co., A. G.....	Victor-Knolle Apiary Co.....	909	
York Honey & Bee Supply Co.....	Wurth, Daniel.....	909	
Bees and Queens.	Bees-books.		
Anderson, Grant.....	York, George W.....	865	
Atchley Co., The Jennie.....	Root Co., The A. I.....	905	Publishers, Poultry-paper.
Case, J. B.....	Comb Foundation		Ohio Poultry Journal.....
Colahan, W. J.....	Dadant & Son.....	Back Cover	Poultry Gazette, The.....
Cox, R. O.....	Dittmer, Gus.....	901	Poultry Item.....
Crawford, W. F.....	Fences.		Poultry Success.....
Darrow, C. M.....	Coiled Spring Fence Co.....	912	Wants and Exchanges.
Davis, John M.....			See page.....

ADVERTISING TALKS

BY THE AD. MAN.

FIFTEEN DOLLARS FOR ONE.

One of our advertisers who has just finished checking up his returns for the past season says that his advertisements in GLEANINGS, which ran from November 1st through our May 1st issues resulted in actual sales to the amount of more than \$15.00 for every dollar invested for space in this journal. His investment was about \$80.00, and his sales a little more than \$950.00. What commission would you be willing to pay for sales of your goods? If you could employ an agent who for every dollar paid him in salary would bring in \$10.00 in sales you would be pleased with his work, would you not?

The trouble with most prospective advertisers is that they want proof which can not be had before giving a medium a trial. No doubt the commodity which you offer is needed much more in the households of the readers of GLEANINGS than the one which the advertiser referred to above sells.

If you have a good proposition, and are prepared to give good square treatment to all customers, we would advise you to give GLEANINGS a trial. Many doubters who have conquered their fears sufficiently to do this during the last year have been agreeably surprised at the returns.

We offer to tell you frankly and honestly whether or not, in our opinion, your proposition would meet with the favor of our readers. It would be absolutely useless for us to go to any expense in soliciting your ad. if, after you had made a one or two insertion trial, you found that GLEANINGS did not pay you. We want to secure the patronage of advertisers who will use GLEANINGS year after year, and who will stand by us as long as profitable results are secured.

If you have the faith in your proposition that we have in the "pulling power" of GLEANINGS you will not let another issue appear which does not contain your adv't.

The A. I. Root Co.—For several years I have sent you a small ad. annually. The same has given satisfaction, both in the number of inquiries received and also the sales made from them. We also think the class of customers away up with regards to their statements and honest dealings. We have never lost one cent that we can now recall, from any one who referred us to The A. I. Root Co. Thanking you for the business, and wishing you much success, we remain,

H. H. AULTFATHER.

Minerva, Ohio, March 26, 1906.

A letter like this from a man who advertises in a great many papers is very much appreciated. There is no element of chance in advertising in GLEANINGS. A good proposition—the only kind that we will accept—will always pay.

GLEANINGS A GROWING JOURNAL.

We are very glad to report to our readers and advertisers that GLEANINGS is growing very fast. Not only is the journal growing in size and value of news, but a great growth in the number of subscribers and readers is felt. Indications are that, when the June records are checked up, a growth of fully one thousand subscribers will be recorded.

We appreciate this loyal support. It shows us that bee-keepers appreciate our efforts to give them a journal of value and interest. Growth is always a good thing for all concerned in the making of a publication. New subscribers means more critics and contributors, and thus the teachings of the paper become more nearly true. They mean better support for the publisher, and enable him to publish a better paper without an advance of price.

May be it is in your power to give GLEANINGS a big boost, and we sincerely bespeak any service you may render by bringing the attention of even one bee-keeper to this paper.

FAIR CONTEST FOR GLEANINGS REPRESENTATIVES.

Last year we inaugurated a contest and offered prizes for subscriptions to GLEANINGS secured at County and State fairs and conventions. So successful were our representatives that we have decided to hold a second contest this year.

The dates will be between July 1st and November 15th, and full particulars on prizes, conditions, etc., will be found in the announcement on page 898 of this issue. Here is an opportunity to secure a good cash reward in addition to the liberal commission we pay to persons who will work with us to interest more bee keepers in GLEANINGS. If you feel that you could succeed in this work we should be pleased to have you write.

Our agents will be glad to know that we are at work on a premium or prize list which will offer many very liberal inducements to prospective subscribers. This plan for soliciting subscriptions by means of special combinations and premiums through our representatives is a unique one, and if you would like our literature sent to you as soon as it is ready, send in your name to the Ad. Man.

GLEANINGS' premiums are never of the trashy worthless kind. We offer only such prizes as our friends would be willing to pay cash for if they could afford to do so.

Cash commissions are paid on all subscriptions secured by authorized agents.

The Largest and Oldest Bee-Supply House in Michigan.

ESTABLISHED IN 1878.

Our business has been of steady healthy growth for nearly thirty years. It has been built up on our part by prompt service, courteous treatment, and careful attention to every detail.

The goods we sell are ROOT'S GOODS. They have a quality of their own. We call it "ROOT QUALITY." It's the extra pains taken to have the workmanship and material of the very best.

SOME OF THE NEWEST!

Alexander Feeders

Metal-Spaced Hoffman Frames

German Bee-Brushes

Everything for the bees and always "ROOT QUALITY."

M. H. Hunt & Son,
Bell Branch, Wayne Co., Mich.



This Offer Extended to Aug. 1st

DOOLITTLE'S
QUEEN-REARING
BOOK

For Only 25 Cents



When taken with the Weekly American Bee Journal for One Year at \$1—
making \$1.25 for both.

(Book bound in Leatherette cover, otherwise same as the cloth-bound book, which is \$1.)

This offer is open to any body, either new or old subscribers, but the latter when accepting it must send enough to pay their subscriptions a year in advance, if they are in arrears now.

Mr. Doolittle's book tells in detail just how he rears the best queens possible; also gives His Methods of Comb Honey Production. Every bee-keeper should have this book. (126 pages.)

OUR STANDARD-BRED ITALIAN QUEENS

are unexcelled. Reared by best queen-breeders. Prices—1 Untested, 75c; 3 for \$2.10; or 6 for \$4.00. Orders filled in rotation. Better get your orders in NOW for June delivery.

The Weekly American Bee Journal one year with Untested Italian Queen—both for \$1.50.

You Wouldn't Know the Old American Bee Journal Now!

Sample copy of the Weekly Bee Journal free on request, or a Trial Trip of 3 months (13 copies) for only 20 cents, to a new reader. Better order now, as there are lots of good things appearing in its columns every week.

Address,

GEORGE W. YORK & CO.

334 Dearborn Street, CHICAGO, ILL.

Mr. Bee-keeper

Just a minute of your time, please. Swarming will soon be over and honey coming in. We can send foundation and sections, if you need them, by express promptly.

The A. I. Root Company
Syracuse, New York

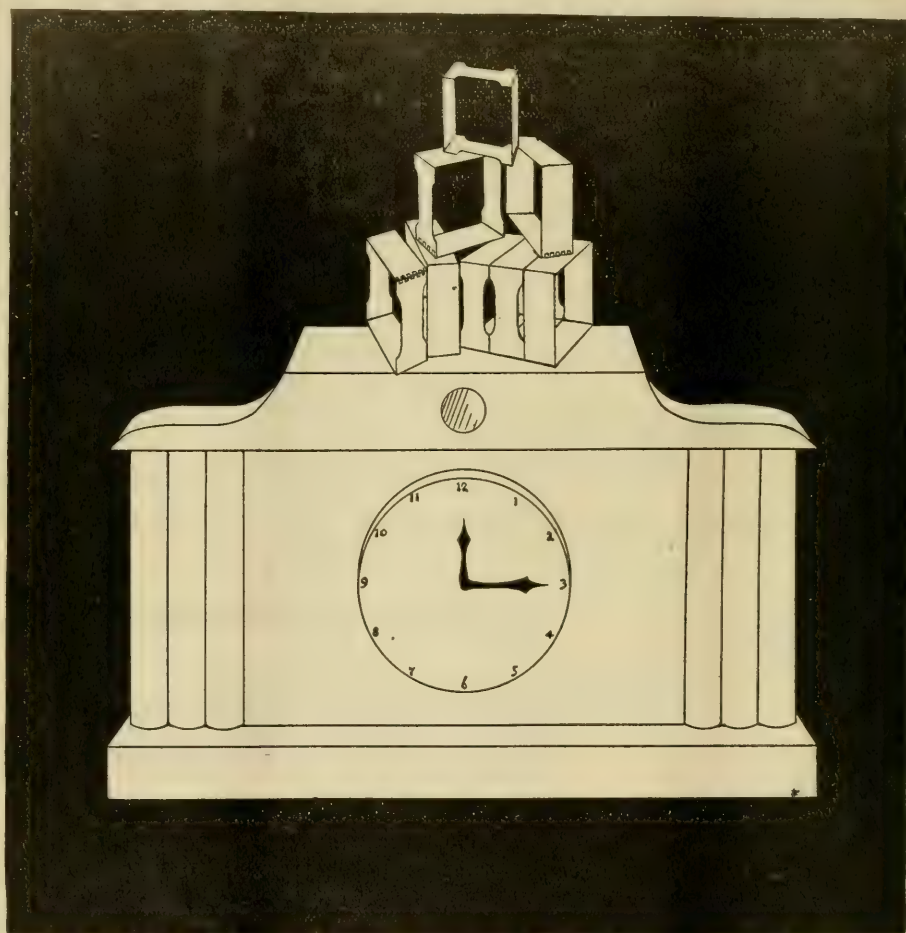


Sections Right on Time!

15 Million of the Best Sections on Earth

LEWIS SECTIONS

Ready for You at the Drop of the Hat



G. B. Lewis Co., Watertown, Wis.

AGENCIES

ENGLAND—E. H. Taylor, Welwyn, Herts.

CUBA—C. B. Stevens & Co., Havana.

C. B. Stevens & Co., Manzanillo.

CALIFORNIA—Chas. H. Lilly Co., San Francisco.

SOUTHERN CALIFORNIA—

Fletcher-Doyle Co., San Diego.

Fallbrook Co-operative Association, Fallbrook.

Paul Bachert, Lancaster.

COLORADO—R. C. Aikin, Loveland.

Arkansas Valley Honey-producers' Ass'n, Rocky

Ford.

Colorado Honey-producers' Association, Denver.

Fruit Growers' Association, Grand Junction.

Robert Halley, Montrose.

IOWA—Adam A. Clark, LeMars.

Louis Hanssen's Son, Davenport.

ILLINOIS—York Honey & Bee Supply Co., 141-143
Ontario St., Chicago.

Dadant & Son, Hamilton.

INDIANA—C. M. Scott & Co., Indianapolis.

MICHIGAN—A. G. Woodman Co., Grand Rapids.

MINNESOTA—Wisconsin Lumber Co., 432 Lumber
Exchange, Minneapolis.

MISSOURI—E. T. Abbott, St. Joseph.

OHIO—Norris & Anspach, Kenton.

OREGON—The Chas. H. Lilly Co., Portland.

PENNSYLVANIA—Cleaver & Green, Troy.

TEXAS—Southwestern Bee Co., San Antonio.

UTAH—Fred Foulger & Sons, Ogden.

WASHINGTON—The Chas. H. Lilly Co., Seattle.

GLEANINGS

IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
 Illustrated : Semi-monthly : One Dollar per Year
 Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

JULY 1, 1906.

No 13



IT MAY COMFORT a good many who are in the same boat, to know that bees are doing nothing here. Clover, clover, everywhere in full bloom, but nothing doing.

C. W. DAYTON is the first man, I think, to give a plan whereby a dozen swarms in a bunch can be automatically returned to their own hives, page 812. Looks feasible, too.

TWO TO TWELVE bait sections are advised in the first super, page 797. In this locality, generally only one is used, and does good work. But if we had them, more would be better.

"LIGHTNING never strikes twice in the same place." If that saying is true my shop is safe, for lightning splintered it pretty well the other day, although nothing burned. Plenty insurance.

SHORTENED top-bars are objected to because of lack of finger-room for handling. No trouble here. The shortened ends of the Miller frames are $1\frac{1}{2}$ wide, giving plenty of chance for two fingers under, and thumb on top.

RECENTLY I was much puzzled on receipt of a package without name or accompanying letter. Looked as if it might hold sheet music, but too large. Receipt of *American Bee-keeper* explained it. It's A. C. Miller's latest. Heavy enameled cloth, with a

unique fastening device something like a lady's corset, for protecting a hive or super, black side out for hive in winter, and white side for super in summer.

BEES SEEM, after all, to use poor judgment in storing pollen. Allen Latham reports in *American Bee-keeper* that several colonies were without laying queens the last ten days in May, and for a few days in June, when pollen was coming in most freely, and says, "When those young queens started in to lay, early in June, there was scarcely a brood-comb which was not 75 per cent filled with pollen."

C. W. DAYTON says, *American Bee-keeper*, "The size of the first swarm is varied a great deal by the amount of reverence the bees possess for their old queen—a good one more and a poor one less, almost down to nothing. This is governed by her age, and ability to lay eggs for the future prosperity of the new home." That's a new one. Will those who have natural swarms tell us how much there is in it?

ALLEN LATHAM is always disturbing settled convictions. He says in *American Bee-keeper* that, last June, clover yielded just enough to keep the bees trying to get it, and adds, "Under such conditions, as every one knows, a big load of pollen goes with every small load of nectar." If every one knows that, no one ever told it before; and I always believed, and still have a sneaking belief, Allen, that at such times there isn't more than one load of pollen to each four or five of nectar.

J. E. CRANE, p. 816, says that, where top-bars are supported by tin rabbets, or rests, he finds with many the space back of the metal so filled with propolis as to make them a nuisance. Same here. The little troughs

made by the tin become in time level full of propolis. But it takes two or three years to fill them up, and with the right kind of tool it does not take very long to clean them out; and up to the time they are level full the frames work, oh so much easier than on the plain wooden rabbit!

FOUL-BROOD spores, in honey, germinate in warm weather, S. Simmins, p. 808. Is it not the general teaching that spores remain indefinitely in honey without germinating? [Most if not all of our scientific men would support your contention. The spores of almost any disease that afflict the human family have been known to lie dormant for a good many years; and yet when given favorable media in which to grow they showed as much vigor as the original disease ever makes at any time. —ED.]

I WONDER if this is the only locality where downwardly projecting cleats are heartily despised. They make the cover unnecessarily long, and take much more time to put on without killing bees. [How this may be, I do not know; but the downwardly projecting cleats stiffen the cover, because the cover-board is slipped inside of a groove that holds it true without the mere dependence on the nails. Then, as I explained in GLEANINGS, this downwardly projecting edge can be used very conveniently to support supers, the bottoms of which are covered with bees. —ED.]

I DON'T THINK I would adopt Joseph Egge's plan for keeping down increase, page 825; but I feel pretty sure, Mr. Editor, that your footnote objection is not valid. You are quite right in understanding that, when a young queen is reared in a hive, she is likely to put the old lady out of commission. But the case is different here. The swarm has been in full tide of progress for a week. The bees are satisfied with their queen, and don't want any other. Enters a strange virgin from another hive. Death-penalty, sure. Even if the young queen should supersede the old one, wouldn't the plan still be a success? [Why, doctor, it seems to me you and I pretty nearly agree here. Read my footnote again and you will see I did not say the plan would not be a success. —ED.]

STIMULATIVE FEEDING is a rather mixed business; and the replies of the editor concerning it are, accordingly, somewhat mixed, if not contradictory, page 828. He says, "Unless the bees have stores in super, or more honey in the brood-nest than is usually found, stimulative feeding in the spring pays and pays well. . . . Yes, avoid feeding when you can. It is a far better practice to give combs of sealed stores laid away from the previous season than to stir up a colony by giving it liquid food if the nights should be at all cool." All of which will be made sound and consistent by dropping the word "stimulative" out of the first sentence quoted. Feeding usually pays well in spring; *stimulative* feeding, seldom. Feeding is always needed when abundant stores are not present. Stimulative feeding is

needed only when in favorable weather a dearth is likely to curtail brood-rearing. My bees have often needed feeding. I'm not sure that they have ever needed *stimulative* feeding. [Look here, doctor, you are not fair. You are leaving off the qualifying clauses, both before and after the first-quoted sentence in a way that makes the sentence following directly contradictory. Taking into consideration the qualifying clauses, it seems to me our ideas of the correct practice are practically the same. No, I would not leave out the word *stimulative*, for there are certain conditions under which it would not be advisable — the very conditions that you name, if I understand you aright. —ED.]

A FLOCK of chickens was enclosed in a bee-yard by Mr. Hillebrand (*Leipz. Bztg.*), and they learned to stand at the hive entrances and snap up the drones as they came out, but never a worker would they touch. He thinks it was because of the sharp smell of formic acid in the workers. But do chickens go much by smell? [We have had quite a number of other reports of precisely the same thing in this country. Is it instinct, or what is it, that teaches the chickens to pick up the big clumsy bees without any sting? It is hardly conceivable that, if a young chick has picked up a live bee and got stung, it would ever repeat the experiment with either worker or drone. Some observations that I have made on various kinds of dumb animals convinced me that one "experience" is enough to last them a lifetime. —ED.]

I WOULDN'T for a minute encourage a growth of grass and weeds at the entrance of a hive. But isn't it putting it pretty strong for Bro. Doolittle to say, p. 824, "I find that, where badly tangled, the colonies in such hives will not store more than two-thirds as much honey during a good bass-wood yield as with those having a free flightway"? Unless there is something I don't understand in the case, the only loss is the loss of time from the alighting of the bee until it enters the hive. Now, if one-third of the crop is lost by that hindrance, there must be always found struggling at the entrance one-third of the bees that are outside the hive. I suppose it would not take a very strong colony to have a field force of 9000. Did any one ever see as many as 3000 returning fielders all sprawling about on the grass at the entrance at the same time? [There is one factor that you do not take into consideration, doctor. The bees, in struggling to get through the tangled grass and weeds at the entrance, tear their wings more or less, and this results in a certain positive loss in bees when the colony needs them the very most. Worker-bees wear out fast enough; and when the wings become badly torn they are put out of commission that much the sooner. When you consider the actual loss of bees to the colony that might be honey-gatherers, perhaps you will find Doolittle's estimate not far wrong. —ED.]



THE DOOLITTLE METHOD OF CONTROLLING SWARMS.

THE following, from Mr. F. A. Salisbury, will be self-explanatory:

To-day I have shaken bees out *a la* Doolittle on two colonies on the Doolittle plan of non-swarmling. They are good colonies. If they do not swarm out from the solid combs of honey I expect to get good results.

Syracuse, N. Y., June 21.

F. A. SALISBURY.

WHAT SHALL THE HARVEST BE?

CONDITIONS have not materially modified since our report in the last issue, page 794. Southern California, with the exception of San Diego Co., will fall far short of the expected crop. No definite reports are in yet for the central parts of the State, but it will probably have its usual quota of honey.

Indications are still rather unfavorable for Texas and Colorado. The conditions a hundred miles each side of the Mississippi have not been favorable—too much drouth and cold; Missouri and Nebraska, however, send in all kinds of reports—good, bad, and indifferent. Indiana, Illinois, and Iowa have been having too much drouth and cold; but recent rains make it possible for portions of those States to do better than was at first expected.

Wisconsin and Minnesota, at the present writing, are so much later with their honey-flows that the recent rains may enable them to secure their usual amount of honey.

Michigan, likewise, sends in all kinds of reports. In some parts of the State it is reported there has been the largest yield of honey ever known; and in other portions there is fear that there will be no crop.

Ohio is in the doubtful list. The recent rains are toning things up very much.

The entire Eastern States, especially the southeast, send in generally favorable reports, although a number of bee-keepers from all these coast States have reported no crop and no prospect of any.

Pennsylvania seems to come to the forefront with a generally favorable report; then follows New York and the New England States. While the East has been jubilant over the prospects, and honey already secured, the final returns may show a considerably reduced average.

The estimate above given is based on our branch office and agency reports, and on the individual reports of bee-keepers, which confirm very largely the statements already made by our men in the field. As these postal-card reports help us to supplement our own findings, we shall be glad to have our subscribers continue to send them in from now on. Please report not only pros-

pects, but the average per colony thus far secured. Confine your statements to one or two sentences on a postal card.

A SEQUEL TO MY CHICKEN STORY.

SOME time ago, when Mr. Frank McGlade showed by some cartoons and some references to his own experience that the chicken business was a poor one in comparison with that of bees, we received so many protests to the effect that our correspondent was not fair to the American hen, I immediately embarked in the chicken business, and bought an incubator and brooder.

In addition to what I have already stated I may say I got a hatch of 47 out of 130 eggs. I put the 47 chicks in a brooder, and lost from two to three a day, until I had only four survivors that seem to be none the worse for the experience. They are about half grown now, and seem to respect their foster parents (my wife and I) as well as any chickens ever loved the old mother hen.

Josh Billings said experience teaches a dear school, but the tuition is rather high. If Josh had in mind the chicken business he hits my case to a dot. At all events I think I have learned where my trouble is, and propose to repeat the experiment just for the satisfaction of knowing that I can master the situation, and that I can hatch chickens, and raise them in brooders if other people can, as I know they do. A. I. R. said that the old hen was the best hatcher and brooder ever invented.* After my hatcher and brooder experience we (wife and I) put a setting under an old hen. Results, rats stole some of the eggs; hen smashed some, and now she has deserted the nest.

OUR BASSWOOD PLANTATION UP TO THE PRESENT DATE.

I MIGHT explain to our newer readers, that 34 years ago I got the basswood fever and planted ten acres to basswoods taken up from the forest. Some of the trees are now a foot in diameter, and most of them are bearing blossoms more or less. As they bloom at different times we shall have three or four weeks of basswood honey. The first blossoms will be open about July 1. An electric-car line now runs just on the edge of this apiary and also right in front of our factory, thus making it very convenient.

The twin nucleus hives that I spoke of on page 718 are located in this apiary. Well, this morning, June 22, Ernest and I looked over things there. Mr. Pritchard, who has charge of the apiary, showed us a single colony of bees that had been given 72 cell cups, and they had accepted and were finishing out in fine style 69 of the 72. This might

* Ernest is not quite fair. My remarks were intended mainly for the month of June, and especially for his particular experiments. I would not think of saying a word against incubators and brooders in the hands of an expert or one who makes it a business. Ernest has too many grave responsibilities on his hands, not only every day, but almost every hour in the day, to think of managing an incubator or even a sitting hen successfully.

seem almost incredible; but when I was shown large fine queen-cells built out in exactly the same way, and as fine-looking queens laying eggs in the twin nucleus hives as I ever saw in my life, I was converted to the new plan. This has been done on the line of Swarthmore, Doolittle, Wardell, and others. The colony that was starting these cells is, of course, very strong, and they have been made entirely queenless and broodless, with plenty of bees of just the right age, and pollen and honey without limit. Just before the grafted cups are given, the bees of the entire colony are smoked and shaken out in front of the entrance to get them to fill with honey. In that condition, with no brood to feed, they will lavishly feed the grafted cups.* The larvæ for these, of course, are from our best selected breeders.

By the way, I think I might mention the fact that we have just paid Mr. Vernon Burt \$25 for a queen from his yard, that has made such a record that we consider it a good investment. I believe \$25 is the most money we have ever paid for a queen since I bought my \$20 queen of L. L. Langstroth in 1865, when I first started—41 years ago.† As it is an easy matter now to raise queens by the hundreds or thousands from eggs from any particular queen, it behooves us to spare neither time nor pains, and I might almost say money, in getting the very best breeders to be had.—A. I. R.

J. C. ACKLIN.

J. C. ACKLIN was born March 22, 1852, in Fayette Co., Pa. His father was a farmer and stockman, as well as carriage-maker and general contractor. J. C. assisted his father as wood carpenter and painter in the carriage-making, and was government inspector on some contract work. About 1882 he started west with the idea of going finally to California, but stopping for a time at points on the way. He spent some time in Bayfield, Wis., also Ashland, and came to St. Paul in 1884. Here he met Miss Helen Goodsell, and they were married in 1885. Mr. Acklin was a contractor and builder. Early in 1890 they went west, settling for about a year in Pueblo, Colo. Here Mr. Acklin superintended the erection of several large school buildings, having at one time over 80 men working under him. They went west to California, but in the fall of 1891 they returned to St. Paul, where they have remained since. Ethel was born to them in December, 1892, and early the next year they began handling bee-keepers' supplies. During the hard times then prevailing, there was very little building going on, and Mr. Acklin secured a position with the Great Northern R. R. as lumber inspector, which he retained for a number of years. During this time Mrs. Acklin managed the bee-

supply trade with what assistance he was able to render nights and mornings. With the increase in the business the burden proved too great for Mrs. Acklin, and he resigned his position with the railroad company to give his whole time to the supply business and bees, of which they have maintained several out-apiaries.

Mr. Acklin was always actively interested in the Minnesota Bee-keepers' Association from 1893 till the time of his death. He has been a member of the executive committee for the past five years; has been a principal exhibitor at the State fair for the past 12 years, carrying off many prizes. Mr. and Mrs. Acklin have always been closely associated, helping each other in all their work.

Sometimes we are disturbed, and tempted to lose faith in humanity, especially when we read the newspaper accounts of the number of people who have gone to the bad, especially when somebody who has always seemed to be straight and square turns out badly. At such times it behooves us to look around and see how many great and good men and women there are in this world of ours. You need not suggest that they may turn out badly after all, for we who are between 60 and 70 years of age can point to thousands who have lived and died without a taint or flaw on their good name or the good life they have lived. When I heard of the sudden and unexpected death of Mr. J. C. Acklin my mind at once reverted to the time when it was my good fortune to spend a sabbath with him in their own home in St. Paul, Minn. Mr. Acklin seemed to be a rather quiet sort of man. He was always dignified and gentlemanly. I remember with what pride he showed me around that beautiful park of Lake Como, and in his quiet way remarked there was no beer sold there, and not even a dancing-pavilion was to be seen. He also told me there was to be an open-air Endeavor meeting in the evening. The next day they showed me their beautiful church, and it was my privilege to hear an excellent discourse from their talented minister. Mr. Acklin was a large man—not only physically, but he was one who took an interest, both in his own city and in the affairs of his State and nation. We discussed ways and means for looking after the best interests of our boys and girls, not only in their city, but in all the cities of our land and among the rural population. He knew what was going on in the world, and seemed glad that it was his privilege to subtract from the evil and add to the good. I was impressed with their beautiful home and delightful home life.

We can not fathom just why God seemed to have deemed it best that Mr. Acklin's life should thus have been cut short in its prime; but I think that all who knew him can unite with me in saying, "May God be praised for the example of such clean, pure, manly lives as was exemplified in the life of our friend J. C. Acklin." May the comforting influences of the Holy Spirit be with his bereaved family and many friends.—A. I. R.

* This is a plan that our Mr. Wardell has practiced for us for a number of years.

† To be more exact, the bargain is that Mr. Burt is to have 25 laying queens, daughters of this special queen, for the queen herself. These 25 laying queens would be worth to us or Mr. Burt more than \$1.00 each.—A. I. R.

IS BLACK BROOD SPREADING IN THE UNITED STATES? A NOTE OF WARNING.

ANYWHERE from one to half a dozen specimens of affected brood are being sent us every week during the summer. I have been fearful for some time that, in addition to the regular foul brood so named in this country, we have been getting specimens of black brood, or what the United States and Cornell bacteriologists call the European foul brood. During the last thirty days we have been handing in several suspicious samples to Dr. E. F. Phillips, of the Department of Agriculture, Washington, who in turn handed them over to the government Bacteriologist. The reports that I got back were somewhat alarming. One specimen of brood from Illinois, three from Pennsylvania, were pronounced to be black brood. I feared as much when I forwarded the specimens to Washington. Other specimens have been found in California.

I have just examined two specimens sent from Michigan which I think are black brood without question.

When I first received this report from Washington I was a little uncertain what to do; but the more I thought of it the more I became convinced that I ought to inform the bee-keepers of those States that the insidious disease is lurking in their borders.

When it is remembered that black brood came very near wiping out bee-keeping in New York, and that it was only by the most strenuous efforts on the part of four of the best inspectors in the country that it was brought under control, the bee-keepers of these other States may well pause and ponder.

I would respectfully urge every bee-keeper to keep a tab on the brood in his yard. When he sees any unsealed dark-colored brood, especially if it be of a coffee color, yellow or brown, and finds further that it is accompanied by a sickening or foul odor, he had better send a sample of the brood *without any honey* at once either to Washington or Medina. But in any case send it in a *stout wooden or tin box, the whole wrapped in heavy manila paper*. Besides using a strong box, wrap the brood itself in paraffined or oiled paper. It is not necessary to have a large sample of brood; but hunt up a small wooden or tin box and cut the brood to fit, so it will go in without crowding after it has been wrapped in paraffined paper.

Remember to send *brood only* and *no honey* with it, for the honey introduces an element of danger to the recipient. *Brood samples put up in paper or paper boxes we shall not examine, but burn them before unwrapping; so don't send them.*

When sending samples be sure to put on your own name and address. About half a dozen of the samples sent us were not marked. As we are getting a good many every week, absolute identification of each sample is rendered difficult if not impossible.

DEAD BROOD, NOT FOUL.

Shortly following a chilly or cold spell in the East, quite a number of bee-keepers re-

ported a quantity of dead brood. One or two apiaries seem to have had a large amount of it. Samples of the brood were sent here, and we diagnosed them as dead or poisoned brood. They were sent, one to N. D. West, of Middleburg, N. Y., and the other to N. E. France, foul-brood inspector of Wisconsin. Both men confirmed our diagnosis. On receiving the samples we wrote all the parties that we thought it was nothing serious; that it would all disappear in ten days or two weeks. Happening to be in the East lately on special business I visited one or two of the affected yards, and found, as I suspected, that the bees were coming out all right. The brood that had died seemed to be all of one age. All new brood was healthy, and seemed to be in first-class condition.

THE BEE-KEEPERS' FIELD DAY AT JENKINTOWN, PA.

TO-DAY, June 28, I have just returned from the above convention; and I can heartily indorse what a good many said at the meeting, that it was the greatest bee-keepers' convention ever held in the United States; and some went so far as to say it was the greatest, perhaps, ever held in the world; and if you take into consideration the new inventions and up-to-date appliances that were there exhibited and under demonstration, I do not know but that it was in advance of anything that has ever been done before in this world of ours. Mr. Pratt had all his recent discoveries and short cuts in queen-rearing; and some of them were so new and astounding, even to myself, that I could only open my mouth and stare in mute astonishment. Doolittle gave a talk, showing his methods of grafting larvae. Prof. Bigelow had a beautiful little apiary of Pearl Agnes hives placed around in a circle, and he gave a talk that was simply wonderful. When you looked into the faces of the youngsters who stood around him, with the baby sections in their fingers, you could get some glimpse of what this "baby bee-hive" may do with the children of the future. C. M. Church was there and gave us a picture of his mammoth tent or wire-cloth house 30 feet across and 30 feet high. He told briefly what they had accomplished in letting drones fly in the great tent. Perhaps I should explain first, that, when we came in sight of Mr. Selser's beautiful home, a great banner swung overhead, announcing what was going on. Then a raised platform, draped with red, white, and blue (or something of that sort) contained an *ex-tempore* office or offices where some girls dressed in white took the name and address of every bee-keeper, and furnished him a badge and program. By the way, Philadelphia, the "City of Brotherly Love," has some of the most beautiful homes, lawns, flowers, and shrubbery to be seen in the world; and the young ladies (I do not know whether they were all bee-keepers' daughters or not) are not one whit behind. I think I had better tell you right here, before I forget it, that there were toward one thousand in attendance. They were all bee-keepers, college professors, big doctors, or something of that sort, or they could not get on the grounds; but after they were once on the grounds, lunches, both for dinner and supper, were furnished free of charge; and the same supper and dinner tickets when presented to said young ladies brought a dish of beautiful ice cream, both afternoon and evening. There were, perhaps, a dozen or more apiaries, arranged in a circular or some other form, and each speaker stood in the center of this apiary while a rope around the outside kept the spectators from crowding too closely upon him. Mine was the Caucasian apiary, comprising perhaps 15 or 20 hives, big and little.

We also had on demonstration stingless bees and also stings for rheumatism; and, by the way, the stingless bees made more of a racket with the spectators and old bee-keepers than the other kind. Of course, they could not sting, but they could bite, crawl into your hair, get down your collar and into your nose and ears, in a way that set the whole crowd in an uproar more than almost any thing else.

But I am admonished that there is no more space in this issue, and so I will tell you more later.—A. I. R.

LANGSTROTH.

By EUGENE SECOR.

How prone are we to count as ill
The light afflictions kindly sent,
To overcome our stubborn will
And lead to large accomplishment.

Blind Huber saw what other men
With perfect sight passed blindly by,
His mind and soul had wider ken
Because a cloud obscured his sky.

Another man against his will
Was forced to leave the path he chose,
The station which he thought to fill
Was filled by others. Why? God knows.

But out of disappointment came
The light of truth, the joy of doing;
The common folk he set at lame
With zeal to follow Nature's wooing.

The merry priests of wedded blooms
His genius and his will obeyed;
They deftly builded waxen homes
According to the plan he made.

He told the secrets of the bees;
The sacred chambers of the queen
He first unlocked, that they who please
May enter her well-kept demesne.

The garnered sweets of untold years
Are fruits of his prescient skill,
An age-worn mystery disappears,
Like shadows on a sunrise hill.

His learning graced the printed page,
Beauty and strength went hand in hand.
He was at once poet and sage,
Wisdom and love both in command.

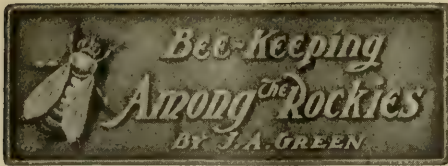
Shall Justice on her lofty throne
For ever sit with bandaged eyes,
While genius fights the horde alone
That robs him of his royalties?

Can God alone apply the balm
To wounds which jealous hate laid bare,
Hate that pursued with itching palm
To undermine the rightful heir?

Oh, the pity! and Oh, the shame!
That envy shadows every art—
Folds sacred never an honored name,
Nor heeds a patient, bleeding heart!

In spite of all he trusted God,
And magnified His works, His truth.
Dead? Nay, his mortal feet are shod
With sandals of immortal youth.

Murray



WHAT DO QUEEN-BREEDERS KNOW OF THEIR STOCK?

A queen-breeder, to receive and deserve the confidence and patronage of bee-keepers, should have some reliable data concerning the length of life of his bees and the quantity and quality of the honey they produce. How many really know any thing about these points?

THE ALEXANDER BEE-HAT.

I used a hat made on this principle some years ago, and I have tried and observed them at various times since as I have seen them in use by other bee-keepers, but I can not say that I like them. Such a hat is substantial, and a good protection against stings, besides being cool and airy, but in general convenience and comfort it is far behind a good veil of netting.

GREASE TO PREVENT PROPOLIS-DAUBING.

Do not neglect to try greasing your fingers at times when the propolis is soft and sticky, and inclined to daub up every thing it touches. You may think you would rather have the propolis than be bothered with the grease. I thought so once. All I ask of you is that you try it. Probably any grease will do. Vaseline is good. I have used mutton tallow largely, just because I had plenty of it.

WHEN YOU SPILL YOUR NAILS.

Speaking of small wire nails, what a nuisance it is to spill a lot of them, especially if they fall into rubbish or grass! Very often it will cost all they are worth to pick them up and keep them clean. At such times a little magnet is a handy thing to have. A magnet that you can buy for ten or fifteen cents will pick them up quicker than you could do it any other way, and they will be perfectly free from the sawdust or other rubbish they may have fallen into.

GET RID OF CROSS BEES.

Weed out the cross stock. Often there are only two or three really cross colonies in a large apiary, and by getting rid of these you will be able to work much more comfortably and rapidly. I do not mean simply those that are cross when being examined—that is, when you have their hive open—those that are ready to attack you as soon as you enter the apiary, and which hover around just in front of your nose all the

time you are at work there. Sometimes it is a little difficult to determine whence they come, but usually a little observation will enable you to tell from which hive they come. When found, make a note on it, and give them a new queen at the earliest opportunity.

CLEANING HONEY-BOARDS.

The bees are sometimes inclined to fill up the perforations of queen-excluding zinc when used as a honey-board, especially if left on in the fall when no honey is coming in. To clean out this wax and propolis, lay the honey-board out in the sun, on the hot ground, or on a dark-colored board; and when the wax is softened thoroughly, scrape both sides with a sharp metal or wood scraper. For the wood-zinc boards, this must be narrow enough to go easily between the slats. The metal scraper is best; but in the absence of that a piece split from a broken section will do very good work. Run it rapidly back and forth, first on one side and then on the other, and you will be astonished to see how it will take the wax and propolis out of the perforations without going down into them. Keep the scraper perpendicular to the surface of the zinc.

SMALL WIRE NAILS.

Do you keep on hand plenty of wire nails of assorted sizes? Nothing will add more to the convenience of the wood worker than nails that are just suited to the job on hand. I frequently see people using nails that are several times as large as they should be to secure good results, while a less common fault is to use a nail so small that it does not make substantial work. Very often this is simply because they have not learned the convenience of having nails that are just right, but sometimes it is because they can not readily get them. When I began to use wire nails I had to send to The A. I. Root Co. for even the ordinary sizes. Then the hardware men began keeping the common sizes used in carpentering; but for several years in that Illinois city of 10,000 I could not buy the smaller sizes, because they said they could not afford to carry them in stock because there was no demand for them. Before I left there, though, I could buy almost any size of wire nail in bulk. Now the same process must be gone through here, Although nails are used here by the carload, the smaller sizes are not handled to any extent, just because they are not demanded yet.

THE SEASON UP TO DATE.

In writing any thing to be published at an unknown time in the future, the matter sometimes gets out of date before it is printed. I predicted early swarms on account of the cleome that was beginning to appear at the time I wrote. The swarming season is practically all over at this time, and there was not as much of it as was ex-

pected. Some lots of bees swarmed very little, not having been in good enough condition. The first crop of alfalfa has been cut, and but little surplus honey was secured from it. Three of my apiaries have done fairly well, the other three not nearly so well, showing excellently the differences there are in locations not far apart. A great deal of this difference, though, can be traced back to last season, and might have been remedied by proper care at the right time. The bees are generally in good condition for a honey-flow if we should have one. There is an abundance of sweet clover, but there are likewise great numbers of grasshoppers that may eat it all up. There are probably less than half the number of bees in the country that there were last year, so overstocking will not cut so large a figure as it has seemed to heretofore. If there is any honey to be secured during the rest of the season we ought to be able to get it.

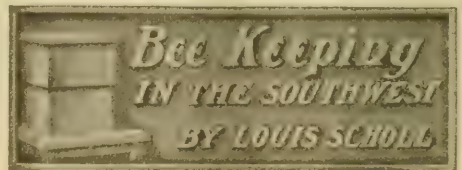
GRASSHOPPERS.

I wish somebody who knows something about grasshoppers and their life-history would give us some reliable information as to what may be expected of them here. Last season they were a great pest here, and were largely responsible for the failure of the honey crop. They are here again in large numbers; and if something does not happen, no doubt they will do us a great deal of harm again. Some of the old bee-keepers are confident that they will die of some disease or from the attacks of some insect enemy before they do much harm. This belief, though, is founded on nothing more substantial than the fact that this happened once before after the first season that they were numerous. We hope it may be true, but may be lightning will not strike twice in the same way. Nothing much can be done in the way of prevention. Poisoning is expensive, and not very practicable. Some of the ranchmen destroy great numbers of them by the use of what they call "hopper dosers." This is a large framework, three or four feet high, on runners, that is drawn across the field. The framework is covered with cloth, and at the base is a pan that is kept partially full of crude petroleum. The hoppers fly up; strike the cloth, and many of them fall into the oil, which kills them. One man told me he killed fifty bushels last year.

SOLAR EXTRACTORS.

The solar wax-extractor ought to be kept running full blast these hot days. Properly used, this is one of the most valuable instruments to the honey-producer. Two adjuncts to the average solar are needed to make it thoroughly practical. The first is the honey and wax separator described by R. C. Aikin in GLEANINGS for Jan. 15, 1902. This is a very valuable invention; but from the silence that has been observed in regard to it since

it was described I am afraid it has gone into the list of good things that have been neglected and forgotten. Some day I am going to write something on the subject of neglected inventions. The other adjunct I spoke of is likewise along the line of Mr. Aikin's practice in wax-making. Some of you may remember that he uses artificial heat to help out the sun. Perhaps you have thought that this would be practical only with a mammoth extractor such as he uses. It is practicable, however, to use artificial heat with even a small solar extractor and thus greatly increase its capacity. I have only a small solar, never having got around to build the large one I want; but I get a great deal of satisfaction out of the use of a lamp to supplement the heat of the sun at various times. I arranged this by simply cutting a large hole in the bottom of the outer case of the solar extractor and setting it over a tight box that formed a sort of basement to the solar. In this a lamp was set so that the top of the chimney came just within the hole in the floor of the solar. This basement has a hinged door at the back, to give ready access to the interior, and is lined with building-paper to keep out drafts and robber bees. This basement likewise furnishes room for a can to catch the honey that runs from the separator above. When things are kept running properly, the honey remains only a short time in the intense heat of the upper chamber, and is but little damaged in color or flavor, while it is so much thickened that some people actually prefer it.



Our April mesquite flow did not come in most parts of the State. In only a very few localities mesquite bloomed, and yielded some surplus. The failure of the flow was rather a surprise to most bee-men, because winter rains and other weather conditions favorable for a heavy bloom of the mesquite-tree prevailed throughout the entire season. Our hopes are now for the usual second flow in June, which is generally the better of the two. In the immediate vicinity of most of my apiaries there are as yet no signs of buds on these trees, and if a flow comes it may be later than usual.

Prospects are not flattering in Texas. Very few localities have been favored by a flow sufficient for surplus honey, and this was only "tolerable." In North and Central Texas bees have been having the worst year so far that many bee-men have experienced. The better class of bee-keepers have

been feeding for several weeks. From reports, hundreds of colonies that were neglected, mostly by farmers, and others too, have died of starvation. The unusual cold and cloudy weather in that part of the State has been the cause, retarding the blooming of plant-growth. Parts of Southwest Texas have been much more fortunate, and some surplus honey was obtained. Less favored locations there have suffered too, however. It is hard to tell at present what the rest of the year will bring us. It is hoped, however, that a change for the better will soon come.

SHADE FOR BEES.

Whether shade is really essential has been discussed by several. Mr. Alexander, I believe, claims that shade is not necessary. That is all right for his northern locality, but not for those in the South, where the sweltering sun of the long days of our hot summer months would quickly change the opinions of those who dispute the necessity of shade for bees. It was with sorrow that

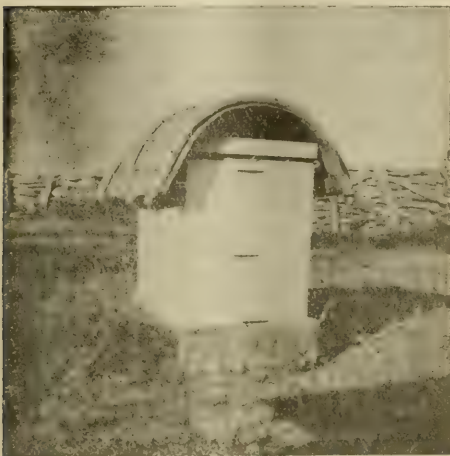


FIG. 1. — SCHOLL'S HALF-BARREL SHADE-BOARDS.

I heard one of our younger but enthusiastic bee-keepers proclaim that shade is not essential, and that better results would be obtained without it. He had made up his mind to rearrange his hives, and have them in the Texas sun. Upon questioning him he had made these deductions from one of Mr. Alexander's articles, but failed to remember that "locality" makes a great difference. Some shade is necessary. Too dense shade is unessential—yes, detrimental—to the welfare of the bees and for the production of honey. With no shade at all in hot climates, the melting of combs and the destruction of colonies will result, while a great loss of labor is entailed by the necessity of the great number of ventilating bees to keep down the temperature inside the hive. Natural shade is preferred. Trees that are decidu-

ous in the fall, and produce a light shade during the summer, are ideal. The most abundant of this here is the Texas mesquite-

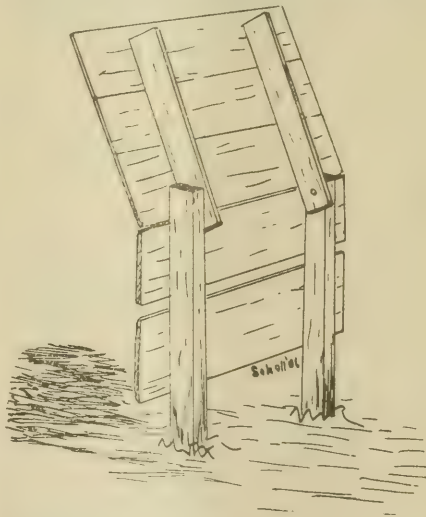


FIG. 2. — PEARSON'S SHADE-BOARDS IN USE.

tree, and most of the apiaries are located in such groves.

For artificial shade, many kinds of shade-boards have appeared; but any light boards nailed together on cleats that will rest on the cover of the hive and raise the shade-board up above it a few inches to allow circulation of air is sufficient. Cheapness should be one of the main objects.

Two unique shade-boards were those shown here. Fig. 1 is made out of common light



DETAIL OF PEARSON'S SHADE FOR TOP AND SIDE OF HIVE.

barrels cut in halves. A piece of baling-wire is tied across the ends of the hoops to hold it in shape. These shades protect the

supers so well, extending down the sides of the hive, and allowing free ventilation through it, that they pleased me very much. Where such barrels, already used, can be obtained they can be used admirably for smaller apiaries at least.

At Pearsall, Texas, J. N. Long uses shade-boards that not only protect the top of the hives but the west side of them. Fig. 2 shows only a small part of his yard. The drawing shows the details of construction, with the top swung back when work with the hive is being done. This is a rather expensive "shade-board;" but Mr. Long is so well pleased with the results that he uses them extensively.

Protection on the west side of the hives is very important in Southwest Texas, where the afternoon sun strikes the hive-side with great fury. Unless protected the combs next to the wall often melt down, so that some bee-keepers set loose boards against this side of the hive.



POLLEN; TEMPERATURE.

"Doolittle, do you read GLEANINGS?"

"Yes, Mr. Jones, I do. That is, I read all during some time of the year. During the busy season with the bees I often skim over its pages, and then make it a general reading later on, during the fall and winter, so as to be sure that I missed nothing in the skimming process. But why did you ask such a question?"

"I wanted to know if you read Dr. Miller's Straw in the June 1st number, where he speaks about bees gathering pollen, and the editor's reply thereto."

"Yes, I read that."

"Well, which do you think was right—Dr. Miller or the editor?"

"I think you are trying to get me into a fuss with the two authorities in bee-keeping, are you not?"

"No. I am anxious to know which you side with, and whether you decide as I do."

"But you know that localities may differ, and what will hold good here in York State may not in Illinois or Ohio. Dr. Miller may be right for his part of Illinois, and E. R. Root for his part of Ohio."

"I had not thought of that part of the matter, and there I may have been wrong. But which do you find is right compared with your experience in your locality?"

"I find that Dr. Miller's experience as given in that Straw on page 716 of June 1st GLEANINGS corresponds almost exactly as I find things here."

"And that is my case also; and when I read what the editor said in his comments on Dr. Miller, I fell to wondering whether he was as close an observer as he might be, where he speaks of bees gathering almost no pollen during the honey-flow from white clover. Don't your bees gather pollen during the honey-flow from white clover?"

"They certainly do."

"What is the color of this pollen?"

"Mostly a sort of greenish-yellow brown, or very nearly the color of the short, stiff hairs which form the baskets on the bees' legs for carrying the pollen. In the early morning they carry pollen from the sorrel, buttercups, etc., that is of a light color; but from ten o'clock on during the rest of the day they carry little save that from the clovers which are in blossom at this time."

"That is exactly as I find things. And do you not suppose E. R. Root has failed to notice this clover pollen because it is so near the color of the pollen-baskets in which it is carried?"

"I have always considered Mr. Root a close observer, and this is the reason why I think that his locality may give different results from either Dr. Miller's or ours."

"But he must know that the pollen which is stored in sections with the honey, when any is stored there, as there often is (else the bee-papers would not be telling of the different ways to prevent pollen going into the sections), is of this very clover kind, or the kind our fathers and mothers called bee-bread. Did you ever see any other kind of pollen stored in sections?"

"I shall have to admit that I have not. So far as I know, this brownish-colored pollen which comes from clover is the only kind that is ever stored in the cells till they are about two-thirds full, and then the cells finished out with honey and finally capped over, to deceive the person who thinks that he has some fine honey, unless he holds the comb up to the light and looks through it, when, if the comb is new, the pollen is readily detected."

"That is my experience exactly. Why, do you suppose, this kind of pollen is treated in this way, while other kinds are not?"

"My idea has always been that this clover pollen is the only kind which will keep over winter, and that it is thus stored under honey to preserve it till the next year so that brood-rearing during the months of January, February, and March, which goes on to a certain extent in all colonies which winter outdoors (as all colonies did in their original state), can be carried on as is desired, before the bees can fly to any extent, or the spring flowers yield pollen."

"Well, that is a new thought to me, and it may be the one which will solve the matter. But how about pollen being gathered during the basswood-bloom?"

"There is the least pollen gathered at the time of linden-bloom of any season of the year when the bees are active; but the reason for this is because there is little pollen

to be had. There is no pollen produced by the basswood, or linden, as you know."

"Yes, I know there is not, but the bees gather it from the wild grape and other sources, even gathering it from our common grass."

"Yes, I know that they gather some pollen in the early morning from these sources, but not to the extent that they do either before basswood or after it, as comparatively few pollen-bearing flowers are not in bloom at this time."

"Leaving the pollen matter, did you note that Dr. Miller proved you incorrect in his next Straw on the same page, where he experimented as to the amount of heat found in a hive placed above the brood-chamber?"

"I noticed the doctor's figures, but I did not see that they proved me incorrect."

"That's strange. Did he not prove that the temperature in that upper hive was warmer by from 9 to 21 degrees than it was in the open air?"

"Yes. I have no doubt that he gave these figures correctly, but those figures do not argue in the least that this temperature came from the bees below, unless I except the first one or two readings."

"On what grounds do you except those readings and not the others?"

"Those readings were taken before the cluster of bees had got settled down from the disturbance caused by his stirring up the bees in his manipulations of the hive, which always causes a rise of heat. You will note that the first reading gave 21 degrees above the outside air, and the second only 17, thus showing that the bees were quieting down."

"Yes, but a little after noon his reading was 22, or one degree warmer than the first."

"Yes, but that does not prove that the heat came from the cluster of bees. In the *American Bee Journal* he tells us of this experiment, and there tells that the bees were at work at noon; and as bees work very little in cool weather except when the sun shines, I take it for granted that the sun was what did the warming of the hive. I once killed a sitting hen, and almost cooked her by slipping her under an empty hive standing in the sun, expecting to care for her soon, when the unexpected happened, and I forgot her till near night. But, of course, that was a day when the mercury went to above 90 in the shade."

"Well, how differently persons can read things! I did not see any way out for you."

"Way out! Dr. Miller's figures only substantiate my claim."

"How is that?"

"Did you fail to note his reading at 5:10 of only 9 degrees higher than the outside air—not sundown yet by nearly an hour and a half? Why did he not give us a reading after sunset? Had he done this he would probably have had a reading of two or three above that of the outside air, that being about the amount of difference there is between confined air, and that which is at lib-

erty. I was very glad of the endorsement that Dr. Miller gave me by his figures.

"Well, well! You will almost beat the magicians."

"Then there is another point that neither the doctor nor the editor seems to consider. At all times when the bees are gathering honey the crust of bees must necessarily be broken to a greater or less extent, by the bees having a passage to and from it; and whenever the cluster is broken in this way a certain amount of heat must escape from it, and there is no question that some heat did go into the upper hive when the reading was 22 higher a little after noon. All my experiments have been tried at night, or days so cool that no bees were flying, and when it was cloudy. These are the only times when any thing can be gotten which is worth trying to, and I think when all this is taken into consideration others will find their experiments very nearly agreeing with those I have made."

[Referring to the pollen matter, a part of my statement, literally taken apart from all the rest, would leave Dr. Miller more correct than me. But the point I tried to bring out was, when honey was plentiful the bees would do less—very much less—work on pollen.—ED.]



WAX-RENDERING.

What Were the Methods Used to Render Old Combs into Wax in the Past?

BY F. GREINER.

[Wishing to learn more definitely what is going on in Europe in reference to wax-presses and wax-rendering methods, we asked Mr. Greiner to go over his files of German bee-journals and glean from them all that might be interesting to the readers of GLEANINGS. He has also written to some of his German friends, and the result of his investigation, interspersed with original notes and comments, is here given.—ED.]

Beeswax has been made from time immemorial for all I know. However, it is not the purpose of this article to tell just how the ancient Egyptians or Greeks or Romans conducted this part of the business, but to trace out what we of the last few decades have been doing in this line.

In looking over the bee journals I find the generally practiced method with slight variations was this: "The old combs were broken up and placed in a suitable kettle partly filled with water. A gentle fire was kept under it, and when the mass was well cooked up it was then ladled into a sack and placed under a press. It was expected, and it has often been said, that, by this pressing and a

second one, after turning the filled sack over and shaking it up, about all the wax that it was possible to obtain was thus obtained. Various little kinks, valuable ones, were given at different times by different ones; as, for example, to "heat the press by pouring hot water over it before using the press;" to "mix cut straw and chaff with the broken-up comb to make the mass of molten comb more porous," etc.

Various presses have been described and illustrated for the benefit of the public, some of a very primitive nature, others more elaborate. We have "made beeswax" time and again by this very method.

Another way suggested itself to the never resting mind of the bee-keepers. It was an improvement over the other in so far as it did away with the pressing—a feature which never took well with the average bee-man or woman. The plan consisted of breaking up the old combs and placing them in a bag, then immersing the whole in a kettle filled with enough water to cover the bag, placing a stone upon it to keep it down. The oozing-out wax was dipped off or allowed to cool without first removing it. I have followed a similar course by fitting a cloth-covered hoop inside of a large iron kettle about one-third the way down. The melted wax, through the boiling process, and being lighter than water, was forced through the cloth the same as in case of filling a bag with old comb. It obviated the weighing-down of the mass with a weight. Still I had considerable trouble to keep the hoop where it belonged. The wax obtained was of a bright color, although made in a common cast-iron kettle.

An engineer bee-keeper in Germany melts the comb by allowing a jet of steam to play upon the mass in the bag and catching the dripping wax in a pail of water.

The reason the above-described methods have been practiced so extensively, I could almost say exclusively, is obvious. The production of wax has always been of minor importance. The large majority of bee-keepers conducted the bee-business on a small scale. Bee-keepers could not well afford to have elaborate and costly machinery to "make" a few pounds of wax. This is especially true of the European continent. There are a large number of small bee-keepers, and they must use any old thing to render their old combs in that comes handy, and we find their primitive methods of rendering combs into wax described in a thousand different places, none of them differing much from another. I have just looked over the bee-journals printed in Germany from 1901 to 1905, and I find the question not discussed as to "how much wax may remain in the slumgum," but a number of different wax-extractors have come into existence during this period and just previous. It seems the bee-keepers were not satisfied with the old and bungling ways of former times for obtaining wax. It has always been an annoyance to me and to many others that we found particles of wax in the slumgum, that the

cloths used in the presses were coated with the yellow costly material, etc. So the efforts of certain more progressive and business-like men to give us a better and simple method, or at least better tools to produce our wax, were appreciated, and the successes or partial successes welcomed.

The first of these machines was intended to make my cloth-covered hoop, etc., handier and more practical. A tin can or pail with flaring sides was so rigged that a sieve could be securely fastened about one-third of the way down; through this, in the center, worked an agitator which admitted of being turned by a crank at will. An inch above the sieve an outlet-pipe was fixed. By keeping the water just high enough in the tank the melted wax would continue running out of the outlet when the machine was in operation. There was no cover to confine the heat and steam, etc. Another machine built on the same plan ran the agitator very closely under the sieve so as to keep it clean.

The one illustrated in the *American Bee Journal*, by Dadant, a French invention, has a windmill winged agitator which is expected to force the wax-freed parts of comb down. It is not provided with a cover or an outlet-pipe, and the wax must remain in the kettle till cold, which, as is stated, will take 30 hours. I should consider this an undesirable feature, as a refilling of the machine would be impossible the same day. A salt-saturated solution is used in it in order that the mass may be heated to greater heat. It is said that it would require 24 degrees more heat to bring such a solution to boiling; and the higher the temperature the better will the wax come up; but it must not be forgotten that salt brine is very hard on iron utensils.

The last-named wax-rendering machines have the one great fault in common, that no provision has been made to prevent the scorching of the boiling mass. When applying fire direct to a kettleful of old brood-combs filled with pollen, etc., it is a common occurrence to have the contents burn or scorch. When this has occurred it is almost impossible to get the kettle back in good shape for future work. The very recently brought-out Arthur C. Miller wax-extractor, constructed otherwise on the same principle, obviates the trouble of a possible scorching absolutely, as the can holding the unrendered comb is surrounded by water. It also has a cover, of conical shape, which, as it appears from the cut in the *American Bee-keeper* for December, 1905, is securely bolted to the outside can. It also appears from the same illustration that the outlet pipe is in this conical cover and the water and wax must be kept above the top of the can, and must rise above where cover and can join. I entertain some doubt whether this arrangement can be made to operate successfully.

I have, so far, not mentioned the steam wax-extractors. The first wax extractor I ever owned was one of this kind. It was made by A. I. Root many years ago, and

served me many years, although it failed to give us as much wax as it ought from a given quantity of old comb. The color of the wax obtained was always green instead of yellow. The A. I. Root Co.'s German wax-extractor with press has given me better wax and more of it; but the residue contained wax still. I have never been able to obtain all the wax from old comb with it nor with any other machine, for that matter. The majority of steam wax-presses are built in circular form on account of the greater strength, and because they can be built thus with the least material. A narrow comb-basket would probably allow the wax to escape a little easier when the follower is screwed down. A few machines are built on this principle.

The *Schweitzer Bienenzeitung* for November, 1904, describes and illustrates a newly patented steam wax-extractor which embodies all the principles of the Root Co.'s German wax-extractor, and some others—in particular, these: "All parts of it are easily removable, easily cleaned and dried. It may be used as a plain kettle." For the last eight or ten years many steam wax-extractors of different patterns have been advertised in German bee-papers. The principle of all of them is practically the same. The fact that they are constantly advocated and offered for sale seems to show that they are considered a satisfactory tool in Germany, and that bee papers are not yet ready to abandon them for the Arthur Miller type. Personally I am inclined to believe that the latter machine, if not filled too full of comb, will give us nearer all the wax than any press in existence. I believe the principle to be right, but think that the machine, as now built, is not yet perfect. I further believe that the "making" of beeswax will always remain a mussy job, and the housewife will always rather see us go than come. The best way to avoid a conflagration on account of spilled wax and the like is never to enter the kitchen with any kind of wax-extractor. Of late I have myself used a blue-flame oil-stove in my shop for the work, and I can say that this has worked well. *I earnestly urge every lover of peace to stay out of the house with his wax!*

I observe that suitable stoves to go with steam wax-presses are offered for sale by manufacturers in Germany at a very reasonable price. Hereabout, most families own an oil-stove; and as they answer the purpose well, there is scarcely any need of a special stove. An oil-stove also comes handy in warming up honey in the 60-lb. cans. When doing this it is safer, perhaps necessary, to use asbestos stove-mats to prevent overheating.

In addition to what is said in regard to the Arthur Miller type of wax-rendering machines I wish to add the testimonials of two German bee-masters, each speaking of a different method. Gravenhorst, editor of the *Deutsche Illustrierte Bienenzeitung*, said in 1902: "The only sensible and practical method of wax rendering is by the use of a substantial wooden press after boiling the

broken-up combs in a suitable kettle. The steam wax-extractors with press, and the solar machines, are unsuitable."

Gerstung, editor of *Deutsche Bienenzeitung*, speaks very favorably of his steam wax-press, Simplex, and says that but little pressure ought to be exercised upon the molten mass of comb; but one ought to be very sure that the comb was thoroughly cooked up and all cooked to pieces. Plenty of time should be allowed for this.

My friend Alfonsus, of the *Bienenwater*, Vienna, Austria, says steam wax-extractors have had their time, and the old-fashioned wooden press is preferred by many. Hot-water extractors are in use some, and in favor. Alfonsus promises to write an article on making wax for me, and wants me to translate it.

Prof. Luigi Sartori, Milan, Italy, advises this: "Soak the broken-up combs 8 to 10 days in rain-water, then boil up or melt and mix with cut rye straw; when hot, press. This gives more and better wax than steam wax-presses."

All teachers in the old country are agreed that the old comb should be well broken up before putting the same into any wax-extractor, but not broken up so fine as to reduce to a fine dust, as this would hinder the escape of the wax to some extent.

From the above it will appear that opinions are still divided on the matter of wax-making. Yankee ingenuity has solved many a problem in bee-keeping as well as in other branches of business, and ere long that of wax-making will find its solution.

Naples, N. Y.

[I wish particularly to indorse the suggestion made by Mr. Greiner on the importance of getting a little gasoline or oil stove. A one-burner, or, far better, a two burner that can be bought for \$5.00 at retail will do very good service. Sometimes one can buy an old second-hand cook-stove for two or three dollars which he could put out in a shed. But on no account would I think of doing the work in the house unless the operator is a great deal neater than the average man.]

We should be glad to receive the article from Alfonsus after it has been translated by you.—ED.]

MATING QUEENS.

The Requirements of an Ideal Nucleus Hive;
Four Nuclei in One Hive.

BY W. S. M'KNIGHT.

Nothing interests the queen-breeder more than the mating problem; and while numerous plans have been devised for mating queens cheaply there are some points in most of them that are quite objectionable. Many breeders still use nothing less than a two-frame nucleus, full Langstroth size, which is quite expensive. Others mate queens in small "baby nuclei," which is

quite the extreme; and before trying to tell of the style of mating-box I use, it might be well enough to consider these points.

1. We must select a style of nucleus that will maintain its numbers, and at the same time be inexpensive if economy is to be considered.

2. One that can be given syrup or honey without exciting robbing.

3. One in which laying queens can be kept for several days without being crowded for room.

4. One which permits of easy manipulation.

5. One which will require only a few bees to compose the miniature colony.

When you complete a mating box according to the above-named requirements you have just exactly what I call an ideal; and nothing short of these, neither one "just as good," should be considered.

Now for the box I use (it could be less with good results) First, it is just a plain box, made not only *bee-tight* but *air-tight*, $8\frac{1}{2}$ inches deep, $8\frac{1}{2}$ wide, 17 long. Now, that seems large for a "baby," but when you prepare it for four virgins at one time it is only a baby. This is done by two partitions of wire cloth, one running from end to end and the other from side to side, thus giving you four mating-boxes in one, and it should also be understood that the entrances *must not* be crowded too close together. To overcome this an entrance is made at each end of the box and at each side of the box, which, as will be seen, is only one entrance to each division. I make my own frames for these, and use a tiered-up box of this size, the frames running crosswise with a full swarm in drawing out these combs, which is already supplied with brood when making up these boxes or nuclei, which prevents the cupful of bees from swarming out. A small hole in the sides of each is used to inject syrup. A sheet of enameled cloth is spread over each, and a single cover for the whole. The two flight-holes should not be larger than $\frac{3}{8}$ inch. I prefer $\frac{1}{4}$ inch holes in order that only two or three bees may defend the entire cluster.

Keep a record of the ages of virgins, and open the hives only when necessary. Try just one of these, Mr. Editor, and own up that it has not the objections you mention on p. 140. This is a design of my own, so far as I am concerned, but I ran across it by accident.

Newtopia, Ala., March 8.

[We have tried a mating-arrangement that was quite similar to the one above described, but on a much larger hive; but it had the objection that the clusters would not form into one compact sphere. Please let us know how largely you tested out this arrangement, and whether or not it gives equal satisfaction the entire season through. Something that will work nicely at one time of the year will give all kinds of trouble at another season.—ED.]

THE FERRIS SYSTEM OF PRODUCING COMB HONEY, AND SWARM CONTROL.

The Ferris Comb-honey Attachment; its Detail of Construction.

BY A. K. FERRIS.

Continued from page 808.

[In our next issue Mr. Ferris will continue his treatment of comb-honey production. We were compelled to divide the chapter, owing to lack of space in this issue.—ED.]

We now suppose that we have reached the time when the flow is commencing on white clover. We have dequeened both divisions of our hive, and either made a nucleus with each queen or else destroyed both the old queens, and we have also either purchased or reared a batch of queens early enough so they are laying, or at least we have a batch of nearly ripe queen-cells from our best breeder. After this large double colony has

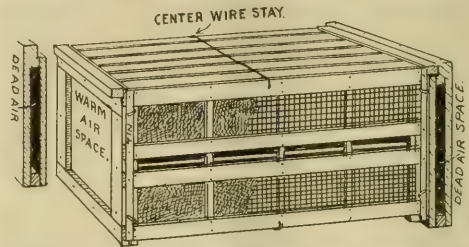


FIG. 4.—FERRIS COMB-HONEY ATTACHMENT.

been queenless twenty-four hours, both divisions are united and the whole is given a queen or cell, or it may be given immediately after removing the queens if protected.

We now take a story of the best frames of brood and place it on the bottom, and confine the queen to this with an excluder, or give it one of the queen-cells previously

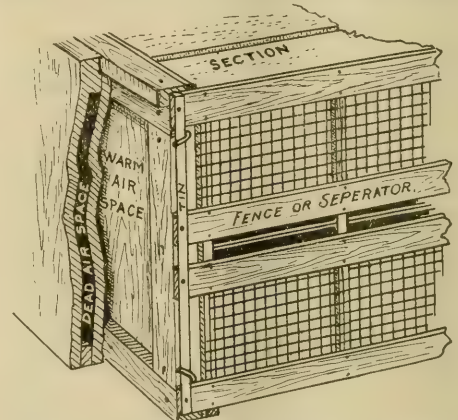


FIG. 5.—COMB-HONEY ATTACHMENT SHOWING END PROTECTION.

reared. This is as used for a fourteen-frame Langstroth hive; but where smaller hives are used so that the queen is liable to become crowded I prefer about half the frames in this story to be full sheets of foundation.

These are also useful afterward, as you will notice, to be used with the comb-honey attachment.



FIG. 7.—COMB-HONEY ATTACHMENT, END VIEW.

If honey is coming in quite slowly, and they do not need extra room to accommodate the hatching bees, simply stack the brood above the excluder until they do need more room.

If honey is coming in fast enough so they need room to store, give it by a comb-honey attachment as described later. I have never known colonies thus united, where only a thin partition intervenes, to fight; but it is well to give them a smoking before and after uniting, and I always do where I unite two entirely strange colonies.

If laying queens that have been reared in your own yard are given I find no trouble in introducing by simply smoking the colony well, then run her in, smoking them a little for luck. In this way I rarely have a loss, and it saves much time and trouble.

When the next visit is made, which should be in a week, look these stories over for queen-cells; and if honey has been coming in enough so they need room, give it by giving them a comb-honey attachment. This de-

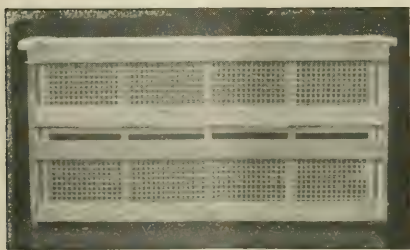


FIG. 8.—COMB-HONEY ATTACHMENT, SIDE VIEW.

vice is well illustrated in Figs. 7, 8, 9, 10, 11. The sides of this are made of four parallel bars 1 in. wide by $\frac{1}{2}$ thick by 18 $\frac{1}{2}$ long, with cross-pieces $\frac{5}{8}$ wide by $\frac{1}{2}$ thick by 9 $\frac{1}{2}$ long, and two pieces of galvanized wire cloth three

or four mesh to the inch, 16 $\frac{1}{2}$ in. long by 2 $\frac{1}{2}$ wide. On one of these side-pieces a strip of heavy tin $\frac{7}{8}$ wide by 10 long binds the ends to catch the four screw-hooks — see Figs. 8, 10, 19.

In removing the honey from attachment all that is necessary is to turn these four screw-hooks with thumb-nail or pair of pliers, when the whole side can be removed, and the ends are loosened so that every thing is *perfectly* free and easy to be gotten out. See Fig. 10. This hits the propolis question a rap that it has never received before by any super.

The ends are $\frac{1}{8}$ in. thick by 9 $\frac{3}{8}$ long, the width varying according to the number of sections the attachment holds. These at-

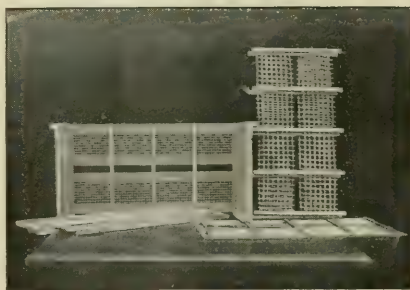
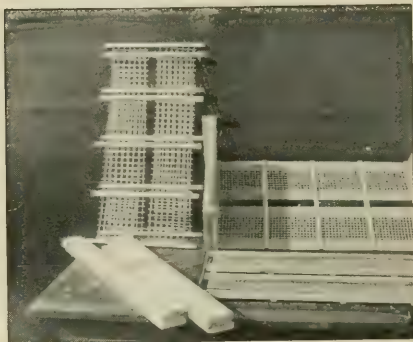


FIG. 9.—COMB-HONEY ATTACHMENT.

These both show attachment without the sections, taken so as to show different parts.

tachments can be made to take any number of sections as follows: 8, 16, 24, 32, 40, 48, etc. These ends are bound by $\frac{1}{2} \times \frac{3}{8}$ -in. pieces as shown in Figs. 7 and 20 so that, when placed in the super, $\frac{3}{8}$ in. or a little wider space intervenes between the central inside end of the super and the central square of attachment end. See Figs 7, 20. My supers are also made with a $\frac{3}{8}$ -in. dead-air space in the ends, as shown in Figs. 4 and 5. This secures the end sections against any outside extremes of either heat or cold. The sections are supported by plain slats $\frac{5}{8}$ in. thick by 17 in. long, and width same as the sections, 1 $\frac{3}{8}$ or 1 $\frac{1}{2}$ inches, and another slat of the same dimensions is used above the sec-



FIG. 10.—ATTACHMENT WITH FRONT REMOVED, READY TO REMOVE SECTIONS.

tions to keep their tops clean. The bottom slats rest on a piece of wood $\frac{1}{4} \times \frac{1}{4}$ inch, and are securely nailed to the inside ends of the attachment.

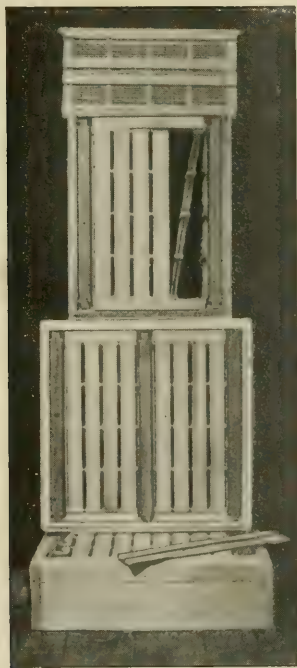


FIG. 11.—THE ATTACHMENT AS PLACED IN SUPERS.

Top view showing position of combs of brood in a ten and fourteen frame hive. Two tiers of sections and a couple of top slats are removed from ten-frame super.

The separators are two pieces of wire cloth 17 in. long by $3\frac{1}{4}$ wide, either two or three mesh to the inch. I prefer as open a mesh as possible so long as it keeps the combs from being bulged. These separators, illustrated in Figs. 9 and 10, are so open that the bees realize no obstructions from them; yet it accomplishes the real object of a separator without excluding both bees and honey. The cross cleats to separator are $1\frac{5}{8} \times \frac{1}{8} \times 9\frac{1}{8}$ in. Thus all propolis is excluded from sections except a line on top and bottom of the edge of the section, which may be entirely removed by rubbing across a wire screen horizontally.

Madison, Wis.

Continued.

A NON-REVERSIBLE EXTRACTOR.

One That Throws the Honey out of Both Sides of the Comb at Once Without Reversing.

[Some ten or twelve years ago Dr. Miller and myself discussed the practicability of an extractor that would not require the reversing of the combs. The idea was by no means new, for it had already been tried to some extent in Europe. The doctor, however, urged that we try the principle at Medina. Accordingly we built a special machine so constructed that when Langstroth frames were placed endwise down in the pockets the end-bars would stand out from the center shaft of the machine like the spokes of a wheel. In this position the combs were fixed. We found that, when the honey was not too thick, such a machine would throw it out of the combs after a fashion. But the operation was slow, for the reason that the honey had to creep over the face of the comb from one cell to another until it reached the top-bar, when it was thrown off against the sides of the can; and after the combs were removed they were not as clean of honey as we get from the machine as now made. But the machine was especially slow and unsatisfactory when combs containing *thick* honey were tried. Even when greater speed, and consequently more power, was employed, the work could not be done as well nor as rapidly as with the ordinary style of extractor.

The following letter from Dr. Miller draws attention to another application of the same principle by Mr. E. Blondet. As the matter is of some interest, we give extracts from Dr. Miller's letter and also a translation of the original, and a copy of the illustration, taken from *L'Apiculture Nouvelle*. The following is the letter from Dr. Miller—Ed.]

Dear Ernest:—You may remember the effort you and I made to throw honey out of both sides of the comb at the same time. I don't understand yet why it didn't work. E. Blondet says he succeeds as in the enclosed picture.

I'd like to know how perfectly Blondet's machine works. He says it works to his entire satisfaction, but others might not be so well satisfied. The principal parts of his were made from a bicycle.

Just as it is in the picture, there doesn't seem much to it. Only three combs at a time. But here's something well worth considering, if good work is made in emptying the three. I don't mean that no reversing is needed, although of course that's very important. You know that, with all the kinds yet on the market, every comb added adds greatly to the expense of the machine, and I don't know that it has been considered practicable to go beyond a six-frame extractor. But with Mr. Blondet's machine it would be only a little more expense to have

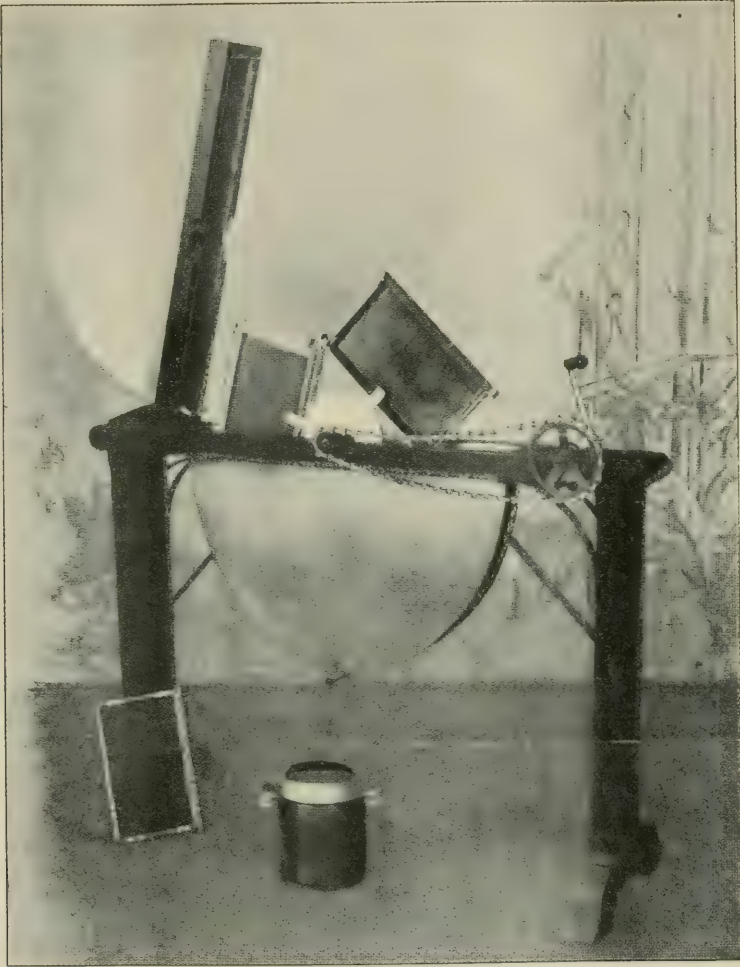
another three combs side by side with the ones now given, and it ought not to be a very difficult thing to make a fifteen-comb machine and run it by hand too. The only question is, is the three-frame machine a success? If so, then the fifteen-frame machine is easily in sight. C. C. MILLER.

Marengo, Ill., May 24.

[The translation, with illustration above mentioned, is given below:]

system is unknown in Europe and America. But it may, without doubt, have some inconvenient feature of which I have not taken account, not possessed by common extractors.

The model shown below consists of three frames attached to a revolving axle, the lower frame being out of sight. This machine, made by an amateur, may be made to work, without doubt, just as it is. I am satisfied with its work.



A VERTICAL NON-REVERSING HONEY-EXTRACTOR. —FROM L'APICULTURE NOUVELLE.

For my use I have made this extractor, which works to my entire satisfaction.

The honey is extracted at once from both sides of the comb, and hence it seems to me more rapid than the horizontal extractor, which compels one to turn the combs after the honey has been extracted from one side. I can not explain why such an extractor is not shown in catalogs of bee-supply houses. I can not believe that this

It is possible to extract honey from pieces of comb or sections, fastening them in tin comb-carriers such as are shown at the foot of the picture.

The principal parts of the machine were taken from an old bicycle. E. BLONDET.

[It will be noted that Mr. Blondet employs precisely the same principle, but in a different way. The frames, instead of being so

disposed that the end-bars or top-bars will radiate from a common center like the spokes of a wheel are placed as shown in the illustration, but in a way perhaps to secure a more direct application of the centrifugal force.

Without trying the machine I should conclude it would handle extracted honey like the other model we tested if it were not too thick; but it is a fact that the honey in the cells nearest the center would have to traverse the whole surface of the comb before it could be released, and a great amount of time would be consumed before the comb would be rendered clean. In the case of thick honey the result would be slow and unsatisfactory.

This machine might be a slight improvement over the one that Dr. Miller and I tried, but it would be open to very much the same objection. In the perfected automatic reversible extractors of to-day there would be no particular advantage in having a machine where it is unnecessary to reverse the combs. Even if the principle were practical a 10, 12, or 15 comb machine would be decidedly awkward and expensive—more so than the present model.—ED.]

INCREASING THE PASTURAGE BY SOWING SWEET CLOVER.

The White and Yellow Varieties; Artificial Pollen; How to Feed.

BY MRS. A. L. AMOS.

Last October there appeared in GLEANINGS an illustrated article by John Bodenschatz telling how much he had increased his honey yield by scattering sweet-clover seed on waste land in his vicinity. GLEANINGS called for a show of hands from those who could give testimony along that line. My own experience is similar to his, in a smaller way, as I have fewer bees. My yield of honey is much greater, and the quality of the honey is very much improved since sweet clover has become an appreciable factor in the honey crop.

Mr. B. did not say what kind of sweet clover he had; but it is not difficult to infer that his is the white kind, since he spoke of its following white clover. That is the kind to have for those who want it to follow white clover. There is so little white clover here that it cuts no figure in honey production, so I have been busy every spring increasing my acreage of the yellow kind. I grow that instead of white clover. The first few blossoms usually open near the end of May, and it yields freely all through June. It slackens up in its blooming then; but after maturing a big crop of seed it begins to bloom again. Putting the time a month later, one might say the same of the white as I have said of the yellow. The bee-keeper here who has abundance of these two clovers is practically independent of any other honey flora, since they supplement each other, and

together yield honey until killed off late by freezing weather.

The honey obtained here from sweet clover is fine, and I have no trouble at all in selling it at top prices, both comb and extracted. I have these clovers growing on my own farm here around the orchard, and wherever there is a piece of ground available. And I have also some flourishing patches along the roadsides.

Sweet clover bears transplanting well if taken in early spring. I like to start out armed with a spade and a pailful of plants as well as seed when I try to establish it in new places. I have spent hours that way, and thought the time well spent.

FEEDING ARTIFICIAL POLLEN.

My colonies are strong and in good condition this spring. I have been feeding artificial pollen for over two weeks. The elms have not yet yielded pollen, but surely will in a day or so. Apropos of this meal-feeding, I think I have struck quite an improvement on the shallow pan usually recommended. There are objections to that here. We are seldom without a good stiff breeze that can blow the meal, if not the pan, and the place is overrun with these alert foragers the White Leghorn chickens, which are good at finding meal-pans; so this spring I feed in the bottom of a salt-barrel. I feed corn meal and flour, and the bees have used a lot of it. The same meal does quite a while. I sift flour over the top, and stir lightly. I leave the barrel out, simply turning a galvanized tub over it at night or during rain. It has been eminently satisfactory to me and the bees.

Comstock, Neb.

[Our own observation corroborates the above, to the effect that yellow sweet clover is three or four weeks earlier than the white. Right under our office window are some thrifty sweet-clover plants two or three feet high. While the white shows no blossom-buds at all, a stock of yellow is in full bloom. While I am on the subject of clovers, several have inquired about Japanese clover—whether bees work on it, etc. We have not been able to learn so far that bees are seen on it at all; but our seed-catalogs tell us it grows all over the South; is valuable for horses and cattle, and also for plowing under. The seed is offered for sale at from 25 to 30 cts. per lb.—A. I. R.]

BEE-KEEPING IN IDAHO.

E. Schultz's Apiary; the Irrigating Flumes and Sweet Clover.

BY E. F. ATWATER.

The photos shown are of the Idaho apiary of Mr. E. Schultz. The location is a fine one, as there is considerable alfalfa seed raised near by, and the country is cut up by gulches which receive the waste water from irrigation, and support a wonderful growth of

sweet clover of the white variety. Notice the flume extending across the gulch, to carry irrigation water, and the growth of sweet clover under it. Not all of the colonies are shown, as I suppose the yard contains 150 to 200 colonies, and was one of the few yards in this valley to secure some honey last year. The long shed in the foreground is made of light poles to which are fastened cat-tails, or tules, as they are called here. It is quite a welcome protection to bees and bee-keeper from the fierce rays of the summer sun. The yard is nicely terraced, the shop being at the lowest point, so all honey goes down hill after it is taken from the hives.

hard at work gathering nectar. This fact led me to the conclusion that the alimentary canals of the bees at this time were nearly free from disease, and with food direct from the fields a clean start could be made by the bees, in the shape of a swarm. I have done this repeatedly, placing the swarm on foundation, not comb, with the result that seldom more than two or three cells in the new brood showed disease. These odd cells were opened with a match-stick, using one to each cell. The spores were *burned out* with full strength Calvert's No. 5 carbolic acid, administered with a dropping-bottle, care being taken to destroy the sticks. These odd



SCHULTZ'S TERRACED APIARY WITH ARTIFICIAL SHADE IN IDAHO.

The stands shown are similar to those used by Mr. Marchand, of Florida, as illustrated in GLEANINGS a few years ago. The hives used are mostly ten-frame, with full-depth extracting supers and $4\frac{1}{2} \times 4\frac{1}{4} \times 1\frac{1}{8}$ beeway sections.

The hospitable owner stands at the rear of one of the hives in the second row; and if any of the readers of GLEANINGS should pass that way I am sure they would be cordially greeted.

Meridian, Idaho.

FOUL BROOD AS VIEWED FROM THE STANDPOINT OF AN ENGLISH EXPERT.

A Discussion of Recent Statements.

BY J. GRAY.

In my official capacity as traveling expert I have frequently noticed that stocks suffering from *Bacillus alvei* have commenced to raise healthy brood when the stocks were

cells sometimes have been treated 12 months after the bees seem to put an extra thick capping on them.

My usual test in dealing with odd cells of brood dead in the pupa stage is as follows: If moldy, no need to fear, for the germs of mold do not thrive in the same cell as the germs of *Bacillus alvei*.

If a dead imago, there is no need to fear. If the cell is apparently empty, *then beware*, for closer inspection will reveal the dried scale adhering to the lower cell wall, the end toward the opening curled up. This scale contains the seeds, or spores, of the disease, and in this stage it can resist high and low temperature, and can germinate into bacilli after the lapse of years. I have known a stock after a lapse of eight years, when such cells were reopened, to become rotten with the disease.

The whole of the ten combs in this stock were affected. Each comb contained from 20 to 40 cells, hermetically sealed with a thick black capping. The brood in the larval stage was perfect and healthy.

In the face of these facts I am at a loss to understand Mr. Simmins' remark, p. 1311, "when there is no brood in warm weather, every spore must germinate, appears to be fatal to the disease, there being no further soil for carrying forward the reproductive series of germs." 1. Science teaches us that these spores do not germinate except in a suitable medium; 2. That they can resist high and low temperature, boiling and freezing. True, the spores by lapse of time may lose their vitality; but if after eight years we had taken those ten combs and distributed them between ten stocks, what would have been the result?

If Mr. Simmins is correct, then his statements can be confirmed by your State entomologist, i. e., that spores must germinate in warm weather without a medium.

On page 1312 Mr. Simmins says: "When the combs with old candied honey were opened up for brood-rearing, the larvæ rapidly assumed the appearance of the foul pest." The foregoing clearly proves that *Bacillus alvei* lay lurking in the honey, and did not germinate in warm weather.

An abundant harvest and plenty of pollen, for we must not forget that pollen forms the tissues of bee life, combined with a vigorous queen (not necessarily a new queen), may apparently cure a stock; but while the old brood-nest remains with its tainted stores "bacillus is not dead but sleepeth," ready to awake when the cupboard is going bare. The last cells of honey being used, all pollen reserves gone, then is the time for the spores to break forth and assume the active bacilli. The bees may use a thousand cells of healthy stores; but as soon as the seal is broken and the food given out from the one spore-laden cell, then will *Bacillus alvei* reign rampant again.

A CURE.

We will assume that your stocks stand in pairs, say two stocks on 4 ft. with 8 inches between.

1. When the bees are gathering nectar;
2. Take a clean hive, the frames fitted with foundation; place it between the stands of Nos. 1 and 2; now take Nos. 1 and 2 to a quiet part of the apiary, using as little smoke as possible, so that the bees carry no stores from the old home;
3. Search for one of the queens; cage her, and take her to your new stock;
4. Unite Nos. 1 and 2;
5. Repeat the operation with 3 and 4, and place beside Nos. 1 and 2;
6. When brood is hatched, reduce the brood-nest to one story of the still diseased stock. The queen is usually found in one story only, usually the top, so that, when the eggs, that were in the hives when united have reached the imago stage, the hive can be reduced to one story, and 7 can be put in force;
7. Burn the comb, bury the ashes; cleanse the hive;
8. Examine the new stocks for odd cells of *Bacillus alvei*, and treat as directed above.

Your apiary is now half clear of disease, and the process can be repeated till the whole apiary is clear, with very little loss.

Long Caton, England.

MR. HENRY SHAFFER.

The First Foul-brood Inspector of Ohio.

BY HENRY REDDERT, SEC.

Mr. Root:—I inclose a photograph of the first bee-inspector appointed in Ohio, Mr. H. Shaffer, a member and twice president of the Southwestern Ohio and Hamilton County Bee-keepers' Association. He was appointed by the Board of Commissioners of the county of Hamilton to serve for two years, or until his successor is appointed. Mr. Shaffer is a resident of Westwood, a beautiful suburb of Cincinnati, at 2860 Harrison Ave. He was born north of Cheviot, Ohio, also a suburb of Cincinnati, 49 years ago. Twenty years he has kept bees. The last five years he has bred queens of a fine Italian strain in connection with the production of honey. His father being a farm-



HENRY SHAFFER.

er, and his neighbors keeping bees in the old-time box hives, young Shaffer naturally took to bees. He now has an apiary of 90 colonies. As a man Mr. Shaffer is easily approached, honest to the core, and he has a kind word for everybody. No better man could have been selected for the inspection of apiaries. He was unanimously chosen by the members of our society as bee-inspector, and his name presented to the County Commissioners by a petition of 85 bee-keepers—surely a token of good faith placed in Mr. Shaffer as the proper man for this work. One thing we regret is, that the legislature did not make the special

tax at least five cents per colony instead of one; but that may be remedied at the next session. One cent is hardly sufficient to do any work to amount to any thing. However, we have a start, and we hope the future will teach us which course is best to pursue.

Cincinnati, O.

[The one cent will raise over \$1000. This ought to be enough.—ED.]

HOFFMAN FRAMES.

The Short Top-bars Not Liked, as There is No Finger-hold.

BY W. C. GATHRIGHT.

Mr. Root:—I have been very much interested in the discussion of the merits and demerits of the Hoffman frame. Before coming to California I used and liked the Hoffman frame; but I was a comb-honey producer. I have visited many large apiaries here, and am convinced the plain frame is best for large apiaries run for extracted honey.

These frames as made here have one inch projection of the top-bars past the end-bar. This gives one a chance to get two fingers under each end so as to get a good grip for shaking off bees. You say, Mr. Editor, that you prefer to pick up a frame by the top-bar just inside the end-bars—that is, where it is usually covered with bees, while with the long top-bar the ends are furthest away from the bees it is possible to get.

While holding the top-bar as you say, between or inside the end-bars, and shaking off bees, that would be entirely out of the question with me. It's just like trying to lift your hives without cleats or hand-holes. Our hives are made with rabbets $\frac{3}{8} \times \frac{1}{2}$, so there is a bee-space at the ends of the top-bars. The staples for end spacing are a good thing; but cutting off the ends of the top-bar to get a bee-space when they were already too short for ease of handling is, in my opinion, ruinous. Then to make the projections almost useless as a support for heavy combs, you have reduced the thickness to $\frac{1}{4}$ inch. They should not be less than $\frac{3}{8}$, and nailed through the top into the ends. This prevents splitting off the top. Most of the Hoffman frames I find about over the country are nailed only one way—i. e., through the end into the shoulder of the top-bar. They should be nailed both ways; but if only one way it is more important to nail through the top into the ends. One experiment ought to prove this to you. Take two frames, one nailed one way and one nailed the other; weight them about like a comb of honey; hold them above the hive, letting them drop on the rabbets, and see which one is first or easiest to break.

THE ALEXANDER CURE FOR BLACK BROOD
NOT A SAFE TREATMENT FOR FOUL
BROOD.

It seems to me unwise to recommend the

Alexander method of curing black brood for the cure of foul brood. While the disease might disappear for the time being, yet it would be sure to appear again sooner or later, because the combs can not be thoroughly cleansed of the germs; and, besides, there is the infected honey still in the hive. I think the mildest treatment we can dare recommend is driving a part of the bees with the queen out on to a new set of frames with starters, as by the McEvoy method; then in 21 days shake out the remaining bees into another hive prepared the same as first, giving them a young queen (burn the old combs). This method can very well be carried out during the swarming season. Thus you can double the number of colonies and get rid of the disease at the same time.

Fillmore, Cal., March 12.

[There is nothing to prevent double or cross nailing. We give our customers the option of the short and long top-bars.—ED.]



PAPA'S SWARM [THAT WOULD NOT STAY
HIVED.

[Some time ago we received a photo from which the accompanying half-tone was taken. The letter that came with it seems to have been lost, and hence we shall have to let the picture tell its own story, which it does very nicely.—ED.]



THE HONEY-PRODUCING FLORA OF SOUTHERN CALIFORNIA; ORANGE-BLOSSOM HONEY.

I have carefully studied the honey flora of Southern California for the last five years, and I find the orange-bloom yields very little surplus in the cool regions near the coast; but up here at Redlands the weather is very warm, and but little fog; and four years out of the five orange has yielded a fair crop, so I have been able to select and ship one or more carloads of pure orange-blossom honey each year except 1904, all from apiaries close to this city; but even here the weather is sometimes so cool that tons of this nectar is lost because it is too cool for bees to get it.

I have seen the nectar so abundant as to daub the clothing of pruners and pickers, and even the backs of horses while cultivating. If the bloom came six weeks later, during good weather, the crop would be heavy. It usually comes on the last of March or first of April. My bees are now (April 2) on it; and as they are in excellent condition as compared with 1905 I expect to secure a good crop if the weather permits, and will try some special experiments later.

This honey was stored in April, 1905, and was obtained entirely from orange-bloom excepting a possibility of a very little, perhaps 5 per cent, being carried up from brood-combs of honey previously stored. I usually sell a carload of strictly pure orange honey at one-half or 1 cent above the price of last year's honey; but in the general market it is worth no more, as some dealers prefer the sage on account of its not candying. Orange is like clover. It sometimes yields heavily, and sometimes fails to yield any thing, even in nice weather. I have thousands of acres of orange-trees in range of both of my apiaries, just a-humming now.

F. McNAY.

Redlands, Cal.

SIMMINS ON FOUL BROOD.

I have wondered if Mr. Simmins, of England, had foul brood at all, page 22. His idea will not work here if the germs are present in the honey, of which I am satisfied they are, from my own experience; also what he says, he "put foul-broody combs into a healthy colony and they cleaned them up and did not give the disease to the colony" would almost make me say he never had it at all. I am satisfied (and I speak from experience) there is no way on earth to get rid of it save by the McEvoy method or some similar way.

H. PIPER.

Palaveras, Texas.

[If you will refer to page 807, last issue, footnote to J. E. Chambers, you will understand, perhaps, why your experience differs from that of Mr. Simmins.—ED.]

GETTING BROOD FROM TWO QUEENS.

Referring to the plan of getting brood from two queens in one hive, page 354, I will say that, by following the Alexander method, I have lost not less than 75 per cent of the queens. About eight years ago I tried the plan of using wire cloth for the first two or three days, and then removing it, putting on the queen-excluder. Since doing this I have not lost a queen; for by the time I remove the wire cloth both colonies have the same scent.

J. K. WILSON.

Lancaster, O., March 30.

[Your plan is similar to that described on page 827 of last issue, except that you use wire cloth instead of burlap. Your trouble will be explained, perhaps, by reference to p. 659, May 15th issue.—ED.]

IS BEE-TREE HUNTING PROFITABLE? THE SCENT OF BEES AN IMPORTANT FACTOR.

I notice in GLEANINGS for March 1 Mr. Ralph P. Fisher takes exceptions to my views regarding the profit of bee-hunting. I have helped to find four trees in half a day. There wasn't 25 lbs. of honey in the bunch. I have found two which had 100 lbs. each, but that kind is very rare. We usually hunt them here in the fall. I have transferred several from trees. I never had any of them amount to any thing. Perhaps friend Fisher transfers them in the spring, which would work all right. If we left them until spring here, the chances would be some hunter would steal them. Bee-trees with us are generally in hard places to get at. It isn't an easy task to carry a swarm of bees through the brush and over the stones for one or two miles. Friend Fisher is in luck if he can sell his bees so handy for \$5.00 per hive.

I have a friend who spends lots of time hunting bees. If he worked for 15 cts. per hour he could buy more honey than he gets from bee-trees. Perhaps an expert could make it pay, though I am still very certain safe advice for the average person is, don't do it for profit; but for a day's outing and a visit with nature and nature's God it is all right.

To those who do not believe that the bee's sense of smell is an important factor, I would like to relate the following experience: Last May I had a second swarm that came out and clustered in two places—one cluster on a limb, and the other in a pile of brush. I opened the hive and found a dozen or more queen-cells, some of them hatched. While I was holding the combs in my hands I smashed the young queens, as many as ten or twelve, then wiped my fingers on my overalls and went after the bees in the brush-pile. I found a young queen there, and in less than three minutes I had a good-sized swarm of bees on my jeans. What

caused those bees to alight there? I had to go to the house and have my wife brush and smoke them off. I believe the Giver of all good gave the bees this way of telling their own.

F. P. STOWE.

Seymour, Ct., March 8.

[The scent of a queen or queens that have been killed between the fingers or mashed on the clothing as described is very readily transmitted to those parts, often to the annoyance of the apiarist. Better keep the queens off the clothing; and when the scent has been transmitted to the fingers it can be removed by rubbing them through the grass and on the ground.—ED.]

HYBRID BEES; DRONES IN COLONIES WINTERED OUTDOORS.

If Dr. Miller could not, page 345, keep pure Italians, how does he manage to keep his special strain of cross crossed bees pure enough so that they are worth while?

You mention, Mr. Editor, page 348, that outdoor-wintered bees are more likely to have a sprinkling of drones. I can not recall having seen this stated before. Why is it not mentioned as an objection to the outdoor plan in the discussion on that subject? and, by the way, why is it that outdoor wintering produces drones in excess of cellar wintering? Possibly I am rehashing an old question, but I just want to know.

Wilmette, Ill. D. D. FARNSWORTH.

[You have read more into the language on page 348 than I really intended or the exact words convey. I do not know that outdoor bees would have more drones than colonies in the cellar; but here was the point: Drones from the latter would not be available, while those from the former, on any good flying day, would be. That was all the difference.

In answer to your first question, I do not think Dr. Miller did any thing more than to breed from his best queen, which was a hybrid.—ED.]

CAUCASIAN BEES AS SWARMERS; WOULD A FOUL-BROOD INSPECTOR CARRY THE DISEASE?

There are two subjects to which I wish to call your attention. I may be wrong in my opinion, and hope I am. First, are the Caucasian bees great swarmers? That is just the trait we do not want; and if it is added to the vindictiveness of the blacks and Italians (hybrids), when shall we get through? I have been working several years in trying to breed out the black bees, or, rather, trying to Italianize, and quite a number of my friends have bought Italians. Now, if I or any one else gets Caucasians, all this work and expense of Italianizing will be lost.

Second, if the foul-brood inspector finds some diseased colonies in Brown's apiary, and doctors them, then comes to my bees and infects them with foul brood (which I fear he would), what shall I do? It looks

as if I should be out of the bee business in a short time.

SEWARD STEFFY.

Glouster, O.

[In all that has ever been said concerning Caucasian bees I do not remember that the claim has ever been made that they were great swarmers. Is it not possible that you have the Caucasians mixed up with the Carniolans?

Any foul-brood inspector who would be so careless as not to disinfect himself when going from a diseased to a healthy yard ought to be summarily removed from his position. As these bee-inspectors receive their appointment through bee-associations largely, or through the recommendations of local bee-keepers who are in position to know of the man's competency, it is not likely that such appointee would be the means of spreading the disease from one yard to another. I am personally acquainted with many of the inspectors in the country, and I know of no person who would be guilty of spreading the disease in the manner stated. The very qualifications necessary to fit him for that position would be such that he would know the importance of extreme care.—ED.]

CLOTH OVER THE SECTIONS.

Is it proper to put a cloth on top of the sections under the wood cover? Could any harm come from it, or can I get more honey with just a board cover on super?

Tunkhannock, Penn J. F. COOPER.

[Cloth does no harm; but it has this disadvantage, that the bees will propolize it down to the sections, making streaks of bee-glue along the edges of the sections. The general practice is to leave a bee-space above the sections; then put the quilt or protecting case right over the super-cover that is just a bee-space above.—ED.]

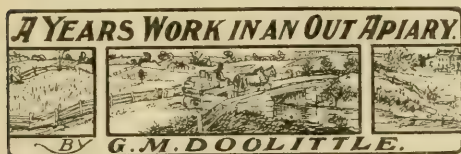
WHAT DOES THE DISTANCE OF THE SOURCE OF HONEY HAVE TO DO WITH THE AMOUNT GATHERED?

I have an outyard $1\frac{1}{2}$ miles from the home yard, in a good basswood location. What I want to know is, why do the bees at the home yard, $1\frac{1}{2}$ miles from the basswood, gather as much basswood honey as the bees that are located right in the shadow of the basswoods? There are no basswoods closer than the outyard. Who can answer this?

Burlington, Texas. W. M. JONES.

[I can not explain your conundrum unless you are mistaken in supposing that both yards of bees are gathering basswood honey. The tree does not yield nectar every year, and sometimes only sparingly. A little smattering of basswood mixed with clover will very easily give the impression that the honey is all basswood unless the apiarist is an expert in the taste of the two honeys. If, as I suppose, your bees in both

yards were gathering a little basswood and a great deal of clover, and clover was equally abundant at both yards, one lot of bees will gather as much honey as the other; and even if the basswood bees gather a little more of the basswood than the bees a mile and a half away, the fact would not be noticed. To answer your question directly, it is not true, generally, that bees a mile and a half away from the honey source will gather as much of that honey as those bees that are located right in the midst of the forage. If I am correct, then, your bees a mile and a half away were not gathering as much of the basswood as those right among the trees.—ED.]



CHAPTER VII.

TAKING OFF THE SURPLUS; WHAT TO DO WITH THE UNFINISHED SECTIONS; PREPARATION FOR THE BUCKWHEAT FLOW.

It is now July 24, and the basswood bloom is all gone. With the exception of one or two days at a time, it has been rainy, cold, or windy all through its bloom. If possible the weather has been worse for the bees than during clover-bloom. If we could have had the good hot weather which came between the blooms, either in clover or basswood, a far different showing in honey would have been the result. Now that the basswood bloom is past, it is coming good weather again. While this can make no difference with me now, yet I am very glad to have it come, as it is cheering to the hearts of the farmers who have had an uphill time in securing their hay and winter wheat, much hay spoiling on account of the continued wet. Again I am off on the road to the apiary, carrying with me another supply of supers, for the buckwheat bloom is still ahead. As I go, my heart is made light through seeing the many fields on the hill-sides and valleys covered with their waving grain, basking in the sunlight, while the pearly streams, being nearly at full bank from our recent rains, make sweet music in their joyous journey toward the river. The pasture-lands are nearly as green as in June, while, generally, at this time of the year they are brown and bare. The farmhouses nestle among the green branches of the trees, giving prospect of garnered fruit through the half-grown apples, plums, and pears, discernible among the sun-kissed leaves. Surely all nature is happy—why not I? I have done my best with the bees; and if a meager crop is the result, through no

fault of mine, I should be happy with what I get.

With such scenes and thoughts as these, the time passes almost too soon; and before I am hardly aware of it the horse is turning in at the farmer's roadway leading toward the bee-yard. With the horse stabled before a manger of rain-cured hay I enter the apiary. Each colony having sections on is looked after, fixing them now so they are supposed to be all right till the end of the buckwheat harvest, which is the end of the surplus-honey season in this locality. The wheelbarrow having an empty hive, bee-escape, and super of foundation-filled sections, is again brought into use, when all the fully completed supers are set on the empty hive, and the others on the empty super, the same as with my last visit. If a super is found having two thirds or more of its sections completed I think it best to take off the same, as those finished will lose in price, if left on the hive, from coloring. With those having a less number finished I used to take out those finished and supply their place with sections filled with the extra-thin foundation; but of late years the extra work involved in this has made me mostly abandon the plan. Such sections will sell for more money than they will if left on till the end of the season; but I am not sure that they will sell for enough more to pay for the extra work required in thus taking them. Of course, the whole super can be freed from bees with the escapes, then taken home, and the sections which are filled sorted out, the others being repacked in the supers and taken back to the apiary again; but this makes still more work, and an extra trip to the apiary.

These things are all right where time hangs heavily on one's hands; but with the overworked apiarist, having from three hundred to five hundred colonies in five or six out-apiaries it is better to put all supers not more than two-thirds full back on the hives again. Any super which has been worked in, yet not sufficient to be taken off, is put back first next the brood-chamber, when a super of foundation-filled sections is set top of it, over which is placed the bee-escape, and the finished super or supers on top of that, so that nearly all of the colonies will have two supers, or 88 one pound sections in which to store from now till the end of the season. If any colony is found which has two supers partly filled, these are both put back and a third super put on, which is empty, except the sections filled with foundation.

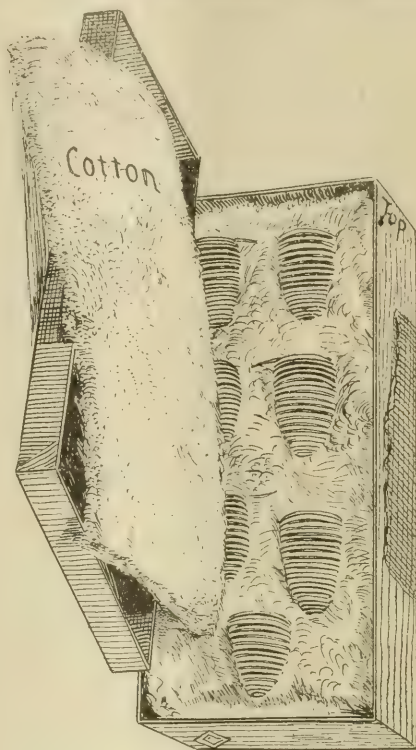
After a practice of ten years I find that it always pays to keep this empty super of sections on top at all times when there is an expected harvest, as it does no harm except the little labor of setting it on; and as often as one year in three much work will be done in it if it is not filled entirely; and it has much to do with keeping the bees from laying out or being crowded for room, thus doing away with their contracting the swarming fever, as they are quite apt to do when the other supers are nearing completion. Since using this method of keeping an emp-

ty super on top I have not had a single swarm during the buckwheat flow, without any further effort at their prevention, while before this I was bothered with nearly half of the colonies contracting the swarming fever during the first week of buckwheat bloom, they keeping the swarming up till very little section honey would be obtained.

Before going to the apiary at this time I carefully look over the standing of the beeyard as to the value of the queens in the different hives, as it is given in the little squares on my record-board, and take from the home apiary the number of ripe cells required for use in requeening all colonies having queens which do not come up to the standard of *good* queens. When the sections are all piled on the wheelbarrow, as given above, from a colony having a queen not considered good enough to winter over, I take the opportunity to hunt up the queen and kill her, as she is quite easily found at this time on account of so many of the bees being in the supers just taken off.

Having found the queen and killed her, the next work is to give them one of the ripe queen-cells I have brought. In taking them from the brooding colony at home, each one was placed in one of the West cell-protectors, so that the bees would not destroy the queen by cutting into the cell before they were aware that their old mother was gone. Each cell-filled protector was partially imbedded in a sheet of cotton wadding, cut to fit into the bottom of a paste-board thread-box, easily obtained at any drygoods store. Having the number required in the box, another right-sized sheet of wadding is put over all, the cover to the box put on, and a rubber cord sprung around the whole to keep all in a secure position so that the cells can not roll around when the box is handled. One end of the box is

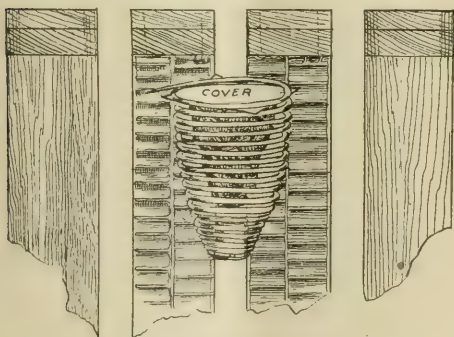
hours, and I have often carried such for from one to twelve hours, in the way here given, without the loss or injury of a single queen. In this work the wadding is far preferable to cotton batting, for the glazing



DOOLITTLE'S POCKET QUEEN-CELL CARRIER.

on the wadding keeps the cotton from sticking to the cell or cell-protector, as it is otherwise liable to do.

After killing the queen the frames are all put back in the hive, when two of the center ones are pried apart enough so that the cell-protector will go down just under the top-bar to the frame, when the frames are brought back in place again, this imbedding the protector into the comb so it is securely fastened there until removed by the apiarist. As this is the season of the year when the bees do most of their superseding of queens (it seems so natural to them), my loss in using this plan will not average more than one queen-cell out of twenty given. So small a loss will not pay for a special visit to the apiary to ascertain whether colonies so treated obtain laying queens or not—especially as the colony which will occasionally destroy a cell or kill the just-emerged virgin queen have brood of their own from which to rear a queen, so the loss is never very great should an occasional cell be destroyed. Of course, there is a chance that the young queen may be lost when going out to meet the drone, in which case that colony is doomed unless rescued by the apiarist.



WEST'S QUEEN-CELL PROTECTOR IN USE.

marked *top*, and the base of each cell is placed toward this end of the box so that I may always know that the cells point down when carrying the box in my inside vest pocket, or pocket in my shirt, where cells are always carried at all times except when used in the bee-yard where they are raised.

A "ripe" cell is one from which the queen will emerge in from twenty to thirty

In such a case as this the observing apiarist will easily discover this loss by an outside diagnosis of such colonies at a later visit to the apiary. This requeening at this time is so easily done that there is no excuse for having poor queens at the out-apiary.

The reader may think that what is here given conflicts with what I have written in the past about allowing the bees to take care of the superseding of their queens themselves. With the small and contracted brood-chamber, I still hold that the bees will take care of that matter fully as well as the apiarist can; but with this system of working, and that with ten-frame Langstroth hives, a queen will lay nearly as many eggs in two years as she would under the contraction system in three or four years; so that any queen which is more than two years old is almost sure to be played out; therefore I make it a practice with this plan to supersede all queens which are two years old at this time, and in the way given above. This plan is one of strenuousness all the way through, by which we get a multitude of bees in the field at all times during the honey harvests: and even when ordinary colonies are doing nothing, or securing only a living, these rousing colonies are actually laying up stores. Mast May, when the colonies as ordinarily worked were living only from hand to mouth, these big colonies at the out-apiary actually laid up from 20 to 30 pounds of stores in the combs above their brood. And then when other colonies were working a very little or not at all in the section supers, these were completing their first 44 sections, and well at work in the second super of 44 above. Such work as this is enough to cause the queen to produce all the eggs in her ovaries in about two years; and as the work of superseding as given above is easily done, I think it well pays to kill any queens when two years old, and give a cell to the colony, unless it is a queen that has proven herself of extra value, when I would keep her to breed from the next year, should she live through.

Having the hives all ready for the buckwheat harvest, the poor-queen matter disposed of, and the completed supers on the escape-boards, I next attend to any and all the minor things about the apiary that need attention, when the honey is loaded and a start for home is made. If there is more honey than can be carried at one load, it is left right on the hives over the escape-board till I can conveniently come after it; for it is just as safe there as anywhere it can be left, unless we have a building at the apiary for the purpose of keeping honey, which I do not, nor do I consider it needful. If I feared the work of thieves, I would take this honey to the farmer's house, or go back immediately for it; but as it is, I often leave it over the escape-boards for a few days or a week, till some convenient time comes to bring it home.

In the above I have given the reader the work done during the seventh visit to this apiary.



Bless the Lord, O my soul, who healeth all thy diseases.—PSALM 103:3.

Know ye not that your body is the temple of the Holy Ghost which is in you, which ye have of God, and ye are not your own?—I. COR. 6: 19.

Just at the present time there seems to be a great number of "hold-ups," or at least there are a great number of them in our large cities in and around our State of Ohio. These ruffians come to a man and say, "Your money or your life;" and of late the fashion seems to be for two and a great many times *three* of the ruffians to pounce on one man, generally unarmed and unprotected. Of course, they are *cowards* as well as thieves and black legs, and sometimes one man with grit enough has put to flight his two or even three assailants. This is a terrible thing, friends, in an enlightened country like ours, especially when it is done in broad daylight, where people are around, and sometimes not very far away. But please do not think me extravagant when I say there are *worse* things than this going on right under our very noses. The outlaws of whom I have been speaking, under the influence of drink, say, "Your money or your life" as they point a loaded revolver at your face. This other class of people that as I have said are still worse, say by their actions, if not words, "Your money and your life." But even that is not all. The windup many times results in not only loss of money and loss of life but also loss of soul as well as of body; and these fiends in human shape take money, body, and soul, and hold up not only men, but *women* and *children* as well. Do you think your old friend A. I. Root is becoming extravagant and sensational? Well, let me submit the matter to you. Which individual is worse—the one who points a revolver at you, and says, "Your money or your life," or the one who deliberately sells your boy cigarettes with the end in view of creating an appetite so the poor child can not get along without them, utterly indifferent to the fact that he may soon go down to an untimely grave, or go into an asylum, commit suicide, or do something else as bad?

Notwithstanding all that is being said and done, the work goes on. Our sister State of Indiana has ruled out cigarettes. You can not buy, sell, nor give away nor even smoke one on the streets without getting into trouble. May God bless Governor Hanly, and give us more governors like him. In Illinois, however, they have tried again and again to get an anti-cigarette law; and while nine-tenths of the people are in favor of

such a law the millionaire manufacturers of cigarettes manage to block the way just as they are blocking the way of a parcels post, reforms in the insurance business, meat trust, Standard oil, etc. If we can keep God-fearing men like our President at the head of our nation, and get all good men and women to stand by him, something is going to be done. May God help us!

Well, it is not the cigarette business that I had especially in mind when I sat down to write this paper. The druggists of Cleveland are continually evading or defying law in selling stimulating drugs to men, women, and children. Our asylums are being filled with them. The only motive or incentive in all this iniquitous business is to get money — money, money, money. Now read this quotation from the July number of the *Philadelphia Farm Journal*. It is rather long, I know; but it should be read over and over by every man, woman, and child:

A TWENTIETH-CENTURY CRIME AND ITS RESULT: BY
F. W. ST. JOHN, M. D.

In the issue of *American Medicine* for January 13 there are published thirteen letters and two newspaper clippings that should be read by every person interested in the welfare of the community. It would require too much space to reproduce them here, but the following are the facts in the case: Mary Lee, the daughter of a clergyman, was considered by her family physician, Dr. Saunders, to be suffering from incipient tuberculosis. By his advice she consulted Dr. McGee, a man of wide experience in the treatment of lung trouble, who confirmed the diagnosis of Dr. Saunders, and who recommended Miss Lee to enter a sanitarium for treatment.

Being a personal friend of the Rev. Mr. Lee, and knowing that his circumstances were such that he could not well afford the expense connected with his daughter's stay at the institution, Dr. McGee wrote to Dr. Scott, the sanitarium physician, to receive Miss Lee, give her the best room at his disposal, and send a bill of one-half the weekly charge to Mr. Lee and a bill for one-half to himself, as he was very anxious to do all in his power for the daughter of his friend. After some correspondence, Miss Lee was installed in a good room at the sanitarium, and Mr. Lee received a weekly bill for \$8, the same amount being charged to Dr. McGee, Mr. Lee believing that the one-half reduction was made by the sanitarium physician. After a few weeks' residence the girl improved in health, but thought that the restrictions as to diet, open air, etc., were hard to live up to. This belief she communicated to her mother.

In the meantime, Mrs. Lee received a letter from a charlatan in Chicago, who said that a mutual friend had informed him that her daughter was at a sanitarium for treatment for tuberculosis, and that it was useless for her to remain there, as he had an infallible cure for the disease which could be taken in her own home, without any restrictions as to diet or any thing else, and at a cost of only \$10 per month. He also intimated that Dr. McGee was getting a bonus of from \$2 to \$4 per week from the \$8 which was being paid to Dr. Scott. The Rev. Mr. Lee objected to having any thing to do with the Chicago man; but the mother and daughter took the bait, and, as a result, Miss Lee returned home and began the downward road to the grave. The medicines sent her stimulated and buoyed her up, and she believed herself to be recovering. This belief she expressed in a very thankful letter to the Chicago doctor (?). Notwithstanding that she had several hemorrhages from the lungs and was losing in weight, the scoundrel told her that this was an effort on the part of Nature to rid her of the disease, and that she would soon be all right. In a few weeks Mary Lee was dead.

Three years later there appeared, along with the Chicago man's advertisement in a newspaper, the last hopeful letter written to him by Miss Lee, as a testimonial of the great benefit she had received from his medicines. Near this letter, in another column of the same paper, there appeared a statement to the effect that a boy who had stolen fifty cents had been sentenced to six weeks in jail at hard labor, as this was his first offense. The Chicago rascal did not get even six days, as he, in the eyes of the law, had committed no crime.

This is only one page from the daily record of what has for years been going on in this country. Is it a wonder, then, that the people are aroused? Is it a wonder that, though entrenched behind their millions, these humbugs are beginning to shake in their boots when they see that in the name of humanity a relentless war has been inaugurated against them? There is room for every volunteer in this work; and not until many sacrifices have been made, and many hard battles fought, will the hydra-headed monster of charlatanism down, and down for good.

There are several things in the above to which I wish to call your attention. Rev. Mr. Lee did the right and proper thing in regard to the care of his daughter. He consulted the family physician; and this physician, to make sure, called in another physician of wide reputation, a personal friend of the minister and his family. This Dr. McGee is certainly a good Christian man, and an honest one, or he would not have undertaken to pay half the expense. We get a further glimpse of his Christian character in that he did not let the minister know that he took this money out of his own pocket. Now, this Chicago charlatan had no scruple about poisoning the minds of the minister's family by suggesting that Dr. McGee got a "rake-off" of from two to four dollars a week out of eight dollars. It is strange that people will listen to a quack, and believe such silly stuff. And, by the way, there is a tendency just now to jump at conclusions or to listen to foolish gossip hinting that many good innocent men are probably getting a graft or bribe. Why, not long ago I heard a minister of the gospel say that the Anti-saloon League was about as big a graft as we had in the country, and that nobody knew what was done with the great sums of money that were being subscribed. He said that, too, in a crowd of good intelligent people. If the saloon-keepers and liquor-dealers should repeat such nonsense we could forgive them; but anybody who knows any thing about the Anti-saloon League surely ought to know that, like all other Christian institutions and organizations, they keep an accurate account of every penny that is taken in and paid out, which is published annually in black and white in the *American Issue*.

Do not jump at conclusions when somebody suggests grafts. Examine into the matter, and see if the man who talks graft right and left has not an ax of his own to grind.

Well, the mother and daughter prevailed. They listened to the Chicago quack, and took his medicine. The girl felt so much better that she wrote a letter of thanks to the quack doctor.

Here is another thing, which I almost overlooked. She informed this quack doctor that she was having hemorrhage of the lungs, losing in weight, etc., supposing he was, of course, interested like her own family physician and the sanitarium people. Did he care? Not at all. After her death he kept right on for three years publishing her letter that she sent in when she first felt the effect of his stimulating drug. Why, this is worse, if possible, than the

Duffy malt whisky people. They manufacture forged letters purporting to come from people toward a hundred years old. They have been shown up repeatedly, but it seems to make no difference. They have discovered that their lies travel faster, and go where the truth can not possibly follow to stop their forgeries and falsehoods.

Look here, my friend, do you know how many medicines there are nowadays that are offered absolutely free of charge? You are not to pay a copper until you are better. When you are better, then you pay something or buy some more. Well, perhaps not *all* of these medicines depend on some stimulant like opium, cocaine, or something of that sort; but a large number of them do. I have been trying so many of them that Mrs. Root says I will kill myself in testing medicines. But I am sure I shall not, for God will help me while I test them, in order that I may talk intelligently in these Health Notes. At a gathering of the whisky-men several years ago the speaker exhorted his hearers to remember their customers were dying off all the time; and he said they should commence with the boys and "create an appetite." Now, these quack doctors are creating an appetite. They get to be millionaires in the business. They give away samples of their vile drugs until their patients can not get along without them. Then they get his money and send him to a drunkard's grave or, may be, to a worse place. When you get exhilaration by outdoor exercise, by a cold-water bath, by a drink of pure spring water or a glass of milk, it is all right; but beware when you get into a fashion of depending on powerful drugs. A certain person in our own neighborhood found out that he could get vim and enthusiasm by the use of headache powders. He pretty soon became satisfied that these powders were going to be his ruin, and confessed as much to his wife, and said he was going to chop right square off, no matter what it cost him. But he deceived his wife after that. He kept on with the drug until the family were obliged to send him to an asylum; and in a few weeks he went out of that asylum—*cured*? Not much "cured." He went out of that asylum to the cemetery. These fiends in human shape ransack the earth for stimulating drugs. Samples are not only coming to me by mail, but they are laid on my doorstep. Do not take any thing which is not sanctioned by your family physician. Cultivate the acquaintance of your nearest doctor. Make him your friend and adviser; and do not be backward about paying him for his services, even if he does tell you something that you knew already and had forgotten. Pay him his usual fee. A relative of mine who is a physician says people have got into a fashion of thinking that the doctor *ought* to give the people advice free of charge that will enable them to get along without a doctor; and the great progress that is being made just now in the way of prevention instead of cure is making it "hard sledding" for the doctor. He is generally put on the board of health

to look after the sanitary conditions of the town, and is expected to advise the people, collectively and individually, how to avoid being sick; and then when they get their arrangements so there is nobody sick in the town at all, the doctor's occupation is, to a great extent, gone. He does not get any money for what he *has* done, and I am afraid, dear friends, he does not even get the thanks of the people. Look out for your family physician as you would for the pastor of your church. See that he is not forgotten and neglected when he is laboring unselfishly for the good of humanity. If you have any money to spare for medicines, give it to the good doctor. Do not send it to some city quack who would just as soon see you in your grave within the next three weeks as not, providing he can get a good slice of your hard earnings.

A few months ago I saw an advertisement in one of the papers that just exactly hit one little trouble I was experiencing in my old age. Just for the fun of it I described my symptoms. A very kind letter (?) came, informing me that the great physician was so overwhelmed with business it would be several days before he could get to my case; but he kindly asked me to be patient. The average person would have taken this to be a personal letter; but I saw at once the whole thing was printed, but carefully worded, of course. In a few days the great "M. D." said that, as my case was peculiar, he had spent a great part of one forenoon over it; and in perplexity he had called in *another* "great expert." Together they spent the afternoon, and finally decided that I could not live more than a little while if I did not have relief at once. It was a *grave* trouble. This, like the other letter, was, of course, printed. In a postscript the good doctor added that about \$25.00 would fix me up in good shape. In about a week I got another letter saying that he and his learned friend felt troubled about me because I did not respond; and as it might be that I had difficulty in raising the \$25.00, he had decided (out of the goodness of his heart) to stand \$15.00 of it himself. If I would only send him \$10.00 the medicines would come by first mail. Well, I let this letter drop to see what *more* was coming. About once a week appeals of different kinds kept coming. You see they were anxious about my critical condition. Finally one came begging for some acknowledgment of some sort, even if it were but a few words on a postal card. Then I replied something as follows:

"My good friends, if there is any doctor of any sort belonging to your institution who cares to take the trouble to write me a personal letter I shall be very glad to receive it. But you are just wasting your postage-stamps in sending me printed blanks purporting to be type-written letters. We are pretty well posted here, and think we can distinguish a personal letter from a printed one picked out from a pile of blanks. We may be mistaken, however, for the imitations now are getting to be so well done they

may baffle even an expert." Of course, I never heard from them further.

Now, friends, do not be humbugged or misled. All around me I find people who have been receiving these humbug imitation letters. Yes, some of my own relatives hold up these printed letters and say, "Why, Amos, you surely must be mistaken. Here is a letter right from the doctor himself, and I *know* it has been written to me. See the different places where he speaks of my special trouble, and of the money I have sent him, etc."

I often have hard work to convince them that the letter they are holding up would apply to hundreds of persons. The amount of money sent is not mentioned, nor the name of the trouble. The letters are very ingeniously made to fit a large number of cases. These quack shops have great piles of such letters. A stenographer looks them over and picks out one that will fit the case best. In fact, the stenographers, who know no more of medicine than a dog does of astronomy, do the whole business. The head of the firm can go off on a vacation, and the clerks run the whole medical sanitarium just by printed blanks, and they rake in the money during the proprietor's absence until he gets to be a millionaire. These bogus sanitariums send out "health journals." Of course, they are gotten up in fine style, and pretend to be periodicals devoted to the good of humanity, etc. But if you will notice the wrapper you will see a stamp on it. The Postoffice Department will not receive them as they do genuine magazines, so the postage has to be paid on every number. Now, look out for these humbug magazines. They are not magazines at all. They are just swindling pamphlets to puff this particular doctor. Only a few of our papers and periodicals are exposing these quacks, because the fellows pay them big money for advertisements in their own columns; and when they accept this advertising they are under contract not to let any thing go into their reading-columns that will hurt the business. Read *Collier's Weekly*, *Ladies' Home Magazine*, and the various agricultural papers that are helping to expose these frauds. The reason the law can not get hold of them or does not get hold of them is exactly the same as the reason why the law can not banish cigarettes in all the States as they have done in Indiana. These rich fellows manage with their money to get Representatives and Senators at the head of our government who will block any movement to break up their traffic. The *New Voice*, in commenting on the matter a few days ago, remarked that we had got one Senator in the penitentiary; another one (worth about six millions) committed suicide, and the third has been expelled from the Senate. It looks just now as if the people were soon going to have the privilege of voting straight for both Representatives and Senators. God hasten the day! May he sustain and strengthen President Roosevelt in pushing reform measures as no other President has ever done before him.



DOCTORING WITHOUT MEDICINE.

Yesterday, June 8th, I had a very severe attack of acute inflammation. Now do not get impatient, and grumble because your old friend has so much to say about his pains and aches. I do not know why this special pain and ache came or what brought it about unless it was that God sent it in order that I might tell you something more about "God's medicines." Do you remember that, when the people asked whose fault it was that a certain man was born blind—that of his parents or himself—the Savior said that neither he nor his parents had sinned, but the affliction had been permitted that the works of God might be made manifest. Well, I groaned and bore it as long as I could—that is, after trying all the remedies I could think of. I never had had such a trouble before, and I did not know but it might be diabetes, Bright's disease, or some of these other awful things most of you have heard about. Of course, I prayed for deliverance, as I always do in times of trouble. I do not know that I would have sent for a doctor had it not been for the fact that the children insisted on it. They said it was dangerous business to let such a thing go. Right here comes in one very good reason why we should send for a doctor, some good man whom we are acquainted with who makes it his business in life to give us relief from our pains and aches. The doctor said right away that I need not be worried or troubled. He said it was a simple matter that could be easily managed. But I almost interrupted him something as follows:

"But look here, doctor; this is just now something pretty serious; it is most excruciating. I do not suppose it is in your power to wind it right up all at once; but how long have I got to stand it as it is now?"

He smiled good-naturedly and replied, "You have not got to stand it at all. We can wind up every bit of the pain in just about three minutes."

I do not need to tell you the rest he said. It has no particular bearing on what I wish to teach you; but let me explain right here that somehow when such troubles come to me in my old age, especially when my nerves are all racked out of shape, as it were, I begin to think it is the natural result of old age, and that I have got to take my share of it as everybody else does; that my life is drawing to a close; that my Home Papers will soon be wound up—that even the doctors can not do much with such a trouble as I have *this* time. I do not know but I begin to lose faith in God somewhat, and in his loving kindness and wonderful gracious

promises in his holy word. I am ashamed of myself, and I am ashamed to make this acknowledgment; but as the rest of you have passed through similar trials, my talk may be helpful to you.

Well, let us get back to our heading—"doctoring without medicine." The pain was stopped almost instantly, without any medicine at all. He told me to get into the bathtub and sit in water just as hot as I could bear it; have a tea-kettle of boiling water handy, and keep the heat up almost to the scalding point. I laughed when he told me what to do, because I knew it already, and had talked it to people right and left for thirty years or more. Almost any sort of pain in any part of the body can be instantly relieved if you can get the part where the pain is in the hot water, and keep the water hot enough.* Make it so hot that the patient begins to "growl," and then see him smile if you ask him if the pain is letting up. I took this hot-water sitz bath for fifteen or twenty minutes; then I did not have any more pain till just before bedtime. Another treatment of fifteen or twenty minutes relieved me so much that I went to bed and went to sleep, and did not wake up once till daylight. To my great astonishment the "seat of war" where there had been such a turmoil and carrying on the day before was perfectly tranquil and quiet; in fact, there was nothing to indicate the locality of the trouble.

I hope you will bear with me a little further while we discuss what brought it about. The doctor said it was the result of a sudden acute attack of dysentery. As some of you may say that was the windup or outcome of my new diet—grains, nuts, and fruit—I want to say the doctor said my diet was all right, and had nothing to do with the disturbance. On the contrary, said disturbance was more likely because I was *not* sticking to the diet. I think this special doctor is orthodox, too, because he is the one I once introduced to my good old mother, saying, "Mother, here is a doctor who does not drink, swear, nor use tobacco in any shape." That was several years ago; but this particular doctor stills hangs on to his peculiar notions of what a doctor *ought* to be. Now, I hope I shall not hurt anybody's feelings by saying that I wish I could introduce every doctor in our land to his various patients with the same or a similar introduction.

*Now, lest some of you may say you have not got an up-to-date bath-tub, etc., I think I will explain that my second treatment was without the bath-tub. I wanted to arrange it so I could read my papers, and Mrs. Root found a large-sized tin pan that I could sit in comfortably, and it answered the purpose exactly as well. Very likely it was not a dignified position, but I think we can let dignity go for a while when excruciating pains assail us. If the idea of sitting in a tin pan of hot water sounds almost too ridiculous, you can have some kind of dressing gown to put around you and cover you up, especially if you are obliged to be among folks while you are taking your "sitz bath."

AUTOMOBILING ON SUNDAY, ETC.

After I had closed the Home Paper in last issue I came across the following in

the Philadelphia *Farm Journal* which that paper quotes from the *Public Ledger's* New York correspondent:

"Reports of the heartlessness of automobilists who run down pedestrians and scurry away without waiting to see whether their victims were badly injured, are frequent enough; but vastly worse as well as startlingly novel was the conduct of automobilist after automobilist, over on Long Island, on Sunday, for it is said that not until vain appeals had been made to ten of them was one found with heart enough to take to the nearest hospital a young woman who was lying by the roadside with a fractured skull, and to all appearance at the point of death. As it happened, she had herself been thrown from an automobile that had collided with a telegraph-pole, and the other automobilists might have been expected to show special sympathy for one suffering from an accident which could befall themselves any day. But seemingly they did not have a special sympathy, or any sympathy at all. Instead they showed, according to report, a strange coldness and brutality almost unknown among human kind."

It seems as if the above must be a mistake. My experience with people who drive autos has been that they are all remarkably ready to stop and offer assistance to any brother autoist; but, of course, I have had no experience with *Sunday* touring; and if it is really true that all the worst characters who handle automobiles are sure to be out on Sunday, then the above is a tremendous argument in favor of having all good people let their automobiles rest on God's holy day. Going to church with them is, of course, an entirely different matter; and those who use them as they do carriages for going to church certainly do not scorch on the way nor behave in an unchristianlike manner in any respect. Once more let me repeat—what kind of crowd do you, my friend, want to be classed with?

CANTEENS IN SOLDIERS' HOMES RULED OUT.

Mr. E. C. Dinwiddie, National Superintendent of the Anti-saloon League, just now sends us full particulars of a long and earnest debate as to whether soldiers' homes, State or national, should continue to keep up the canteen. The result was almost two to one in favor of ruling them out. May God be praised for this victory, even if it has been long in coming.

COONS, MOSQUITO-HAWKS, ETC., ALSO A SHORT SEQUEL TO MY CHICKEN STORY OF LAST WINTER.

Friend Root:—A bunch of coons raided our chicken-roost, got about fifty of them—the two hens with the big broods, chicks and all. I trapped three of the coons, but there are some more.

You know I was skeptical about mosquito-hawks doing much damage; but I give up. They came in swarms last week, and would take bees right over the hive I was working with. I lost seventeen young queens in three days. The bees just quit work, and stayed in the hive. The A B C said the hawks are easily frightened. The children and I went for them with large palmetto fans, and killed them by the hundred; but they kept right on for about a week, then disappeared.

The bees from the young queens are about as gentle as the old one. I handle them without smoke. We are glad you can take all the young queens. When we got your first letter we were having so much bad luck we felt a little blue; but this week the mosquito-hawks are gone, and your just finished extracting 32 gallons of nice honey. Your letter to-day makes things brighter.

Your shrubbery, trees, etc., are all doing well except the strawberries and Japanese persimmons. They are dead. The papaya is looking extra nice, and the mulberries look well.

I. T. SHUMARD.

Osprey, Fla., May 26.

Special Notices by A. I. Root.

A SELF-WINDING CLOCK.

Ever since the advent of the dry battery, especially since batteries of so much power have been offered at so low a price, I have been predicting that we should have timepieces very soon run by dry batteries instead of daily or weekly winding. This has been done to some extent for several years with jewelers' regulators; but I have only just now gotten hold of a timepiece for every-day use that winds itself. They are made by the National Self-winding Clock Co., Champaign, Ill., and I believe they are now on sale by all first-class jewelers. If your jeweler does not keep them the company will send you particulars, prices, etc. The prices are but little more than for an ordinary eight-day clock. The batteries will run them a year or more, without any care whatever. The clock is more durable and more accurate, because there is no great strain or power on any of the machinery. A very light steel spring, something like what runs a lady's watch, carries all the mechanism. This light spring will carry the works only 8 or 10 minutes; then this bright enterprising little battery goes to work to wind the spring up again, and so on. A similar device winds up the striking part.

CLOVERS, AND HOW TO GROW THEM.

The above is the title of a new book bound in cloth, 337 pages, that has just come from the O. Judd Co. It is the first good-sized book that the world has ever had, so far as I know, devoted entirely to our clovers; and as clover is almost if not quite the sheet anchor of good farming, I welcome this book as a valuable accession to our rural publications. I think it would pay big for every farmer to get and read it over and over. It discusses briefly the new "bacteria" matter of "nitrogen nodules," and I guess it is about correct in regard to it. Of course, the book is largely devoted to the medium and red clovers. There is a long chapter on alfalfa and another on alsike, and still another one on mammoth, a shorter one on crimson clover, and a considerably long one on white clover. The value of the different clovers for honey is touched on in many places; and it very clearly refutes the notion that sweet clover ever ought to be classed as a noxious weed. The Japan clover that has been inquired about several times of late is discussed very fully; but it does not tell whether or not it is of value to the bees. My impression is it must be, under favorable circumstances. The book is by Thomas Shaw, perhaps as good an authority as we have at the present time in matters of this kind. Now, the book looks like a \$1.50 one; but I am glad to tell you that we can furnish it at the very reasonable sum of 90 cts. or \$1.00 if wanted by mail.

PEACHES FOR HOME AND MARKET.

The above is the title of Bulletin 170, from our Ohio Experiment Station. It is full of half-tone pictures taken of the trees themselves at different stages; and the information it gives for the early management of peach-trees, especially pruning, is worth a five-dollar bill to me if I could not get the pamphlet otherwise. It corroborates nicely the conclusions I had been coming to in working with my peach-orchard of 100 trees in Northern Michigan. Let me go over it briefly:

Clean cultivation is perhaps the cheapest and best when your land is level or pretty nearly so, to be followed in July with some cover crops such as soy beans, cow peas, crimson clover, etc., to be turned under the following spring. If your land is hilly, mulching does quite as well. Cover the ground all around the tree, at least as far as the branches grow, with straw, clover, grass, weeds, or any thing that will smother all growth. This is the plan I have practiced myself. There are two objections—mice, and the danger of fire getting at it. No mice have ever meddled with my trees so far; but they are right on the edge of the woods, and the mice probably get plenty of feed elsewhere. No fire has ever gotten in except once, and that damaged one tree a little but did not kill it. Now in regard to pruning:

You must prune your trees regularly every spring if you want to keep down dead limbs and long sprawling branches. Keep cutting back the new growth a half or a third; and when the trees begin to bear, when the buds are out enough so you can see how much fruit is setting, thin the fruit by a severe cutting back. A combination of thinning by both pruning and hand-picking seems to be best; but pruning should be so managed that you never have a great lot of peaches away on the ends of long sprawling limbs to break your trees down and ruin them. In fact, old neglected

trees that have become unsightly and useless may, by judicious and intelligent pruning, be made so as to look very much like handsome young trees, and do a lot of service.

This bulletin tells the whole business by means of a lot of beautiful pictures; and then there is a discussion of varieties, that ought to be worth much to a good many people. Why, my friend, if you have only one peach-tree you ought to have this bright up-to-date little treatise on growing peaches. Address Experiment Station, Wooster, Ohio.

DECORATING OUR DOORYARD; TREE PEONIES, ETC.

A year ago I wrote up tree peonies, and there was quite a number of inquiries as to where they could be found. I mentioned that Storrs & Harrison, Painesville, O., said they were very difficult to grow, etc., but I finally purchased three plants of Good & Reese, Springfield, O. I think they cost about 50 cents each. They were rather small and insignificant-looking, and I did not expect much of them. This spring, however, to my surprise they were "up and dressed" almost before any thing else, and all three are making strong rank thrifty plants. I also bought eight of the low-down peonies for about 20 cents each. They also started well, every one of them, and two of the plants have given us some beautiful blossoms.

Now, there is one more beautiful flowering plant that I want to mention, that stands over winter and takes care of itself. It is the campanula, known in many places as "Canterbury bell." I bought half a dozen of these plants from G. W. Park, LaPark, Pa., at an expense of only 4 cents each, selected from his collection of plants. Just now they are covered with cup-shaped blossoms of different shades, and I think they give more beauty for the money than almost any other plant I know of. They attract much attention because they are not very common—at least in this locality. We also bought of Good & Reese, Springfield, O., half a dozen Japanese maples that have now wintered safely two winters planted on the north side of the house; and the blood-red ones are as handsome as flowers, and they are *always* in bloom. I think they cost about 50 cents each; and if they prove as hardy everywhere as they have here, I should consider them a wonderful acquisition in the way of ornamenting your grounds.

T. W. BRYAN, FICKLIN, ILL.

Mr. Bryan is still at it—see page 762, June 1; and the *Missouri Valley Farmer* is still at it. Here is the latest, which we clip from the *Farmer*:

NATURAL SWARMING.

I am thoroughly convinced that natural swarming is the only successful way to increase your bees. In the hands of an expert, artificial swarming can sometimes be made to work successfully, but no beginner should attempt it. One has only to pick up a bee journal or the old-fashioned bee-books, which were written 25 or 50 years ago, to find all sorts of plans for swarming and handling bees. We hear of all sorts of methods, such as clipping the wings of the queen; also patent swarm-catchers, queen-traps, and a lot of other nonsense. As stated some time ago in this paper I have long since turned all such propositions down. If my readers will only stop a moment and ask themselves why it is that so many bees run off; why it is so many bee-trees are found, and if a swarm of bees in running off just happens to hit a hollow tree, common sense will answer the questions. It was not a "happen so" at all that the home-seekers of that swarm found a hollow tree. They were attracted to that particular spot by certain laws of nature which govern the honey-bee as well as every thing else in nature's plan of life. It took the years to learn just how to prepare and fit up empty bee-hives so as to attract and catch my own swarms of bees. My booklet, which is fully protected by a copyright in 1904, will teach you just how to prepare your hives placed in your own dooryard so as to attract and catch swarms.

We give place to all this because letters are coming in almost every day, asking if we advise sending Mr. Bryan a dollar, etc.

THE NEW GOVERNOR OF OHIO.

When the Lieutenant-governor was informed of the death of Governor Pattison, and told that he must now take Pattison's place, he replied:

"I can only say that I will do my duty as God gives me power to see it."

May God grant that we may have more Governors who can honestly make the same declaration.



July is, perhaps, the best time to sow crimson clover.—A. I. R.

BEEWAX MARKET.

Until further notice we will pay 27 cts. cash, 30 cts. in trade, for average wax delivered here. We have quite a large stock and expect to see lower prices before another season.

THIRD PHOTO CONTEST.

Be on the lookout for good photos. In next GLEANINGS we will announce another contest, with new and larger premiums than ever before. We want photos that will interest GLEANINGS readers, and are willing to pay for them.

FIRE.

The York Honey and Bee-supply Co., of Chicago, had the misfortune to be burned out on June 20. They occupied the second floor at 141 Ontario Street. The fire started in the basement, and resulted in an almost total loss. They were fairly well insured. They have located at 191 East Superior Street, with a new stock ready for business again as before the fire.

SECOND-HAND CANS.

We have something over 100 cases of good second-hand 60-lb. honey-cans, two in a case, which we offer at 40 cts.; in ten-case lots or more at 35 cts. each. We do not recommend second-hand cans for choice grades of honey; but they answer nicely for dark or off grades, and make the cost of the package for such honey proportionately less.

THE NATIONAL CO-OPERATIVE SUPPLY COMPANY, OF LANSING, MICH.

If any of our readers have sent money to the above firm, and have not received an equivalent, I wish they would please let us know about it. One of the firm has "gone wrong," and a reorganization is being effected. If they do not eventually "make good" we should like the particulars.—A. I. R.

HALF-POUND TUMBLERS.

There seems to be an increasing demand for a cheap tumbler to put up a half-pound of honey to retail at 10 cts. We have secured a stock of such tumblers at a price which enables us to offer them at \$4.00 per barrel of 24 dozen. This is less than 1½ cts. apiece. For less than barrel lots we can not repack them for less than 25 cts. a dozen; or we will put them up 3 dozen to the case with partitions ready to reship when filled, at 75 cts. a case; 10-case lots at 70 cts.

HONEY WANTED.

As soon as any of our readers in this or nearby States have any new honey to offer, either comb or extracted, we should like to hear from them. There has been a dearth of comb honey for several months. We generally have a good demand for choice comb early in the season. Many put off the cleaning and casing of honey for market till after other pressing work is out of the way, and there is less danger of its being infested with the

moth-worm. There ought to be enough prepared to satisfy the early demand. When you have extracted to offer, send a sample, and name price asked; also state how put up.

SECOND ANNUAL FAIR CONTEST.

Last year we were represented at a large number of county and State fairs. This season we wish agents in twice as many places soliciting subscriptions to GLEANINGS. Besides our regular commissions we will offer a special cash prize of \$10.00 to the party sending the largest number of names, \$5.00 to the second, \$3.00 to the third, \$2.00 to the fourth, and a cloth-bound A B C to the next six largest lists of names obtained by our agents. Full particulars in next GLEANINGS. Write us at once asking that the fair you attend be reserved for you, as we appoint only one agent at each fair.

SIMPLEX AND NO. 25 JARS.

We are now prepared to offer Simplex and No. 25 jars in partitioned cases of two dozen each, ready to reship, when filled, at \$1.00 per case; ten-case lots or over, at 95 cts.; fifty-case lots at 90 cts. We can ship either from Medina, Chicago, New York, Philadelphia, and, after Sept. 1, from Mechanic Falls, Me. The first lot of Simplex jars we received were somewhat defective, and gave a little trouble in some cases by not sealing tight; but these defects have been overcome. That old stock has been disposed of, and what we now offer are perfect. They hold 1 lb. of honey, and are the most desirable package we know of.

TERRY'S NEW BOOK—"WHAT I SEE, DO, AND HEAR;" ERROR IN PRICE.

When I wrote the editorial on page 839, last issue, I had in my hand a cloth-bound book with the above title, sent me by the publisher. The price was printed "50 cents" on the title page; but I am informed by the publisher that this was a mistake. The price is, in cloth, \$1.00; paper, 50 cents, postage prepaid. Terry's "Our Farming" is the same—cloth, \$1.00; paper, 50 cents, prepaid. I very much regret this mistake, but of course the error was one made by the publisher and not by myself. Under the circumstances we shall be obliged to fill orders with the paper-bound books instead of cloth. Will those who have ordered the books please make a note of this?—A. I. R.

SPECIAL PRICE ON HONEY-CANS.

As we have an overstock of cans for honey we make the following special prices on cans from Medina, to reduce stock. If ordered from any of our branches or agencies east of the Missouri River, add 5 cts. a box or 50 cts. per 100 cans to cover freight to those points.

No. in a box.	Capacity of each can in gallons,	Capacity of each can in honey.	Price of 1 box.	Price of 10 bxs.	Wt. of 1 box.
1	5-gal. can	boxed 60 lbs.	\$ 50	\$ 4 50	10 lbs.
2	5-gal. "	60 "	" 75	" 7 00	15 lbs.
10	1-gal. "	12 "	" 1 25	" 12 00	20 lbs.
12	½-gal. "	6 "	" 1 25	" 12 00	20 lbs.
24	¼-gal. "	3 "	" 1 75	" 16 50	25 lbs.
100	1-gal. "	12 "	" 10 00	" 95 00	110 lbs.
100	½-gal. "	6 "	" 8 00	" 75 00	80 lbs.
100	¼-gal. "	3 "	" 6 00	" 55 00	60 lbs.

In lots of 50 boxes or over we will furnish the 60-lb. cans, two in a case, at 65 cts. a box.

Convention Notices.

The Saline County Bee-keepers' Association will meet at Malta Bend, Mo., July 14, 1906. M. E. TRIBBLE.

CAUCASIAN QUEENS.

Try one or more of my gentle Caucasian queens, said to be the gentlest race of bees in the world, having a sting. The demand for these queens is good; in fact, orders are rolling in now. All orders filled in rotation, as received. Special prices on large orders. Untested, \$1.25 each; warranted tested, \$3.00 each. Ready in June. I control all bees within three miles of my apiary, and can promise pure stock. A few choice nuclei can be furnished with a fine queen, when wanted.

Money-order office, Olive Branch, Mississippi.

W. T. LEWIS, Lewisburg, Mississippi.

BANKING BY MAIL

Depositors in all parts of the country find our method of sending deposits by mail satisfactory in every way, for the reason that they not only receive

4 PER CENT INTEREST

but they obtain the greatest safety by having their money in the care of a responsible and safe banking institution.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system. Write for the booklet to-day.

THE SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

Golden-All-Over ITALIAN - QUEENS

I have a few choice untested Golden-all-over Italian queens, reared from Pratt stock, by Pratt's methods, and will be able to supply a limited demand for balance of the season at \$1.25 each.

Wm. A. Shuff, Philadelphia, Pa.
4426 Osage Ave.

JOSEPH HORNE CO.

Pittsburgh, Penn.

White Wash Goods.

July, with us, is a month of Clearance Sales; and although it is almost impossible to give news of such a broad movement in such a small space, yet we feel that you should be advised that during July summery goods of every class will be sold under regular prices. Write for anything you wish and we will give you the benefit of whatever prices are then prevailing.

15c India Linens, 40 inches wide; 18c dotted Mulls, 28 inches wide, both 12½c a yard.

25c Cotton Eoliennes, white and cream; 35c white Striped Piques, both 15c a yard.

25c Dotted Swisses, 40-inch Lawns and Mercerized Waistings, all 15c a yard.

50c Soft light weight Piques, 25c a yard.

50c Dotted Swisses and Figured Swisses, 35c a yard.

85c Embroidered Figured Swisses, 50c a yard.

Take the foregoing as a sample of what we mean by Clearance prices.

No. 602 Bee-keepers' Pocket-Knife Tool Kit.

Made in America

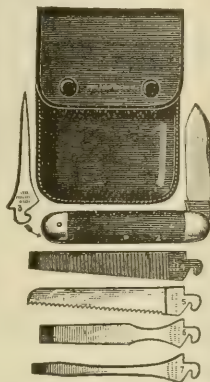
Every one has use for a Knife, Reamer, File, Saw, Chisel, or Screwdriver. This outfit is practical, yet so small, being contained in a Leather Pocket-Book 4¼x3¼ inches, is, by carrying it in your pocket, always at hand for immediate use, whether Camping, Boating, Teaming, Driving, in the Shop, Factory, Office, Store Warehouse, Automobile, on the Farm, Bicycle, or around the Home.

Any Tool firmly attached or detached to the Pocket-Knife in a second.

Sent postpaid on receipt of price, \$2.25.

Use it five days and if not satisfactory return it and I will refund your money.

U. J. ULERY CO., No. 7 Warren St., New York, N. Y.



A Good Bee-hive!

is made of the best grade of white pine, accurately cut, so it will go together without the use of tools, except a hammer. Such is the kind of hives we make, and such is the kind you get when you buy from us. It is a cinch that we can make lower prices than you can get from any dealer, as you can save the middleman's profits when you buy direct from the manufacturer. We are manufacturers, and sell direct to the consumer. Send us a list of your wants, and let us make you prices. We guarantee every thing we sell to be satisfactory, or refund the money. We have large stocks of Dovetailed Hives, Sections, Shipping-cases, Foundation, Veils, Smokers, etc., on hand, and can ship promptly.

Minnesota Bee-supply Company

John Doll & Son, Proprietor

Power Building No. 20, Minneapolis, Minnesota

"If Goods are wanted quick, send to Pouder."

Established 1889

Bee-Keepers' Supplies

Distributor of Root's Goods from the best shipping-point in the Country. My prices are at all times identical with those of The A. I. Root Company, and I can save you money by way of transportation charges.

**New Metal-spaced
Hoffman Frames
are Here in Stock**



**Headquarters for the
Danzenbaker
Hive**

**Dovetailed Hives, Section Honey-boxes,
Weed-process Comb Foundation,
Honey and Wax Extractors, Bee-smokers,
Bee-veils, Pouder Honey-jars, and,
in fact, Every Thing used by Bee-keepers.**

BEESWAX WANTED!

I pay highest market price for beeswax, delivered here, at any time, cash or trade.

Make small shipments by express; large shipments by freight.

Always be sure to attach name to package.

Catalog Free

Walter S. Pouder
513-5 Massachusetts Av., Indianapolis, Ind.

Bee = keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

Good Goods, Low Prices and Prompt Shipments

are the POINTS in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

Page & Lyon Mfg. Co., New London, Wis.

Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

BEES AND QUEENS—Orders booked now for spring delivery.

HONEY AND WAX—We handle honey and wax. Write for particulars.

The A. I. Root Co.

Northwestern Branch,
1024 Mississippi Street,

J. C. Acklin, Mgr., St. Paul, Minn.

DO YOU KNOW

That the sale of Dittmer's Foundation has increased so much that we were forced to double our melting capacity in order to fill orders promptly?

There is a Reason for This

It is because Dittmer's Foundation is tough, clear, and transparent, and has the natural color of beeswax.

AGENTS FOR DITTMER'S FOUNDATION:

W. D. Soper..... Jackson, Mich.
Bee and Honey Co..... Beeville, Texas
E. H. Taylor .. Welwyn Sta., Herts, Eng.
E. Grainger & Co..... Toronto, Ont., Can.

Our warehouse is well stocked with all kinds of bee-keepers' supplies.

Beeswax always wanted.

Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trester Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.



Over a Million Lewis Sections

in stock since Jan. 1st, 1906.
Dadant's Foundation and all other goods in proportion. Immediate shipments.

Get your goods in a hurry—before the ink on your order gets dry—by sending to

A. G. WOODMAN CO.
GRAND RAPIDS, MICH.

DAILY EXPRESS TRAINS:

Adams Express.....	12
American Express.....	9
United States Express.....	22
National Express.....	12

DAILY FREIGHT TRAINS:

P. M. System.....	20 and extras
M. C. System.....	6
Gd. Trunk System.....	10
L. S. & M. S. System.....	6
G. R. & I. System.....	12
G. R., G. H., & M.....	10
G. R., H., & L. M.....	10

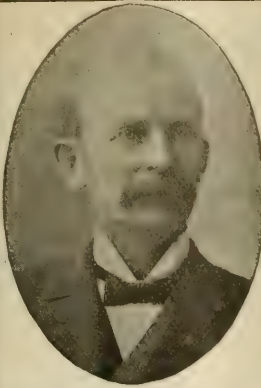
Bee-keepers' Supplies!

Lewis' famous "Beeware," Root's Smokers and Extractors; Dadant's Comb Foundation, etc.: Queens and Nuclei in Season. Large and Complete Stock; Prompt Service. We will meet all competitors who handle first-class goods. Catalog with practical hints free.

"Mandy Lee" Incubators and Brooders!

Whether you are experienced in artificial incubation or not, these incubators will give you gratifying results. The "Mandy Lee" brooder is the only brooder made which applies direct contact heat to the little chicks' backs. Our free incubator catalog describes them. Prompt shipments.

C. M. Scott & Co., Indianapolis, Indiana
1004 East Washington Street



Established 1881

YES!

Same Place 1906

THIS IS THE MAN

WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year. ♣ ♣ ♣ ♣ ♣

Geo. E. Hilton, - Fremont, Mich.

CHICAGO, ILL., June 30, 1906.

TO MY CUSTOMERS AND FRIENDS:

June 20th we were so unfortunate as to have a large fire in the building we occupied, which nearly destroyed our entire stock of bee-supplies. We at once secured much larger and better quarters on the first floor at 191 and 193 EAST SUPERIOR STREET (three blocks north and one block east of our former location), and ordered a full line of the FAMOUS LEWIS BEEWARE—the best that money can buy. We are now in our new quarters and ready to ship goods by return freight or express.

Thanking you for past favors, and trusting to receive your future orders, we are

Yours truly

H. M. ARND,

Proprietor of YORK HONEY AND BEE-SUPPLY CO.,

Send for free catalog.

Chicago, Illinois.

BINGHAM
Original
Direct Draft
CLEAN
Bee Smokers



Pat'd 1878, '82, '92 & 1903

Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and *last*; don't spit fire; don't go out; don't *dab* themselves all over. We are the most extensive *exclusively* bee-smoker makers in the world.

T. F. Bingham - Farwell, Mich.

Chico, California, October 28th, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.

J. M. RANKIN.

A Fine Lot of Queens

now ready for delivery. Double your crop of honey by stocking your apiary with my queens. That's what many of my customers report they did last year. I am sure my queens will please you.

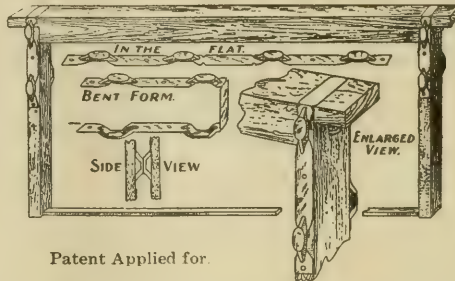
I am a breeder of Holy Lands and Carniolans. Nuclei and colonies. Large or small quantities.

PRICES: Queens, each, \$1.00; six for \$5.00. Breeders, each, \$5.00. Ask for prices on quantity lots.

W. H. LAWS, Beeville, Bee County, Texas

Metal-spaced Hoffman Frame

IN GREAT DEMAND.



Patent Applied for.

Has come to stay. Can be used interchangeably with regular Hoffman frames. Has all the advantages of the regular Hoffman. Is not affected by propolis. Can be handled without pry or screwdriver. Has no rights or lefts, and, therefore, can not be put up wrong. See full description in 1906 GLEANINGS, page 16.

PRICES.—Metal-spaced Hoffman frames—100, put up, \$4.50. In flat—10, 35c; 100, \$3.00; 500, \$14.00. Metal spacers only—30c per 100; \$2.50 per 1000. Hives with metal-spaced frames, 5c extra each body, 8 or 10 frame, put up, or in the flat.

The A. I. Root, Company, Medina, Ohio.

PENNSYLVANIA

Ours is the largest bee-supply house in the western half of the State. Every thing which the bee-keeper will need is in stock awaiting your order.

ROOT'S GOODS

AT ROOT'S PRICES

You can save time and expense by ordering from us. .

Best shipping facilities. .

Complete stock.

Do not put off ordering to-day what you will urgently need a little later on in the season.

Frank W. Prothero

Successor to Prothero & Arnold

Dubois, Clearfield Co., Pennsylvania

WISCONSIN

BASSWOOD

FOR SECTIONS

We make them and the very best of Dovetailed Hives, Shipping-cases, and a full line of Bee-keepers' Supplies always on hand. We make very prompt shipments. Let us hear from you.

Marshfield Mfg. Company
Marshfield, Wisconsin

Baby Nuclei.

2nd Edition.

The second edition of this popular treatise is on the press. This book thoroughly covers the field of small mating under management. The experience of 20 years in mating young queens in baby nuclei is given. A delightful little book—good printing, enjoyable reading and easy understanding. Price 25c postpaid.

SIMPLIFIED QUEEN-REARING.—A revised edition of this book just out. It tells the honey producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just an effective and economical plan for the bee-keeper who works for profit. Price 25 cts. a copy, postpaid.

INCREASE.—Don't depend entirely upon swarming for your increase. It's too slow and uncer-

tain. Swarthmore tells of a way in his delightful little book entitled "Increase"—a natural way, simple and safe, no labor, little trouble. Colonies formed on this plan will work like prime swarms, and store a surplus. Price 25 cts. a copy postpaid.

CELL-GETTING.—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life. Price, postpaid, 50 cents.

Swarthmore Queen-Rearing Tools.

The simplicity of these devices places the art of queen-rearing in the hands of the average bee-keeper. Every honey-producer can be his own queen-rearer. Full directions go with each outfit. Here is a chance not only to rear your own queen but for your neighbors at a profit.

Prices of Complete Outfits:

Outfit No. 1—Experimental

POSTPAID, \$1.50

- | | |
|-----------------------|--------------------|
| 1 Cell-bar, | 1 Holding-frame, |
| 16 Waxed Flange Cups, | 12 Transfer-cages. |

Outfit No. 2—Amateur

POSTPAID, \$3.50

- | | |
|-----------------------|--------------------|
| 2 Cell-bars, | 1 Holding-frame, |
| 35 Waxed Flange Cups, | 18 Transfer-cages, |
| 1 Needle, | 1 Cell-stick. |

Outfit No. 3—Professional

BY FREIGHT OR EXPRESS, \$7.50

- | | |
|------------------------|--------------------------|
| 2 Blank bars, | 2 Cell-bars, |
| 3 Holding-frames, | 1 Incubating-cage, |
| 1 Cage-pocket, | 1 Grace Cell-compressor, |
| 1 Grafting-plug, | 100 Flange Cups, |
| 2 Double mating-boxes, | 2 Swarth. nursery-cages, |
| 1 Bar-holder, | 24 Transfer-cages, |
| 1 Swarm-box with lid, | 1 Needle, 1 Stick. |

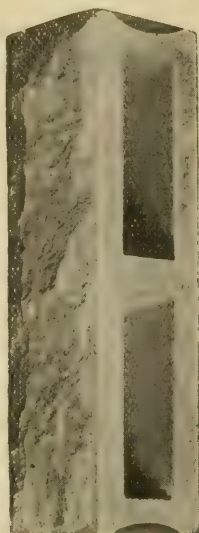
Prices of Separate parts:

	post. extra
Bar-holder	.10 .04
Blank Bar	.05 .04
Bottle Feeder	.10 .05
Bulb Filler and Feeder	.75 .08
16-hole Cell bar	.10 .02
Cage-pocket	.25 .09
Flange-cups, unwaxed, 1c each; per 100.	.75 .09
Flange-cups, waxed, 2c each, per 100...	1.75 .14
Grace Cell-compressor, each	1.75 .14
Grafting-needle, each	.15 .01
Grafting-plug, each	.10 .01
Grafting-stick, each	.10 .01
Holding-frame, each	.10 .05
Incubating-cage, each	.35 .07
Double Mating-boxes, complete, \$1.00; 10	7.50
Nursery-cages, complete, waxed cell-cup	.35 .05
Nursery-cages, no cups	.25 .04
Swarm-box, with lid	1.00
Swarm-box, lid only	.25
T Stands, each	.10 .06
Transfer-cages	.10 .02

The A. I. ROOT CO.

AT ALL BRANCH HOUSES.

FOR SALE BY ALL DEALERS IN BEE-KEEPERS' SUPPLIES.



This is but a Block---

It shows, however, what can be made with one of our hollow concrete-block machines.

We have machines for making blocks of many different styles and at many different prices.

Send for our new booklet showing styles of houses and block-making machines.

Yours for the asking.

Medina Concrete Company
22 Court Street, Medina, Ohio

A Great Bargain

On account of death of owner about 85 colonies of pure Italian bees, and a large amount of supplies for sale at 50 cents on a dollar.

D. F. KRECKLAN, 2423 Lyndale Avenue, North,
Minneapolis, Minn.

CARNIOLANS our SPECIALTY

WE HAVE been breeding this wonderful race of bees for over twenty years, and during all this time we have been making very careful selections, and we now claim to have one of the best and purest races of Carniolan bees in this country.

They are very gentle, hardy, and prolific; the best of workers; they come out of winter quarters healthier and stronger in bees; they build up very rapidly in the spring, are great comb-builders, and their sealed combs are of snowy whiteness.

Also Breeders of Golden and Leather Italians

No foul brood or other bee-diseases here. Bees and queens guaranteed to arrive in good condition at your postoffice in the United States or Canada. Descriptive price list free.

PRICES.—Untested queen, 75c; six, \$3.90; doz., \$7.00. Tested, \$1.25. Best breeding, \$2.50. Best imported,

F. A. Lockhart & Co.,

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.,
Ashland, Ohio.



Deming's Sprayers

are the ideals for many thousand fruit growers. Get the best. Something for every purpose. **Knapsack, Hand, Bucket, Barrel, Etc. Also Power Outfits.** Every approved device for right working. Agitators, superior nozzles, etc. Send for free catalog. **The Deming Co., 230 Depot St., Salem, O.** **Henlon & Hubbell, Western Arts., Chicago.**



Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

\$4.00. One L.-frame nucleus, 75c; two-L.-frame nucleus, \$1.50; three-L.-frame nucleus, \$2.00. Add price of queen wanted to nucleus. Special prices quoted on large orders to dealers.

Banater Bees from Hungary

This wonderful new race of bees takes the lead over all other races, all points considered, that we have seen. The three colonies we are testing are strong in bees; do not offer to swarm; are great honey-gatherers; build snowy white combs, and are very gentle; in fact, no smoke is needed to handle them. They resemble the Carniolans in color, though somewhat darker. We have never seen a race of bees with so many desirable qualities. We shall breed a limited number of queens for sale, and have started a queen-rearing apiary five miles from other bees, and expect to have laying bees ready to mail by July 15. Price \$5.00 each. Pure mating and safe arrival guaranteed.

Lake George, New York

QUEENS

By Return Mail at the Following Prices for the Balance of this Season. Golden or Leather-colored Italian.

Our folks say that your queens are extra fine.

The A. I. Root Co., Medina, Ohio

We have good reports from your stock from time to time. George W. York & Co., Chicago, Ill.

On every hand I hear good words of Quirin's queens. B. S. K. Bennett, Los Angeles, Cal.

Your queens did finely. It was one I purchased last year that gave me over 600 pounds of honey.

J. L. Gandy, Humboldt, Neb.

The breeder is surely a very fine one; her daughters do grandly. Campbell & West, Hartstown, Pa.

I had a queen of you last year which produced bees that beat anything ever seen in this part of the country. E. L. Messenger, New Haven, Conn.

The nuclei you sent J. A. Adams did just splendidly. Each colony stored at least 75 pounds of honey.

F. P. Merritt, 13 Breckenridge St., Lexington, Ky.

A few years ago I bought a queen from you which proved to be the best I had for years. H. C. Shirley, Cashier of Liberty Bank, Liberty, S. C.

I have had the pleasure of seeing the results of your queens at Mr. George W. Stanley's apiary, at Scuffletown, Ky., and that is why I am ordering this half-dozen. C. W. Brenner, Newburg, Ind.

I bought a queen from a neighbor last year who said he got her from you. She made me 193 sections of honey after July 4th—the best my other queens did was 64 sections. C. E. Woodington, St. Anne, Ill.

With great respect I write to you in regard to your dealing and queens. If you want any references you can refer to me, as I can't recommend you too highly. Your queens are the best I ever saw. I have one hive of bees among my 45 colonies containing a queen from you that \$50.00 will not buy.

Morris Coon, Route 2, Locke, N. Y.

The two-frame nucleus you sent me was put in a hive May 25th. In July I brushed a swarm; had a swarm in August, and took off 75 boxes of honey. I consider this a wonderful record. I had four nuclei from different parts of the country, and yours was far superior to any of them. They are very gentle, easy to handle, hustlers to work. All bees and queens needed by me will hereafter come from Quirin-the-queen-breeder, Bellevue, O. S. A. Peck, Box 124, Northumberland, Pa.

	1	6	12
Select queens	75	\$4 00	\$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	
Straight five-band breeders ..	5 00		

Safe delivery and satisfaction guaranteed of all queens. Any queen not satisfactory may be returned any time inside of sixty days and another will be sent gratis.

Address all Orders to

Quirin-the-Queen-Breeder
Bellevue, Ohio.

CARNIOLAN and ITALIAN QUEENS!

Ready to mail by April 15th. Quality of the highest, prices the lowest. Write me.

Grant Anderson - Sabinal, Texas

ITALIAN QUEENS AND GLEANINGS.

For \$1.10 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

W. T. CRAWFORD, Hinston, La.

One of the Best

paying investments an apiarist can make is to requeen the apiary with the best stock obtainable.

Extra Honey Queens

are a good stock, a stock which it will pay you to use in restocking your apiary.

Prices

One.....\$1.00 Six\$5.00 Twelve ..\$9.00

Francis J. Colahan

Bernardo, San Diego Co., Calif.

COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.

Tennessee-bred Queens

From Extra Select Mothers

Three-band from dark leather imported; Moore's long tongue or my own; Golden from Laws, Doolittle's, or my own; Caucasians and Carniolans from direct imported. No disease. Contracts with dealers a specialty. Apiaries from 3¼ to 7 miles apart. Write name on postal, and get circular and what others say.

JOHN M. DAVIS

Spring Hill, Tennessee, U. S. A.

Caucasian - and - Italian Bees and Queens

Mr. Frank G. Odell Lincoln, Neb., writes:

"The yellow Caucasian queen you sent us is an unusually fine queen, and very prolific. We are very much pleased with her."

Do not lose the chance to get such queens.

Write for circular and price list.

A. E. Titoff, Ioamosa, Calif.

Quality Queens

Are the Best Italians yet.

Send for circular. ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀

H. H. JEPSON,

182 Friend St., - Boston, Mass.

H. C. Simpson, Catawba, S. C.

Dealer in

BEE - KEEPERS' SUPPLIES!

Breeder of Italian bees and queens.

Root's Goods a specialty. . . .

CAUCASIAN QUEENS!

For beginners, the timid, and the city bee-keeper Not stingless, but gentle. With this race many will master the art of handling bees. I breed HIGH-GRADE ITALIAN QUEENS also. The demand for these queens is great; the supply is limited. Write for particulars to-day. Address

Robert B. McCain, Yorkville, Ills. R. F. D.

Superior Queens ! ! ! !

—Before June 15— —After June 15—

Italian and Carniolan	
Untested.....	75c; \$8.00 per doz.
Tested.....	\$1.00; 11.00 per doz.
Select Tested...	1.25; 12.00 per doz.
Caucasian	
Untested.....	\$1.00; \$11.00 per doz.
Tested.....	1.50; 16.00 per doz.
Select Tested...	2.00; 20.00 per doz.
60c; \$6.50 per doz.	
75c; 8 00 per doz.	
1.00; 11.00 per doz.	
75c; \$8.00 per doz.	
1.00; 11.00 per doz.	
1.25; 12.00 per doz.	

Write me a postal card for my circular.

Chas. Koeppen, Fredericksburg, Virginia

QUEENS OF MOORE'S - STRAIN - OF - ITALIANS

produce workers that fill the supers
and are not inclined to swarm. . . .

Stewart Smillie, Bluevale, Ont., Can., says:

'They fill the supers and are not so much inclined to swarm as others. I have been buying queens for fifteen years, and your stock was the only one that was any good to gather honey.'

Untested queens, 75c each; six, \$4.00; dozen, \$7.50.

Select untested, \$1 00 each; six, \$5.00; dozen, \$9.00.

Safe arrival and satisfaction guaranteed.

Descriptive circular free.

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Ky.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them."

MALAN BROTHERS, Luserna, San Giovanni, Italy.

Red-clover Italian Queens Exclusively ! !

No better honey-gatherers in existence. Select untested, 75c; tested, \$1.00; three-frame nucleus with queen, \$2.00. To prove the quality of my stock I will send two trial queens for a \$1 bill. F. M. Mayberry, Obelisk, Pa.

Queens - Italian - Queens

and bees from Root's Red-clover stock and Golden Italian queens. Better than ever.

Untested.....60c each; six, \$3.50

Selected untested.....75c " " 4.00

Tested.....\$1.00 " " 5.00

Selected tested.....1.25 " " 6.00

Two-frame nuclei with untested queen. .200

Orders filled in rotation. . Send orders to

E. A. Simmons, Greenville, Ala.

From Long-tongued Imported Italians.

Untested, 75c; \$7.50 per dozen. Tested, \$1.25;

\$12.00 per dozen. Breeders, \$2.00 to \$3.00.

Postal orders drawn on Decatur, Michigan.

E. E. MOTT, Glenwood, Mich.

Orders Filled Promptly by Return Mail

Queens from our fine strain of three-band Italians will not disappoint you. Bees are gentle, and the best of honey-gatherers. Queens are large and prolific, and every one guaranteed. Untested, 50c; \$6.00 per dozen. Tested, \$1.00.

J. W. K. SHAW & CO.
Loreauville, Iberia Par., Louisiana

DOOLITTLE & CLARK

are booking orders for their famous
Italian queens. Now is the time to
order breeders. Send for circular.

Grade.	One	Three	Twelve
Untested.....	\$1.00	\$2.50	\$9.00
Select Tested.....	1.50	4.00	14.00
Tested (1905 rearing).....	2.50		
Select Breeding.....	5.00		
Extra Select Breeding.....	10.00		
Two-frame Nuclei.....	2.50	7.00	25.00

DOOLITTLE & CLARK
Borodino, Onondaga Co., New York

Rose - Lawn - Queens \$25.00 IN PRIZES.

For the largest number of sections No 1 comb honey produced by a colony headed by one of our "Pure Gold" queens before September 15th, 1906, \$10 00 cash. For the second largest, \$7.50 cash. For the third largest, \$5.00 cash. For the fourth largest, \$2.50 cash. In addition to the above offer we will pay 20 cts. per pound for all prize honey for exhibition purposes.

Select untested "Pure Gold" queens, \$1.00. Select tested "Pure Gold" queens, \$2.00. Select breeding queens, \$6 00. Our very finest extra select tested breeders, in 2-fr. nucleus, f. o. b., Lincoln, Neb., \$10 00. We ship in June, 200 "Pure Gold" queens to one customer. Caucasians Carniolans Red Clover Italians Rose Lawn Apiaries, Station C, Lincoln, Nebr.

The Best Stock

Nice three-banded Italians that are guaranteed to please, or money refunded. The Robey queens now go to nearly all parts of the globe. They are being used by many of the largest honey-producers of this and other countries, who pronounce them to be very superior strain of bees. I have spent 21 years in building up this strain of bees. Warranted purely mated, in any quantity, 60 cts. each; selected warranted, 75 cts. each.

L. H. Robey, Worthington, W. Va.

Untested Queens!

Golden Italian

75 cts. each; six for \$4.00; an extra fine one for \$1.00. Warranted purely mated and good queens. . . .

J. B. Case, Port Orange, Fla.

Red-clover Queens from Westwood Apiary

will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.

Henry Shaffer Westwood, Ohio

Queens! Balance of this season at 20 per cent discount; three or five banded; untested only. R. O. COX, Rt. 4, Greenville, Ala.

1906 Italian and Caucasian Queens. Price list now ready. Write E. E. LAWRENCE, Doniphan, Mo.

BEES and QUEENS

BY RETURN MAIL.

**The Three-banded
Long-tongued Strain
of Italians.**

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

Superior Qualities.

Honey-gathering, size of bees, non-swarming, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price

Quality Our Motto.

1300 colonies to select from.

Untested queens.....	75c; 6, \$4.25; 12, 8.00
Select untested queens.....	1.00; 6, 5.00; 12, 9.90
Tested queens.....	1.00; 6, 6.00; 12, 11.50
Select tested queens.....	1.50.
Breeding queens, \$3.00 to \$5.00.	

Yours for best service,

**The Victor-Knolle Apiary Co.,
Hondo, Texas.**

Italian and Caucasian Queens and Bees



Choice homebred and imported stock. All queens reared in full colonies.

PRICES FOR JUNE

ITALIANS

One untested queen	90
One tested queen	1.10
One select tested	1.40
One breeder queen.....	2.20
One comb nucleus, no queen...	95
Untested queens in May. Safe arrival guaranteed. For prices on quantities, and description of each grade, send for free catalog.	

**J. L. Strong, Clarinda, Iowa, U. S. A.
204 East Logan Street**

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

**The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex**

ITALIAN QUEENS

bred from best of honey-gatherers, either three or five banded or Golden races. Untested, 65c each, 3 for \$2.00, 6 for \$3.75, 12 for 7.25; tested, \$1.00 each, 6 for \$5.00, 12 for \$9.00; select tested, \$1.50 each; breeders, \$300 each.

J. W. Taylor, Beeville, Bee Co., Texas

Italian Queens

Northern-bred; originated from best long-tongued "red-clover" breeders in the United States; bred in full colonies; excellent honey-gatherers; winter well, and gentle.

Untested, \$1.00; six, \$5.00. Tested, \$2.00; six, \$10.00. After July 1; 75c, \$4.00, \$1.50, \$8.00. Write for descriptive circular. Satisfaction guaranteed.

**ISAAC F. MILLER,
Brookville, (R2). Pennsylvania.**

Boston Headquarters

— FOR —

Bees-Queens-Supplies

H. H. Jepson - 182 Friend St.

Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:

Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

**H. M. PARKER, Jr.
James Island, South Carolina**

QUEENS!!

Now is your chance to get the best of queens. Having caught up with my orders I can send them promptly. Untested Golden, 75c each six for \$4.25, or 12 for \$8.00; tested, \$1.00 each; three or five banded. Write for circular and prices.

Daniel Wurth, 1111 North Smith St., San Antonio, Texas

MINNESOTA-BRED QUEENS.



Try our Northern-bred queens—nothing finer; three-banded and golden Italian queens, untested, 75 cts.; tested, \$1.50. Hardy and prolific. We want your orders, and will fill them by return mail, and guarantee safe arrival and satisfaction. Write for circular to

**MENNIE & FENTON,
Pine Island - Minnesota.**

I. J. STRINGHAM

OF 105 PARK PLACE

New York

furnishes every thing a bee-keeper uses. Strong colony of bees, with tested Italian queen, in Dov'd hive complete, \$8.00; in a chaff hive, \$9.50. Three-frame nucleus, with Italian queen, \$4.00. Silk-faced bee-veil, 40 cts. postpaid. Italian queens, 85 cts. Catalog of bee-supplies free.

Apiaries, Glen Cove, Long Island.



Red Clover and Italian Queens.

Untested, 75 cts.; tested, \$1.00 Selected tested, \$1.25; 4-frame nuclei in a nice painted hive, and tested queen, all for \$3.75. "Your bees are swarming on my red clover fields," says G. W. Slaybaugh, York Springs, Pa.
G. ROUTZAHN, Biglerville, Pa.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To sell or exchange one Harrison blue-flame oil-gas stove, brand new, never used, for bee supplies, extractor, or offers. SEWARD STEFFY,
Rt. 2. Gloucester, O.

Help Wanted.

WANTED.—Position in comb, extracted, or queen-rearing yard; 15 years' experience; at present manager of the largest apiaries in Northern California. Reasons for leaving. JAMES DUNN,
Route 1. Vacaville, Cal.

WANTED.—A cook in a private family of three. Good home for respectable woman. Good wages paid. Address JOHN RICK,
434 Oley St., Reading, Pa.

For Sale.

FOR SALE.—400 cols. pure Italian bees in lots to suit. Write for prices. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Bees and bee-supplies. J. GOBELI, Glenwood, St. Croix Co., Wis.

FOR SALE.—25 Italian queens from good stock, 60 cts. each; no disease in apiary. W. H. DANALDS,
Box 213, Berea, O.

FOR SALE.—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog. F. R. DANIELS,
117 Florence St., Springfield, Mass.

FOR SALE.—My apiary complete in the great irrigated alfalfa belt; no failure yet. See GLEANINGS of Dec. 15, 1903, page 1051. C. K. C., Lovelock, Nev.

FOR SALE.—Queens. I breed a superior strain of fine golden-all-over Italians. Ask for prices. T. L. McMURRAY, Ravenswood, W. Va.

FOR SALE.—170 colonies of bees in eight and ten frame hives; honey-house on wagon, uncapping-tank, honey-tank, four-frame extractor; mare, colt, horse, cow, 200 chickens, 10 acres of land with improvements. Rt. 3. Mrs. T. HARRIS, Visalia, Cal.

FOR SALE.—Queens from 50c up. Bred from Root's imported Italians. Write for prices, stating wants. C. M. CHURCH, Arnold, Pa.

FOR SALE.—About 100 tested queens, 60 to 75 cts. each, if ordered at once. A few black and mismatched queens, 25 to 35 cts. None of these older than reared last year. B. F. AVERILL, Howardsville, Va.

FOR SALE.—The gentle Caucasian bees and queens bred from the best imported Caucasian queens. Italian bees and queens. Write for particulars. A. E. TITOFF, Loamosa, Cal.

FOR SALE.—The Alexander wire bee-veil. The best face-protector on the market. Try one and be convinced. At 75c each postpaid. FRANK C. ALEXANDER, Delanson, N. Y.

FOR SALE.—About 300 sixty-pound cans; mostly new, good condition, new cases, two cans to a case; 40 cts. per case, f. o. b. Preston. M. V. FACEY, Preston, Fillmore Co., Minn.

FOR SALE.—Special sale of sections—Wisconsin bass-wood—equal to the best, No. 1, \$4.20; No. 2, \$3.70. Root Dovetailed and Danz, comb-honey hives, and all kinds of supplies on hand. Italian queens and bees. H. S. DUBY, St. Anne, Ills.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Bees; the right kind, right prices. Safe arrival and satisfaction guaranteed. Ask for illustrated Outfits for Beginners, price list, and our hints on buying bees. MASON SUPPLY Co., Mechanic Fs., Me.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season. W. N. CANNON, Greenville, Ala.

FOR SALE.—\$5200 fine ten-acre home, steady income; oranges, and 8 cuttings alfalfa a year. Good reasons for prompt sale at this bargain. Just the place for a tenderfoot; for, growing in value rapidly, would re-sell at profit. \$600 more will include profitable bee-ranch. G. K. HUBBARD, Riverside, Calif.

Poultry Offers.

FOR SALE.—Trio of Buff Orpington chicks. Price \$5.00. Bred from pure stock, and fine birds. M. H. WINEBRENER, Wallersville Md.

FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free. A. H. DUFF, Larned, Kansas.

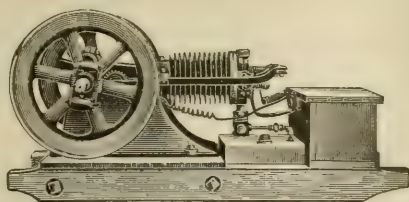
FOR SALE.—Alger's rose-comb Brown Leghorns hold the world's record; first at Chicago International, St. Louis World's Fair, exposition at Portland, Oregon. Italian bees—Root strain direct Flemish Giant hares, very large. Red Belgians from 16-lb. buck. Get circulars. FRED ALGER, Waukau, Wis.

Blacks and Hybrids.

Notices in this column are inserted free, and the publishers assume no responsibility for sales made. We believe, however, that every advertiser will do just as he promises.

FOR SALE.—Black and hybrid queens at 10 cts. each. R. H. COLEGROVE, Remus, Mich.

FOR SALE.—A number of mismatched queens for sale cheap. T. BRIGGS, Main St., Mattapoisett, Mass.



Power for Extractors.

We have finally found what we have been looking for in a gasoline-engine to run our large-sized honey-extractors. They are very reasonable in price, and simple to operate.

They are economical, using but a quart to a quart and a half of gasoline a day, per horse power.

There is no waste of power, as a sensitive governor cuts out both gasoline and batteries when engines are at their proper speed, and charges are resumed as soon as speed slackens.

As the engines are air-cooled and use no water there is no danger of cracked cylinders in cold weather. They can be operated in any temperature.

They are light in weight, and can be easily moved, and used for a multitude of purposes, as well as for extracting. They are the most satisfactory engines for running cream-separators, churns, fans, sewing and washing machines, ice-cream freezers, meat-choppers, printing-presses, and, in fact, all kinds of light machinery. They are the ideal pumping-engines.

They are made of the best materials, with as careful attention to details as the larger and more expensive engines. Each engine is mounted on a board with tank and battery box, ready to run. They are thoroughly tested before shipping, and fully guaranteed.

Shipping-weight of one-horse-power engine complete, ready to run, 300 lbs. Price \$60, f. o. b. factory in Wisconsin, Medina, or Chicago. In running a large extractor by power the ratio of the gear should be one revolution of the reel to two of the crank-shaft; and in place of the crank a flanged clutch-pulley or a pulley with belt-tightener should be used. These attachments are worth \$5.00.

The A. I. Root Co.,
Medina, Ohio.

Perfect? What better can you wish? You can now, by use of the

PERFECT PAMPHLET RESERVER

them to get it, or write to

BIND GLEANINGS AT A TRIFLING COST!

On the shelf it looks just like a book; holds one number or a volume; as simple as tying a shoe. See it at news, book, or stationery dealers. Ask **The A. I. Root Company, Medina, Ohio.**

GOLDEN Opportunities!

EXIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

J. W. WHITE

Gen. Indus. Agt., Portsmouth, Va.

Seaboard Air Line Railway

THE "BEST" LIGHT

Made in Over 100 different styles.
100-Candle Power Light at a cost of 2c per week.



More brilliant than Acetylene or Electricity. No Grease—No Smoke—No Dirt or Odor. Agents Wanted Everywhere.

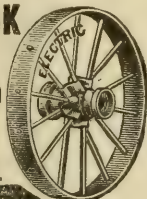
THE BEST LIGHT CO., E. 5th St., Canton, O.

SAVE YOUR BACK

Save time, horses, work and money by using an

Electric Handy Wagon

Low wheels, broad tires. No living man can build a better. Book on "Wheel Sense" free. Electric Wheel Co. Bx 95, Quincy, Ill.



LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address **COILED SPRING FENCE CO., Box 448 Winchester, Ind.**

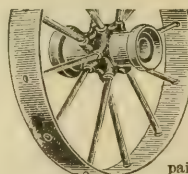


EXTENSION AXLE

NUTS

CURE WABBLERS.

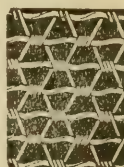
Make old buggies run like new. Quick sellers. Very profitable for agents. Exclusive Territory. Hardware Specialty Co., Box 535, Pontiac, Mich.



STEEL WHEELS

with wide tires double the usefulness of the farm wagon. We furnish them any size to fit any axle. Cheaper than repairing old wheels. Catalogue free.

EMPIRE MFG. CO., Box 91A Quincy, Ill.



FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today **COILED SPRING FENCE CO., Box 101 WINCHESTER, INDIANA.**

You Need It.

If you have only a few chickens;
If you are at all interested in poultry;
If you are breeding for fancy points;
If you cater to the market trade;
If you are in the business on large scale, you need

Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. a year, but we offer it **AT HALF PRICE** for a short time to introduce it to readers of Gleanings. Send only 25 cts. and get it a year; or, if you send us \$1 for a year's subscription to Gleanings in Bee Culture, we will send you Ohio Poultry Journal for 10 years free. Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.

\$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size 8x11 1/4 inches) of valuable poultry, pigeon, and pet-stock reading, costing us thousands of dollars to procure. Also your name and address in the "Poultry breeders' Directory" for 10 years; revised yearly. Send \$1.00 to day, and address

Poultry Item. Sellersville, Bucks Co., Pennsylvania

DO YOU RAISE CHICKENS?

If so, you will find The Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cts. a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

TO THE BEE-KEEPERS OF CANADA

WE ARE pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we are not able to offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers. Moreover, what we do list we propose to keep in large quantities, and will be able to ship promptly.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY

Deer Park

Toronto - Ontario - Canada

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

BEE-KEEPERS!

Have you secured your hives, sections, foundation, honey-cans, and extractors yet? If not, you should not put it off any longer. Be prepared when the flow comes on. Let us assist you. We carry the largest stock of goods in the Middle West. The low freight rates from

Toledo

will save you money. We will buy your honey and beeswax, and pay highest market price. It will pay you to correspond with us when your crop is ready to market. No shipment is too large for us. Carloads a specialty.

Queens! Queens!

We have a yard at Toledo with 100 colonies and over, which we use for queen-rearing only; besides several out-yards which we run for honey, also for extra bees and brood, and queens are mailed same day order is received.

Our 70-page Catalog

is sent free to any one asking for it. No matter whether you keep one colony or five hundred. We also handle a large line of poultry supplies, and sell eggs for hatching. Our 1906 mailing list is sent with every catalog. Don't buy until you have seen it.

Griggs Brothers

523 Monroe St. : Toledo, Ohio

CENTRAL AND NORTHERN PENNSYLVANIA

Distributor of Root's Goods from the
Best Shipping - point in this State.
WHOLESALE - AND - RETAIL

I sell at catalog prices, and, with the low low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also rear Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

E. E. PRESSLER, WILLIAMSPORT, PENN.

The Best ^{is} Always The Cheapest

We have been furnishing bee-keepers all over the World with Supplies for over 25 YEARS, and no complaints.

Our PRICES are as low as any, while the QUALITY of our goods is HIGHEST. Catalog and price list free. We have for 16 years published THE AMERICAN BEE KEEPER, an illustrated 32-page monthly, edited by two of the most experienced bee-keepers in America. Fifty cents a year. Sample copy free.

The W. T. Falconer Mfg. Co., Jamestown, N. Y.

NORTHEASTERN & NEW ENGLAND BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

NOW is the TIME!

to improve your stock by purchasing some of our Red Clover and Leather-color Italian queens. All of our queens are bred for their honey-gathering qualities, and you'll find them prolific and gentle.

Prices for July			
	1	6	12
Untested	\$.75	\$4.25	\$8.00
Select Untested	1.00	5.25	10.00
Warranted Purely Mated.....	1.00	5.00	9.00
Select Warranted.....	1.25	6.00	11.00
Tested 1906 Queens.....	1.25	7.00	
Select Tested	1.50	8.50	
Extra Select Tested.....	2.00	11.00	

All orders accompanied with cash are booked and filled in rotation. Safe arrival by mail guaranteed. Send for price list of bees and supplies.

W. W. Cary & Son, Lyonsville, Mass.

Dadant's Foundation It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!
No sagging; no loss.
Twenty-eighth Year.
We Guarantee Satisfaction.
Wax Worked into Foundation.

Bee-supplies of All Kinds

Beeswax wanted at all times.
Send for Our 1906 Catalog.

Dadant & Sons, Hamilton, Ill.

New Goods-Big Stock

New Warehouse, Root's Goods,
Prompt Shipment, Low Freight.

Everything for the Bee-keeper at Savannah, Ga.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. . . .

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog sent free. Correspondence solicited. .

HOWKINS & RUSH

124 West Liberty Street

SAVANNAH - - GEORGIA

GLEANINGS

IN BEE CULTURE



ANNA BOTSFORD COMSTOCK

THE A. I. ROOT CO.
MEDINA, OHIO

Eastern Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

Washington, D. C.

A convenient place to get your supplies. Lowest rate by rail and water to all parts of Virginia and South Atlantic States.

We carry a full line of our goods at this branch, and give you prompt and satisfactory service. Give us a trial.

Write for catalog.

The A. I. Root Company

H. G. La Rue. . . Manager
1100 Maryland Av., S. W.
Washington, D. C.

Bee-Supplies

For Southern

Bee-Keeper's

I have been over 20 years in the bee-supply business, manufacturing hives and fixtures, and raising bees and queens. With all this experience and the excellent facilities I have, I am able to fill your orders promptly, and give absolute satisfaction. Though I make my own hives I carry a complete stock of The A. I. Root Company's manufacture. Just specify "Root's Goods" and you will get them.

Bees and Queens

I breed with scientific, intelligent methods, from the best Imported and Long-tongued stock. Cheap queens may be had elsewhere. My stock is worth every cent of the price. You will be pleased with it. I GUARANTEE IT.

64-page Catalog

of Supplies and Bees sent free. Tell me you saw my ad. in GLEANINGS.

J. M. JENKINS

WETUMPKA : ALABAMA

FAIR CONTEST!

CONDITIONS

FIRST.—That subscriptions entered in contest are obtained at the fair on dates named in application below, or obtained as results of work during fair.

SECOND.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, 6 mos.) are equivalent to one year's subscription.

THIRD.—Contest closes Nov. 15th, and announcements will be made in Dec. 1st GLEANINGS.

FOURTH.—That only one agent will be appointed for any one fair.

FIFTH.—That advertising matter sent is to be carefully distributed to best advantage.

OUR agents made money at fairs last year. The work was easy, our commission liberal, and the prizes large. We supply you with sample copies and printed matter. Better make arrangements with us to represent Gleanings at your State or County Fair. Do it now before some one else gets ahead of you.

PRIZES: First, \$10.00; second, \$5.00; third, \$3.00; fourth, \$2.00; fifth to tenth, a copy of A B C.

Write us, asking that your name be entered, and Fair rights be reserved for you.

Gleanings in Bee Culture, Medina, Ohio, U. S. A.

Fair Contest Department

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusively, at Root's Factory Prices.

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW YORK.—We still have some demand for comb honey, mostly for white grades, which sells at from 13 to 14, according to quality. There is a very limited demand for light amber, with sufficient supply, and prices ruling at about 12 cts. Extracted is in fairly good demand, with sufficient supply to meet all requirements. Some arrivals are from the South, and common grades are selling at from 50 to 58 per gallon, and better grades at from 60 to 65. California is strong, and white is selling at from 7 to 7½, and light amber at from 6 to 6½. No nearby honey in the markets as yet. Beeswax is steady at 30.

HILDRETH & SEGELKEN,
82 Murray St., New York.

July 10.

MILWAUKEE.—The present prospects for a good business in well-ripened and fancy-conditioned honey are very flattering so far as this market is concerned, as the stocks from the two years past are practically out of sight, and by the time the new crop arrivals are on sale there will be a healthy demand, and already there is some demand for new. Let shippers be particular in grading and shipping in clean attractive cases in good order, and even quality in each case, and good results will follow. We can not give firm quotations, but may quote fancy comb in glass front, 12 to 24 sections, 1 lb., 16 to 18; extracted, white, cans and pails, 8 to 8½. Beeswax, 28 to 30.

A. V. BISHOP & Co.,
119 Buffalo St., Milwaukee, Wis.

July 7.

ST. PAUL.—At present there is very little honey in the market, and the demand is light. We quote prices as follows: Extracted, 8 to 10; fine white comb, 15 to 16; dark, 10 to 12½.

H. G. ACKLIN,
1024 Mississippi St., St. Paul.

July 1.

KANSAS CITY.—Market on comb honey to-day, \$3.00 per case for fancy white 24 sections, but we look for a better market a little later; no new extracted on the market as yet. Old stock sells at 5½ to 6.

C. C. CLEMONS & Co., Kansas City.

July 12.

BUFFALO.—If we could get some white-clover comb honey we could get a big price. No white No. 1 in the market; some No. 2, but trade will not buy it except when forced to, and that is seldom, for they would rather wait for new honey. No dark here now. No. 1 old white comb honey, 15 to 16; No. 2, 12 to 14; No. 1 dark, 9 to 10; No. 2, 8 to 9; new white comb honey, 16 to 17; No. 1 extracted, white, 7 to 7½; No. 2, dark, 6 to 6½. Beeswax, 30 to 32.

July 9.

W. C. TOWNSEND, Buffalo, N. Y.

ST. LOUIS.—The crop of new comb honey arrives very slowly, and our market is practically bare of it. There is an urgent demand, quotable as follows: Fancy white comb, 15; No. 1, 14 to 14½; amber, 12 to 13; extracted California, light amber, 6 to 6½; Spanish needle, 6½ to 7; Southern (new), in barrels, 4¾ to 5; in cans, 6 to 6½. Beeswax, prime, 29; all impure and inferior, less.

R. HARTMANN & Co.,
St. Louis, Mo.

July 10.

TOLEDO.—The market on honey at this writing would be fair at this season of the year if honey were coming in. There is some call for comb honey and a fairly good demand for extracted honey for table use. Fancy white comb would probably bring 15 to 16 in a retail way. The indications through Ohio and Southern Michigan are that we will have a good crop of basswood honey, but very little white clover, as the late frost seemed to hurt this. Beeswax, 28 and 30.

July 9.

GRIGGS BROTHERS, Toledo, Ohio.

PHILADELPHIA.—Advices from different points are rather conflicting regarding the crop of honey this season, and, consequently, there is no market price established. Some new arrivals of comb honey sell at 13 to 15, according to quality, and extracted honey at 6 and 7. Beeswax firm, 28. We are producers of honey, and do not handle on commission.

July 9.

WM. A. SELSER,
10 Vine St., Philadelphia, Pa.

CHICAGO.—The market is practically bare of comb honey; and while a little sells at about 15 for the best white grades, there is little volume to the trade. Extracted is in some demand at 6 to 7 for the sweet grades; but off flavors are about unsalable at 5 to 5½. Beeswax is selling upon arrival at 30.

July 9.

R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

FOR SALE.—Extracted honey. Write for prices. State quantity and kind wanted. Samples free.

HILDRETH & SEGELKEN, New York, N. Y.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.

O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

FOR SALE.—Old honey all sold except six 5-gallon cans. New honey ready soon; single cans, 7½ lb.; two or more, 7c.

C. J. BALDRIDGE,
Homestead Farm, Kendaia, N. Y.

WANTED.—Fancy white comb and extracted honey. I pay cash—no commission.

WALTER S. POWDER, Indianapolis, Ind.

STANDARD BRED QUEENS.

BUCKEYE STRAIN RED CLOVER, GOLDEN ITALIANS

By Return Mail. Safe Arrival Guaranteed.

PRICES

	ONE	SIX	TWELVE
Untested	\$0.75	\$4.00	\$7.50
Select Untested	1.00	5.00	9.00
Tested	1.50	8.00	15.00
Select Tested	2.00	10.00	18.00

Select Breeders, each \$3.00
Two-frame Nucleus and Red Clover Queen 3.00

THE FRED W. MUTH CO.,

No. 51 WALNUT ST.,

CINCINNATI, OHIO.

FOR SALE.—3000 lbs. very fine clover and basswood honey. Sample and prices free. Also 1000 lbs. white comb honey in 4¼x1½ plain sections.

W. H. TOWNSEND, Hubbardston, Mich.

WANTED.—New crop Ohio comb honey. State number cases and price f. o. b. Zanesville, Ohio.

E. W. PEIRCE, Zanesville, O.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT, 199 South Water St., Chicago, Ill.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. GRIGGS BROS., Toledo, Ohio.

WANTED.—Comb and extracted honey. State quality, quantity, and price. JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,

265-267 Greenwich St., New York.

WANTED.—Beeswax. We are paying at this date for pure average beeswax delivered at Medina or any branch office named below, 27 cts. in cash or 30 cts. per lb. in exchange for bee-supplies, less transportation charges. We can not use old combs. Pack securely and address plainly. Be sure to send bill of lading when you make shipment and advise us how much you send, net and gross weights. Ship to home office or nearest branch named below.

THE A. I. ROOT CO.,

Medina, Ohio.

Chicago, 144 East Erie St.; New York, 44 Vesey St.; Philadelphia, 10 Vine St.; Washington, 1100 Maryland Ave., S. W.

WANTED.—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis. THE A. I. ROOT CO., Medina, Ohio.

JELLY-TUMBLERS AT REDUCED PRICES.

You can double your money from your honey crop by using Jelly-Tumblers of correct style, as containers and keeping your market supplied. No other glass so economical. Write for quotations.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

Chas. Israel & Brothers 486-490 Canal St., New York.

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc

Consignments Solicited. Established 1878.

EVANS & TURNER, Columbus, Ohio,

will be in the market for white comb honey, and especially want some fine stock from Wisconsin, Michigan, Indiana, and New York. They would also like to hear from Iowa producers. Write fully what you expect to have, and if you care to name price, do so, stating about what time your crop will be ready to move.

A. H. Reeves, Perch River, Jefferson Co., N. Y.

DISTRIBUTOR OF ROOT'S GOODS FOR

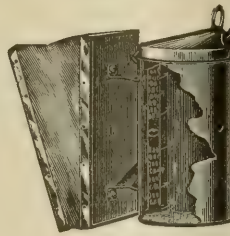
NORTHERN NEW YORK BEESWAX WANTED

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

A GOLD MEDAL

at the World's Fair,
St. Louis, 1904.



20th CENTURY

**UP-TO-DATE,
STRONGEST,
COOLEST,
CLEANEST.**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Platteville, Wis.

SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker." Grant Stanley, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, pages 1370; send free with price list.

F. DANZENBAKER, MIAMI, FLORIDA

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.

POULTRY DOLLARS COME EASY.

Our large 52 to 112 page beautifully illustrated magazine, best printed and edited poultry journal, makes it easy to add dollars to your income by keeping a few hens on a town lot or make a success on a large scale, covers every thing. Contains information that will put you in comfortable circumstances if followed. **POULTRY SUCCESS** one year, 50 cts. Large illustrated poultry book free to annual subscribers. Three months' trial, 10 cts. **POULTRY SUCCESS CO., Springfield, Ohio.**

KEEP YOUR EGGS

all summer while prices are low, and sell next winter at a good profit. Write for our plan; it will interest you. T. T. POULTRY CO., Springfield, Ohio.

GET RID OF LICE.

For 25 cts. we send formula that never fails to exterminate lice. Costs less than 8c per lb. to make. Guaranteed. Used by many leading poultrymen.

T. T. POULTRY CO., Springfield, Ohio.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

E. R. ROOT
Editor

A. I. ROOT
Editor Home Departments

H. H. ROOT
Asst. Editor

Department Editors:
DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE,
LOUIS H. SCHOLL, G. M. DOOLITTLE, W. P. ROOT.

J. T. CALVERT, Business Manager

A. L. BOYDEN, Advertising Manager

Circulation 30,000. Reaches every State and 60 foreign countries.
Established in 1873. Sixty-four pages. Semi-monthly.
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

Terms---\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.

Postage is Prepaid by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS., 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 6/.*
Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publisher.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY

STATE

DATE.....

If you want Gleanings discontinued at expiration, check here ()

FEEDING BACK

honey to secure the completion of unfinished sections can be made very profitable if rightly managed during the hot weather of July and August. In **ADVANCED BEE CULTURE** may be found complete instructions regarding the selection and preparation of colonies, preparation of the feed, manipulation necessary to secure the rapid capping of the combs, time for removing the honey, and how to manage if a few sections in a

case are not quite complete; in short, all of the kinks that have been learned from years of experience, and the feeding back of tons of honey. Remember, too, that this is only one chapter out of 53 treating as many vitally important phases of bee culture.

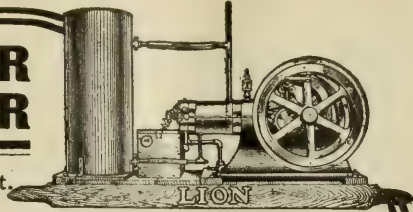
Price of the book, \$1.20; or the Review one year and the book for only \$2.00.

W. Z. HUTCHINSON, Flint, Michigan.

A READY POWER AT ANY HOUR

That's the kind of a power you want.

You do not have to wait for steam, or until the wind blows, before you can pump water, grind feed, saw wood or the hundred and one other jobs about the farm, if you have a **Lion Gas or Gasoline Engine**. Have you ever thought just what a saving of time, labor and money it would be to have such a practical power **always ready to operate** your various machines on the farm, in the shop, printing-office, or—anywhere?



The LION Engine



is such a power. It is **simple** in construction, **practical** in operation, and **economical** in the use of fuel. You do not require the services of an engineer, as anyone can operate it. We send the **Lion engine**

Direct From The Factory

on a **ten days test trial** and give explicit instructions and directions for setting up and operating it. Write now, stating your power needs, for our easy payment plan. Remember, we send **the engine**, not the agent.

LYONS ENGINE CO.,

Lyons, Mich.

GOLDEN Opportunities!

EXIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

J. W. WHITE

Gen. Indus. Agt., Portsmouth, Va.

Seaboard Air Line Railway

Let Us Send You

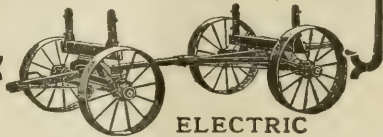
Our Book.

about good wheels and good wagons that will save you a lot of work and make you a lot of money—the

ELECTRIC STEEL WHEELS —and the— ELECTRIC HANDY WAGON.

By every test, they are the best. More than one and a quarter millions sold. Spokes united to the hub. Can't work loose. A set of our wheels will make your old wagon new. Catalogue free.

ELECTRIC WHEEL CO., Box 95 Quincy, Ills.



ELECTRIC



LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address **COILED SPRING FENCE CO., Box 7, 448 Winchester, Ind.**

CONTENTS OF THIS NUMBER.

MARKET QUOTATIONS.....	918	If I were to Start Anew.....	939
STRAY STRAWS.....	927	Ferris System of Producing Comb Honey.....	940
EDITORIAL.....	929	Prof. Surface and His Students in Bee-culture.....	942
Foul-brood Inspector for Canada.....	929	Bee-keeping in Idaho.....	943
Jenkinson Field-day Meeting.....	929	Cornering the Comb-honey Crop in 1905.....	944
Drouth and too much Rain.....	929	Baby-nucleus Idea not New.....	946
Sending Specimens of Foul Brood to Medina.....	929	Honey-market.....	948
What has the Harvest Been?.....	930	Queen-bee Raising.....	949
Field Meeting of Schoolteachers at Medina.....	931	HEADS OF GRAIN.....	950
Mrs. Anna E. Comstock.....	931	Why Buckwheat Honey-flow Checks Foul Brood.....	950
CONVERSATIONS WITH DOOLITTLE.....	931	Paroid Roofing for Hive-covers.....	951
FANCIES AND FALLACIES.....	933	Simple Way to Clean Unfinished Sections.....	951
PICKINGS FROM OUR NEIGHBORS' FIELDS.....	934	Save Breaking of Sections while Folding.....	951
GENERAL CORRESPONDENCE.....	935	Section Stamps or Labels.....	951
Success in Bee-keeping.....	935	A YEAR'S WORK IN AN OUT-APIARY.....	952
Improved Uncapping-knife.....	936	OUR HOMES.....	953
Removing Combs from Hive for Extracting.....	938	HIGH-PRESSURE GARDENING.....	956
Straining Honey.....	939	SPECIAL NOTICES.....	958

INDEX TO ADVERTISEMENTS.

Banking by Mail.....	Blocher, D. J.....	958	Fences.....
Savings Dep. Bank Co.....	Case, J. B.....	968	Coiled Spring Fence Co.....
Bee-books.....	Church, C. M.....	919	Honey-buyers.....
Hutchinson, W. Z.....	Colahan, F. J.....	967	See page.....
Root, The A. I. Co.....	Crawford, W. T.....	967	Household Specialties.....
Swarthmore.....	Davis, John M.....	967	Best Light Co.....
Bee Smokers.....	Griffin, J. W.....	969	Horne Co., Joseph.....
Bingham, T. F.....	Jepson, H. H.....	967	Ulery Co., U. J.....
Danzonbaker, F.....	Koeppen, Chas.....	968	Machinery.....
Bee Supplies.....	Lawrence, E. E.....	968	Barnes, W. F. & Jno.....
Cook, J. H. M.....	Laws, W. H.....	962	Deming Co.....
Falconer Mfg. Co., W. T., Back Cover	Leininger, Fred.....	958	Electric Wheel Co.....
Hershiser, Orel L.....	Lockhart & Co., F. A.....	966	Empire Mfg. Co.....
Hilton, Geo. E.....	Malan Brothers.....	968	Lyons Engine Co.....
Hunt & Son, M. H.....	McCain, Robert B.....	968	Myers & Bros., F. E.....
Jepson, H. H.....	Mennie & Fenton.....	969	Root Co., The A. I.....
Kretschmer Mfg. Co.....	Moore, J. P.....	968	Miscellaneous.....
Lewis Co., G. B.....	Mott, E. E.....	968	C. M. & St. P. Ry.....
Marshfield Mfg. Co.....	Parker, Jr., H. M.....	969	Prindle & Williamson.....
Minnesota Bee Supply Co.....	Quirin the Queen-breeder.....	967	Seaboard Air Line R. R.....
Muth Co., Fred W.....	Rails, W. H.....	968	T. T. Poultry Co.....
Page & Lyon.....	Rambo, J. R.....	967	Publishers, Agricultural-paper.....
Pouder, Walter S.....	Robey, L. H.....	968	Southern Fruit Grower.....
Prothero, Frank W.....	Roselawn Apiary.....	968	Publishers, Bee-Journal.....
Reeves, A. H.....	Routzahn, G.....	968	Falconer Mfg. Co., W. T., Back Cover
Root Co., The, Syracuse, N. Y.....	Shaffer, Henry.....	968	Hutchinson, W. Z.....
Root Co., The, St. Paul, Minn.....	Shaw & Co., J. W. K.....	968	Root Co., A. I.....
Scott & Co., C. M.....	Shuff, W. A.....	958	York & Co., Geo. W.....
Soper, W. D.....	Simmons, E. A.....	968	Publishers, Poultry-paper.....
Stringham, I. J.....	Simpson, H. C.....	967	Ohio Poultry Journal.....
Weber, C. H. W.....	Strong, J. L.....	969	Poultry Gazette, The.....
Woodman Co., A. G.....	Taylor, J. W.....	968	Poultry Item.....
York Honey & Bee Supply Co.....	Titoff, A. E.....	957	Poultry Success.....
Bees and Queens.....	Victor-Knolle Apiary Co.....	969	Wants and Exchanges.....
Allely, H.....	Würth, Daniel.....	969	See page.....
Anderson, Grant.....	Comb Foundation.....		
Atchley Co., The Jennie.....	Dadant & Son.....	Back Cover	
	Dittmer, Gus.....	961	

ADVERTISING TALKS

BY THE AD. MAN.

THE VALUE OF PUBLIC DEMONSTRATIONS AT FAIRS, CONVENTIONS, AND PUBLIC MEETINGS, AS A MEANS OF ADVERTISING FOR THE BEE-KEEPER AND HONEY-PRODUCER.

Repeated trials have proven that scarcely any other object will command the attention and interest when exhibited at a public gathering that will be given to a colony of bees in working trim. Herein lies one of the best mediums for advertising which the man who has bees and honey for sale can use.

Now that the season has returned when fairs are being planned for every State and almost every county, the bee-keeper should be making plans for his exhibit. Take a man who sells bee supplies—he should set up in his booth an observation hive and keep the bees before visitors at all times. Passers-by will surely be attracted, and once they stop they will freely seek information which the bee-man should be prepared to give in as simple and clear terms as possible. Show samples of all the various bee fixtures and supplies. All of these will prove of great interest to the uninitiated or inquisitive. Have a supply of little bee-books ready to distribute. Now is your chance to talk personally to an inquirer just as you will wish you could next season when you are corresponding with him. Show copies of GLEANINGS to all who stop. Give each visitor a sample copy. Explain what the purpose of the journal is, and how it is read by more than 30,000 people who are interested in bees throughout the world. Tell of the illustrations which we publish; of the articles calculated to interest every one, from the beginner to the experienced bee-keeper. Say that GLEANINGS is issued twice each month, and that the subscription price is \$1.00 a year. Act as though you really felt that you were offering full value for the money, and your prospective subscriber will have faith in you.

Combination offers of GLEANINGS and the A B C of Bee Culture always appeal to beginners in bee-keeping. Other book combinations appeal to advanced bee-keepers who have the A B C.

Write to us fully if you are interested in fair work. We have had experience which you will value, and will gladly help you out on any problems which you may refer to us.

In this issue of GLEANINGS, Messrs. Prindle & Williamson, Second National Bank Building, Washington, D. C., have a one-inch advertisement. These people are patent attorneys. Their business is to secure

protection for any invention which may be referred to them by their clients. For several years they have attended to the patent work of The A. I. Root Co., and their experience in securing patents for bee-keepers is probably greater than that of any similar firm.

Mr. Williamson has been identified with patents relating to bee culture for twelve years; and, in addition to the publishers of this paper, Mr. Francis Danzenbaker and Mr. J. E. Crane are numbered among his clients.

Patent litigation is a special work, and any of our readers who may be interested in securing protection upon their ideas would act wisely in securing the services of this company.

Every mail brings such welcome letters as the following. Great is the good GLEANINGS is doing, and bee-keepers appreciate this paper, published wholly for their interests.

The A. I. Root Co., Gentlemen:—Please find enclosed \$1.00 to pay my subscription to GLEANINGS IN BEE CULTURE another year. GLEANINGS has been a great help to me the past year. I find a great many little things about bees I did not know, and it is just those little things that a fellow does not know that are the ones, at times, he should know how to accomplish certain points.

The A B C of Bee Culture was good, but GLEANINGS is better still, and I do not want to miss a single number if I can help it. Respectfully yours,

CHAS. SCHOONOVER.

Rushtown, O., June 19, 1906.

LETTER FROM A NEW SUBSCRIBER.

The A. I. Root Co.:—June 15th GLEANINGS is best bee literature ever printed. It is because I have practiced successfully several of its "short cuts" and "intense" methods that I now look on 20 years of past experience in bee-keeping (before taking GLEANINGS) with 75 colonies as unsuccessful.

Respectfully, A. J. MOREY.

La Grange, Ill., July 4.

Are you trying to get along without GLEANINGS? Does it pay?

Gentlemen:—There's no use trying to get along without GLEANINGS, even though the profits thus far do not justify the expense; so, send it along. Enclosed is \$1.00.

South Haven, Mich., May 28, 1906.

Low-down steel wheels are, without doubt, great back-savers for the farmer or bee-keeper. When a man has a big load of feed to carry, or wants to move a lot of bee-hives, he will find that to lift them but a foot or two off the ground means a great saving in time and muscle. Then, too, by putting a big platform on the gear, the capacity of his wagon is greater than that of an ordinary farm wagon or hay-rack. There is a little book entitled "Wheel Sense," published by the Electric Wheel Co., box 95, Quincy, Ill., which will help you in deciding just what you want in low broad-tired wheels. Send for it.

Successful Bee-keepers

Use the best goods obtainable. This is the secret of the success of ROOT QUALITY. It has for its users more successful bee-keepers than any other brand.

This extract from a letter we received from E. D. Townsend, Remus, Mich., who carries on the most extensive bee-keeping business in Michigan:

M. H. Hunt & Son, Gentlemen:—In thirty years Root's goods have been used almost exclusively in my yards with entire satisfaction.
Remus, Mich., July 7. E. D. TOWNSEND.

Again, a letter from a man whose experiments in non-swarmer, covering years of time, and costing many hundreds of dollars, have met with entire success:

M. H. Hunt & Son, Gentlemen:—The supplies purchased of you for twelve years have been the very best. As I produce comb honey exclusively, the sections and foundation have proven uniformly first-class and are a guarantee for the future.
Jackson, Mich., July 9. Your truly, L. A. ASPINWALL.

Again, from a young man who has built up a big apiary in a very few years:

M. H. Hunt & Son, Dear Sirs:—Please accept my thanks for the good quality of bee supplies sent me. The best is none too good. That is why I buy Root's goods. Have at present 280 colonies of bees.
Flint, Mich., July 10. LEONARD S. GRIGGS.

Join the ranks of the successful Michigan bee-keepers, and use Root's goods. We have the largest stock of supplies in Michigan, and can supply you promptly. Orders receive prompt attention.

M. H. Hunt & Son,
Bell Branch, Wayne Co., Mich.

A 30c "Trial Trip" The Balance of 1906

This Offer is Made Only to New Subscribers

to the **WEEKLY AMERICAN BEE JOURNAL**, and that means to those who have never read it regularly, or at least, have not had it during the past year or more. If you have been a subscriber at any time during the past 12 months we would not consider you a "new subscriber."

On this 30 cent "Trial Trip" offer, the sooner you order (sending 30c in stamps or silver), the more copies you will get for the money, for we begin to send as soon as we get your 30c.

No reader of **GLEANINGS** should be without the old **WEEKLY AMERICAN BEE JOURNAL**, now in its 46th year, and better and brighter than ever—so its oldest readers say.

A sample copy **FREE**. \$1.00 a year, or special trial-trip offer as above.
Better order **NOW**, if you are not already a subscriber. Address

GEORGE W. YORK & CO.,

334 Dearborn St.,

CHICAGO, ILL.



Mr. Bee-keeper

Just a minute of your time, please. Swarming will soon be over and honey coming in. We can send foundation and sections, if you need them, by express promptly.

The A. I. Root Company
Syracuse, New York

Boss Sections

FROM THE

Section Bosses

WE HAVE SECTION BOSSES—

Not the kind you find on the railroad; but genuine, capable honey-section overseers. They are mechanics who have spent a score of years just learning how to make the best sections—**LEWIS SECTIONS**.

Years of Study and Constant Vigilance

Over the delicate, intricate machinery means that every crate of **Lewis Sections** is perfect. Each day and each hour these section specialists personally inspect our machines and examine the output. This keeps **Lewis Sections** uniformly perfect.

Ah, that's the Secret!

Now you have it. That's the reason

Lewis Sections are the Same the World Over

15 MILLION NOW READY FOR PROMPT SHIPMENT

At the warehouses of ourselves and our agents as below:

ENGLAND—E. H. Taylor, Welwyn, Herts.
FRANCE—Raymond Gariel, 2 ter Quai de la
 Megisserie, Paris.
CUBA—C. B. Stevens & Co., Havana.
 C. B. Stevens & Co., Manzanillo.
CALIFORNIA—Chas. H. Lilly Co., San Francisco.
SOUTHERN CALIFORNIA—
 Fletcher-Doyle Co., San Diego.
 Fallbrook Co-operative Association, Fallbrook.
 Paul Bachert, Lancaster.
COLORADO—R. C. Aikin, Loveland.
 Arkansas Valley Honey-producers' Ass'n, Rocky
 Ford.
 Colorado Honey-producers' Association, Denver.
 Fruit Growers' Association, Grand Junction.
 Robert Halley, Montrose.

IOWA—Adam A. Clark, LeMars.
 Louis Hanssen's Son, Davenport.
ILLINOIS—York Honey & Bee Supply Co., 141-143
 Ontario St., Chicago.
 Dadant & Son, Hamilton.
INDIANA—C. M. Scott & Co., Indianapolis.
MICHIGAN—A. G. Woodman Co., Grand Rapids.
MINNESOTA—Wisconsin Lumber Co., 432 Lumber
 Exchange, Minneapolis.
MISSOURI—E. T. Abbott, St. Joseph.
OHIO—Norris & Anspach, Kenton.
OREGON—The Chas. H. Lilly Co., Portland.
PENNSYLVANIA—Cleaver & Green, Troy.
TEXAS—Southwestern Bee Co., San Antonio.
UTAH—Fred Foulger & Sons, Ogden.
WASHINGTON—The Chas. H. Lilly Co., Seattle.

G. B. Lewis Co., Watertown, Wis.
 AGENTS EVERYWHERE

GLEANINGS

IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

JULY 15, 1906.

No 14



NOT OFTEN do I think of myself as an M. D. Just now, with all the emphasis which that title gives me, I want to endorse most heartily A. I. Root's talk, page 892.

I'VE SPENT no little time trying to see bees on basswood with loads of pollen, and failed; so it's a comfort to have my ignorance dispelled by Doolittle, p. 877, saying, "There is no pollen produced by the basswood, or linden, as you know."

SANE WORDS are those spoken by J. A. Green, p. 873, in his first paragraph. Unless the queen-rearer produces honey on a fairly large scale, or gets his breeders from some one who does, what can he know about the honey-gathering qualities of his stock?

WITH JULY, bees began working on sweet clover and what few basswoods there are, and we're hoping they may get enough for winter. [Then we take it that you have not had any honey to speak of thus far. One of the peculiarities of your locality is sometimes a late honey-flow. I hope you will happily be disappointed.—ED.]

REFERRING to your other question, I might have done as well as others at keeping pure Italians; but my best stores were grades, so I bred from them. I rear queens from best stock, as the editor says, and besides that I encourage best drones. Keep that up for a few years, and you'll find it makes a big "worth while."

D. D. FARNSWORTH, referring to your question, p. 889, outdoor bees rear brood a

month or two earlier than cellared bees; so it would be nothing strange if they should sometimes rear a few drones a month or two earlier, even if the editor didn't say so. [I accept your amendment.—ED.]

DOOLITTLE'S plan of preventing swarming, which I have watched with intense interest, has now been given entire. He has combined a lot of old things with some new and good ones, and the entire scheme is excellent. [Your opinion of the Doolittle plan of preventing swarming is correct. In localities where there is buckwheat or a late honey-flow, the system will prove to be a great boon. It may work well under other conditions.—ED.]

J. A. GREEN is sound on the nail question (I wanted to pat him on the back for that hint to pick nails out of the grass with a magnet), p. 873; but I want to mention one thing he may not have tried. It is to have 12 or 15 kinds of nails all in the same box. I've tried it (other people mixed them up for me). You can get any kind of nail you want out of the same box — if you dig long enough—but if you don't want to be tempted to swear, never keep more than one kind in a box.

JULIUS STEIGEL, in *Bienen-Vater*, insists that the generally prevailing opinion that sick or imperfect bees are driven out of the hive is entirely erroneous. Instead of that they commit suicide for the general good by leaving the hive to die. The same with superannuated queens. [This may be true; but when the bees can not commit suicide, and can not fly, is it not true that the inmates of the hive carry the cripples out and drop them? It seems to me I remember seeing them do this very thing, especially with those poor bees that have worn themselves out in the basswood flow—wings torn to a point where they could not fly any more, when they are remorselessly picked up, carried aloft, and dropped. Nature knows no

sympathy, no gratitude. The rule is, the survival of the fittest. Any bee that can not contribute to the material welfare of the colony, and has no chance of doing so, must be sacrificed.—ED.]

RAUSCHENFELS tells with much circumstantiality in a two-page article in *Bienen-Vater* of the wonderful effects of the leaves and twigs of lemon (*Citrus medica*), as used for many years in Calabria. Rubbed in the hands and then thrown in front of an empty hive they prove an irresistible attraction to an uncertain swarm. Our California friends can perhaps try it. [I do not take much stock in any kind of scent treatment to attract a swarm of bees to any particular hive or spot. The whole scheme looks too much like the old-fashioned way of rubbing anise seed inside a hive to make a swarm stay.—ED.]

IN GERMANY it is the practice with some who wire frames to rust the wires first by putting them in salt water and allowing the water to evaporate. The rusted wire takes a stronger hold on the wax. [I certainly would not encourage the process of rusting the wire, as this would weaken it, and would not, in my opinion, add very materially to the fastening of the wire to the wax. Then, moreover, it is my opinion that the bees would take unkindly to the rust by showing bare spots of the wire. The bright tinned wire, as we know by experience, they will bury completely, apparently paying no attention to it. They might do so with a rusted wire, but I should fear not.—ED.]

BIENEN-VATER advises that, when freshly extracted combs are to be directly returned to the bees, they should be first dipped in cold water. [This seems to me like a good suggestion. I suppose the wash-water used for cleaning combs may then be converted into honey vinegar or be fed back to bees in an outdoor feeder, or perhaps be converted into the new product, denatured alcohol. I should like to hear from some of our extracted-honey producers whether the scheme of washing the combs as here suggested has been practiced to any extent in this country. If so, I have not run across it in my various travels among bee-keepers, nor even heard of it. Very likely some reader will point out the exact reference. Well, let it come.—ED.]

THAT EXTRACTOR, page 883, has one thing about it radically different from the one tried at Medina. In the French machine both sides of the comb are acted upon exactly alike, while in the Medina machine they were not. Whether that makes any difference in results, I don't know. I don't know about expense; but it looks as though a twelve-frame machine should be built for not more than twice as much as a three-frame one, making it comparatively inexpensive. The trouble with that Medina editor is that he has become so old and conservative that he is prejudiced against any thing new. [Your last sentence is a comfort; and if I thought you really believed it

I should be happy a whole week. It seems to me I remember a fellow up in Northern Illinois who used to say I kept bobbing round in new fields so much that he could not keep track of me.—ED.]

G. M. DOOLITTLE, you're a comfortable sort of customer. When I found 9 to 22 degrees more heat in an upper story than in the open air, that only substantiated your claim that no heat escaped from the cluster, page 877. You seem now to hold that it's all right for heat to escape from the cluster when the bees stir. Of course, more heat will then escape because they then make more heat to escape. But according to your theory they ought to hold the heat, even when they do stir up, for you said, "No, the heat from the cluster is not allowed to pass up into an upper hive at any time when that heat is needed for the brood." On that day the outside temperature was never above 58, and surely the heat that escaped was needed for the brood. However, I have tried the experiment again in accordance with your ideas. I arranged the upper story and thermometer in the afternoon, so the bees would have plenty of time to settle down, and at 9 at night I quietly looked, and the difference was 8 degrees. You say there is a difference of 2 or 3 degrees between confined and free air. May be in your locality; but under the laws of Illinois, confinement doesn't make a difference of a fraction of a degree. But allowing 3 degrees for confinement, please tell us how you account for the other 5 degrees.

I DON'T SEE WHAT A. I. Root has been thinking about that he hasn't told us about the fireless stove. We just commenced using it at our house; but so far as we've tried it, it's great. Grandmother Wilson has her oatmeal 365 mornings in the year, and we like to have it thoroughly cooked. Bring it to a boil in the evening and put it in its bed of excelsior without any fire till morning, when it will be found most thoroughly cooked, and still warm enough to eat. [We can go you one better. At our house we have been cooking our cereal foods by electricity. The current goes off at about 10 at night, and comes on anywhere from 4:30 to 5 in the morning. We put the cereal inside of an electric cooker, and turn on the switch before going to bed. If the switch is turned on for half an hour or more before, the cooking process is started. Automatically the heat is applied when the current goes on in the morning, and when we arise for breakfast the food is thoroughly cooked and steaming hot. A current necessary to heat one of these electric cooking-pots is only a little more than that for an ordinary incandescent lamp; and we figure it is really cheaper than gasoline because it is automatic. It is particularly nice in cold weather. But where electricity is not available the plan you give is excellent.—ED.]

IT DAZED ME, just a bit, Mr. Editor, to have you say, page 868, that you and I were nearly together as to that virgin in the Egge

plan. Yes, you said the plan would succeed, and I hand you herewith my apology for hinting anything to the contrary. I entirely agree with you in your first three sentences, p. 825, but disagree most decidedly when you say, "It is my impression that a queen, when she enters the other hive for the purpose of getting out into the open air to mate, would in many cases supplant the old mother." I don't believe it would happen once in a hundred times. But I see that I laid myself open to misunderstanding. I said, "Enters a strange virgin from another hive. Death-penalty, sure." That may mean death for the old queen. I meant it would be death for the virgin. I'm afraid I'll never learn to express myself as clearly as I should. [My statement with regard to a virgin displacing the reigning queen-mother, was based on actual experience and observation during four years of *queen-rearing* work. Our bee-yard at that time was arranged in such a way that virgins often made mistakes and went into the wrong hive; in a great majority of cases where that mistake was made the old queen was killed and a virgin was allowed. In referring this point to our Mr. Wardell, a man who is one of the best-posted as well as one of the most experienced queen-breeders in the country, he said my statement was not strong enough; that he had raised thousands of queens, and that the virgin almost *invariably* displaces the old queen. I should be very glad to hear from some of our queen-breeders, as to how their experience tallies with ours or the doctor's on this point. I do not seek vindication; but as I am about to revise one of our queen-rearing books I wish to be set right if wrong.—ED.]



MEDINA has been rejoicing in a very fine flow of honey from basswood. The bees have been taking it by storm; and as they fly out over our factory buildings I am reminded of the tremendous roar of bees that poured out from the Alexander yard during the height of his buckwheat bloom.

OUR friends will perhaps remember that some time ago the little daughter of Mr. O. L. Hershisier, of Buffalo, was severely burned by getting hold of some matches. Misfortunes never come singly. We are now very sorry to learn that Mr. Hershisier's little boy suffered a similar accident. As this may prove a warning to other parents we

give an extract from one of Mr. Hershisier's letters that will speak for itself:

Our little boy, 22 months old, had the same misfortune that befel our little girl. A week ago last Wednesday evening he also set his clothes on fire with a match which he lighted. I was in the house at the time; but before I could reach him, both his hands, and his neck in front, and both sides of his face and nose, were quite severely burned, and both ears slightly. His neck under his chin is the worst. None of the burned surface is injured deeply, as the little girl was. We think he will be well inside of three weeks. Marian, the little girl, is still under the doctor's care, and has her arm dressed twice a week. After Marian was burned we provided safety matches, and had all out of children's reach; but the baby reached the fringe of a pin-cushion on a high stand, and pulled it off, bringing a safety-box and a few loose matches with it, and he struck the match on the safety-box just as he had seen us do it.

Buffalo, N. Y.

O. L. HERSHISIER.

FOUL-BROOD INSPECTOR FOR CANADA.

MR. WM. MCEVOY has been reappointed as foul-brood inspector. He will now be under the Department of Agriculture of the Canadian government. Any one requiring his services will write to the Hon. Nelson Monteith, Minister of Agriculture, Toronto. The suggestion has been made that this should be done early in order that the work may be laid out with the least expenditure of time and money.

THE JENKINTOWN FIELD-DAY MEETING.

WE find it impossible to get even a few of the pictures we took at the big field-day meeting in this issue; but we shall get some of them in our issue for Aug. 1. The rest will follow in subsequent numbers.

The day following the big field meeting I took Mr. Doolittle out to the bee-yard and had him go through some of his regular "stunts" in handling bees, showing exactly how he works to economize labor. Two cameras were kept clicking at him, showing each successive operation. It is needless to say that these will appear in GLEANINGS in due time, along with many other interesting pictures taken at the Jenkintown meeting.

DROUTH AND TOO MUCH RAIN.

THE season throughout the central part of the United States has been very peculiar. At Medina we have had plenty of rain, and the crops look well; but only seven or eight miles north of us there has been a drouth, and this was not broken till some two or three weeks ago. Eastern Ohio has been having splendid showers; but Tiffin, O., has been in the throes of a drouth. What is true of Ohio seems to be largely true of other States. The showers have been decidedly local. There have been pockets that were as dry as a bone, and other pockets that have been made so wet as to be almost swampy. Almost the entire eastern portion of the country has had almost too much rain—too much in many sections.

SENDING SPECIMENS OF FOUL BROOD TO MEDINA—IMPORTANT.

WE must again caution our friends against sending specimens of brood in paper boxes or in a simple paper wrapping. Any sus-

pected diseased comb should be sent in a stout wooden or tin box. Then do not forget to mark on it your name and address before sending the sample. We often have in our office six or seven packages of brood without any mark of identification—not even a postmark.

HOW TO DISTINGUISH BLACK FROM FOUL BROOD.

We hope some of our friends who have difficulty in distinguishing between black and dead brood will find these suggestions helpful.

Foul brood is characterized by sunken and perforated cappings of the sealed brood, and by an odor which has been described as like that of a poor quality of glue. The larva, after dying, becomes yellow and finally brown, dries down against the lower side wall, and adheres very tightly so that it can be removed only with difficulty. A dead larva, either sealed or unsealed, will stretch out as far as an inch or more if a wooden toothpick or match is inserted in it and then removed.

Black brood is characterized by sunken and perforated caps of the sealed brood, but most of the diseased larvæ die before ready for capping. The odor is not like that of foul brood, but is more nearly that of sour decayed larvæ. The larvæ, when first infected, have on the body a yellow spot, and move uneasily in the cell. After death they turn yellow, then brown, and finally black, ultimately drying down to a black scale on the lower side wall. Unlike the scale of foul brood this is easily removed. The ropiness, so characteristic of foul brood, is found only to a limited extent.

To diagnose positively some samples of diseased brood, especially in the early stages, requires microscopic examination. All such samples should be sent to the Division of Entomology, Washington, D. C.

WHAT HAS THE HARVEST BEEN?

GENERAL MANAGER FRANCE, of the National Bee-keepers' Association, has sent out a report which in the main we believe to be fairly correct. That relating to the honey prospects we take pleasure in giving below:

1906 HONEY PROSPECTS REPORTED TO JUNE 25.

Southern California.—Fair crop—better further north in State.

Texas.—Three crops; two first, failure; last, good. Colorado.—Light crop; some lost heavily their bees in winter.

Mississippi Valley.—Not half a crop. Michigan, Ohio, and Indiana.—Half a crop. Eastern States.—Mostly good reports. The 1905 crop is about all sold; markets bare; demand good. N. E. FRANCE, Platteville, Wis.

HONEY-CROP CONDITIONS UP TO THE TIME OF GOING TO PRESS, JULY 13TH.

I have just gone over the latest reports from all over the country. In the irrigated regions I do not find any thing new to report, except that the crop is very short. In some localities there will be no honey. Southern California, from present indications, will fall considerably below an aver-

age crop in a good season where there were bees to gather it. The loss of bees all through parts of the State has been heavy; and even if the season had been a fair one, the aggregate of honey would have been light. But, nevertheless, there will probably be some honey from Southern California in carlots to go eastward.

Conditions in Illinois are particularly discouraging. I do not remember to have read a single favorable report except from the extreme southern part of the State. Iowa is almost as bad. Strangely enough, there are reports from this State of general drouth as well as reports of too much rain. This seems to be a season of extremes, not only in Iowa, but all over the United States. Indiana, apparently, will get from a light to a fair crop. Conditions in Ohio are improving very much. The central part of the State seems to be suffering from a drouth, and will not recover.

The reports at the present time conflict for nearly all the Eastern States, while those earlier in the season were decidedly favorable; but later reports indicate that the crop will fall short of what was first expected, anywhere from 25 to 50 per cent. In some places there has been too much rain and cool weather; in others, the conditions have been ideal. Pennsylvania generally seems to stand in the forefront for honey-production this year; but even from that State there are occasional reports of little or no honey.

Michigan sends in a great variety of reports—hardly any two alike; but as the season will be late the crop will be better than early reports showed.

The reports from Minnesota and Wisconsin are not unfavorable. The lateness of the season will give those States a chance to come forward with an average crop, perhaps.

Missouri and Nebraska are showing up much better than they did early in the season, for some very flattering reports are now coming from them.

Kansas seems to be suffering from too much drouth. The reports are few and far between, and generally unfavorable.

Basswood, where it exists at all in any of the States, has done exceptionally well. The clover honey of this year will be mixed with basswood more than in average seasons.

SUMMARY OF HONEY-CROP CONDITIONS.

The crop of Western honey in carlots will be light. The Mississippi Valley, south of the Wisconsin line, and north of Missouri, will have from one-fourth to one-third of a crop; Michigan, Ohio, and Kentucky, fair; Missouri and Nebraska, good; Eastern States, half to a full crop.

PRICES.

There will not be much Western honey on the Eastern markets, except some from California. Scarcity of honey in the Mississippi Valley, together with a shortage of Western honey in carlots, should make prices for table honey in the East fairly firm.

A FIELD MEETING OF SCHOOLTEACHERS AT MEDINA.

WE had a little field day meeting at Medina on Saturday, July 7. Prof. E. F. Bigelow, of Stamford, Ct. (so well known to our readers), had been lecturing at a summer school of schoolteachers assembled from all over the United States at Wooster, O. On the 7th he brought with him a delegation of 150 strong of these pretty schoolma'ams and manly schoolmasters. He put this aggregation of novices through some stunts in handling bees that fairly made my hair stand on end. You see he had more confidence in our bees and the nerve of the schoolma'ams than I. I worked the camera; but every minute I expected a stampede of bees, feminine beauty, and masculine strength all mixed up in wild confusion. No dire calamities happened, fortunately, and every thing went off like clockwork.

MRS. ANNA B. COMSTOCK.

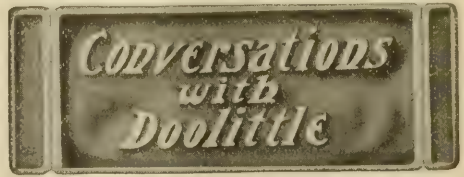
SOMETHING like 25 years ago, through an old college chum, E. H. Sargent, then at Cornell, I learned of J. Henry Comstock, professor of entomology at that university. Through this friend, the professor became interested in bees, and it was not long before some very pleasant correspondence sprang up, during the course of which he sent me a copy of "A Manual for the Study of Insects; Designed for Use in Colleges. By J. Henry Comstock and Anna Botsford Comstock," his wife. In relation to the last-mentioned personage, Prof. Comstock says that, "although the chief work of the junior author has been with the pencil and graver, many parts of the text are from her pen," and that the "plan of the book was changed after she finished her writing." It appears, then, that Mrs. Comstock, besides being an entomologist, is an expert wood engraver. The many beautiful engravings all through this work testify to her ability in this line. Some of the plates, indeed, will equal if not surpass some of the work of the best wood engravers of Germany.

In the mean time it appears that Mrs. Comstock began to study bees with her husband; and the measure of her enthusiasm, and success as well, may, perhaps, be understood when we take into consideration the fact that she is the author of one of the most charmingly interesting books on bees that was ever written, entitled "How to Keep Bees."* One would naturally suppose it to be on the scientific order; but so far from being a work of that nature its every page gleams with practical bee lore enlivened with a catchy enthusiasm. The book does not pretend to be an authority, but delightfully portrays the experience of a lover of bees. It is written especially for the beginner. A review by A. I. Root appears on page 743, 1905.

* For sale at this office, \$1.00 postpaid. See further notice on page 959.

We are glad to give a half-tone of Mrs. Comstock on the front cover page of this issue, and I think we may indeed class her among the leading women bee-keepers. She is the only woman, so far as I know, who has ever written a book on bees; not only that, her articles have appeared in a number of the leading magazines, accompanied by some beautiful illustrations.

We requested her to give us an article on the subject of "Women and Bees," which, owing to lack of space in this number, will be given in our next. It is so bright and breezy (like all of her writings) that our readers, especially those of the feminine persuasion, will wish to read it.



DRONE COMB, ETC.

"Say, Doolittle, I am in trouble. Can you help me out?"

"Well, I can tell you better when you tell me what your trouble is."

"It is like this: I had the misfortune to lose quite heavily in my business last winter, and so I did not feel able to purchase comb foundation for my new swarms this year. For this reason I concluded to have my swarms build their own comb this season; but they are making a sorry job of it, in that half or more of the comb which they build is of the drone size of cells. Can you tell me why my bees build this size of cell, and what I can do to avoid their doing so?"

"Allow me to ask you a question. What has been the honey-flow since swarming commenced?"

"Excellent. I never knew it better."

"That is as I expected."

"What has that to do with the drone-comb matter?"

"Let me explain a little. All observing apiarists know that, as the day for swarming draws near, the queen ceases her prolificness, so as to be able to fly and go with the swarm; so that, when the swarming does occur, said queen is scarcely larger than a virgin queen. Nature has so ordained things for two reasons, the first of which is that the queen can fly and go with the swarm, for, if taken from the colony when no such preparation has been made, she can not fly at all, as she is so heavy with eggs. The second reason is that the queen need not be damaged by an over-accumulation of eggs before there is time for the bees to construct comb in the new home for her to deposit her eggs in. For this reason we find that all good queens do not become fully

prolific again until about a week has elapsed after the new colony has arrived at its new location. During this week comb has been built very rapidly, especially if honey is coming in plentifully and the swarm was a large one, while (for the reason given above) the queen has not been able to keep up with the workers, the result of which is that the bees commence early in their operations to build store comb, which is always of the drone size of cells. This comb is mainly filled with honey at this time, although the queen quite often fills a part of it with drone brood, especially an old or failing queen doing this. The main trouble comes, however, the next year, when, after the honey has been removed during the winter and spring for food, the queen fills such comb with eggs, thus rearing a useless horde of consumers of honey, instead of thousands of workers to gather the harvest later on."

"That helps me to understand the matter, for the colonies which built the most drone comb were those having my oldest queens; and when the honey-flow was the best, the swarms having been hived a few days previous built more of this drone comb than did those coming a little earlier when honey was not so plentiful."

"There is no question about this matter of the *why* bees build drone comb for the majority of bee-keepers who do not use comb foundation when hiving swarms."

"Well, how can this drone comb be avoided under these circumstances?"

"The way I manage is to have all swarms in a hive having the full number of frames the hive contains, all having starters consisting of a half-inch-deep strip of foundation, and leaving them thus for one day till they make a start at comb-building, when the hive is opened and all but five of the frames taken out, leaving those which have the most comb built in them, using dummies to take the place of the frames removed."

"Why don't you put the dummies in at the time of hiving?"

"Because the bees are quite apt to swarm out with so small a brood-chamber, unless they make a start great enough to consider this as their permanent home."

"I see. Go on."

"Having the swarm on five frames, one super of sections is given, which should contain a few sections having partly built comb in them left over from the previous season, while the others should be filled with the extra-thin foundation for comb honey."

"Why is this?"

"This gives the bees plenty of room above to store honey, thus not crowding them in the contracted brood-chamber, so that only comb of the worker size is built below, and that only as fast as the prolificness of the queen demands it, for the bees can occupy all their energies not needed below, in the super which we have given them. As the queen's ability for laying increases, more comb is built, which she at once fills with eggs, and thus all keep pace together, till at the end of two weeks we have the five

frames full of all worker comb, and the sections nearly completed as well."

"But you give more than the one super, do you not?"

"Yes. As soon as the first is from one-half to two-thirds full, it is raised up and another put under it, if the season is proving good. If bad weather comes on, then the last-named super is put top of the first, so that they can have plenty of room if they need it; and if otherwise, then the sections in the first super are generally completed, which they would not be likely to be where the season proves poor and we put the empty super under."

"That is a good thought, but I wish to know the result of this way of working."

"By the above plan I secure three important items—lots of section honey in a good year (some in a poor year), no drone comb, and five frames of nice worker comb, the latter costing less, according to my estimation, than the price of the foundation to fill those frames, saying nothing about putting it in the frames."

"But these five frames do not give a capacity great enough, nor stores sufficient for the colony to winter on, do they?"

"No. I am glad you spoke of this part. When the harvest of white honey is over, the dummies are taken out and the hive filled with frames of comb if I have them; and if not, then with frames of foundation; but the combs are much to be preferred."

"Then it is necessary to buy some foundation?"

"I consider it better to buy some and keep it on hand for emergencies, but it is not absolutely necessary; for by making nuclei, or having a few weak colonies, they can be kept building comb during the whole season, at all times when honey is coming in from the fields sufficiently to cause them to build comb."

"And will such little colonies always build worker comb?"

"Yes, if they have a young queen, and you do not give too much comb room."

"How much is the right amount?"

"I generally use about two quarts of bees, giving them one frame containing mostly honey and one of brood, putting the empty frame between the two; and as soon as that frame is filled then I put two more empty frames in, placing them between the three filled ones. These they will fill with comb nearly as quickly as they did the one."

"When you have the five full, what then?"

"The three which have been built are taken out, the bees shaken off, and one empty frame given as at first, unless the nucleus has grown materially stronger, when two are given, putting both between the two combs we have left them."

"What do you do with the combs of brood you take away?"

"They are used to take the place of the dummies taken out from the swarms hived on the five frames, when I use this way of getting combs."

"Ah! I see. But I must be going."



WINTERING AT ROOTVILLE.

We have all been interested in the results of wintering bees at Rootville, both indoors and outdoors, regarding it as a sort of experiment station, you see; but it seems a little queer that in a cellar too warm that the weakest colonies should have died while the strong ones suffered least. I have fancied that weak colonies required a much higher temperature to winter well than strong colonies, and on the other hand strong colonies could endure a much lower temperature than weak ones. As a strong colony generates considerable heat I should suppose such would be the first to suffer. Perhaps you can explain how this is.

BOTANICAL TERMS.

In GLEANINGS for April 15 is a very enjoyable article on "honey-bees and cucumbers." I was the more interested, as considerable quantities of bees have been sold from the county in which I reside to go to the hot-houses around Boston to assist the cucumber-growers of that section in the production of this vegetable. But the beauty of the article is sadly marred by the blunders, or what appear to be, of the writer. He seems to have gotten stamens and anthers and other parts of the flower mixed in some way.

Near the top of the second column, page 509, he says, in trying to explain the process of fertilization, "Take, for instance, an apple-blossom. We find in it the stamens with their corresponding anthers. While it is true that the winds will, in a measure, carry the pollen from the anthers to the stamens, yet it is very imperfectly done."

The anther is a part of the stamen, and any amount of pollen carried to the stamen below the anther would never produce fertilization. It is necessary that the pollen be carried from the anthers to the stigma of the pistil to produce fruitfulness. I thought at first it must be a typographical error; but just a little further on he says of the bee, "But as it buries itself deep in the blossom it carries on its downy body the fertilizing pollen, which it transmits to the stamens," which is absurd in the extreme. The bee transmits the pollen to the pistil.

Of course, any one familiar with this subject would know what was meant by the writer or what he should have said; but for the many who may not have a technical knowledge of the different parts of flowers and their uses I feel that this correction is due.

THE VALUE OF SPRING FEEDING AS A PREPARATION FOR THE HONEY-FLOW.

The articles by E. W. Alexander have proved very interesting and valuable, and I hope they may be placed in permanent form for easy reference. Aside from direct information on many subjects, the sidelight thrown on some other points gives them great value. We have wondered how he could support such an immense yard of bees in one place without overstocking. His method of feeding, when flowers are not yielding honey, in a large measure explains the whole thing. To illustrate, take a clover section like the one where I live. Our whole reliance for surplus is clover, which is usually abundant; but unless bees get a good start before it comes into bloom it goes by before they can gather much surplus; but if bees are fed so as to be strong when it begins to yield honey, a good crop is secured, and the number of colonies kept in one place may be largely increased without danger of overstocking, and the extra amount of honey secured will many times repay the cost of extra feed.

I remember some thirty years ago, before I had learned the value of early brood-rearing or the art of securing a strong colony in time to gather the crop of honey as soon as it appeared, nearly all my colonies were short of stores, while many of them were weak in numbers also. I thought that the strong colonies could take care of themselves, but the weak ones I must feed. I fed them, but left the strong ones to shirk for their feed. When clover came into bloom I found those that were strong early were almost without brood, and fast getting weak, while those that were weakest in early spring were my best colonies, and gave me very much the most surplus honey. Had I been a stranger to the resources of our section I might have thought we were overstocked. I believe that, by judicious feeding when flowers yield little honey, the number of colonies in any given section may be very largely increased—I think it safe to say doubled, without any danger of overstocking.

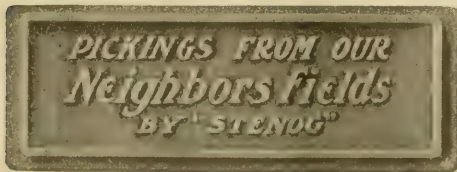
DR. MILLER CORRECTED; WHY I USE PLAIN SECTIONS.

Under the topic of plain sections vs. beeway sections, Dr. Miller makes some good points. There is quite a difference in different colonies as to the evenness with which they fill their sections. Especially is this true in regard to a weak or strong colony. There is also, as he says, a difference in different seasons; but Dr. Miller seems to have misunderstood my position, and the editor of GLEANINGS as well, judging from the footnotes on the article from my pen in the Christmas number of GLEANINGS. I do not use a simple slatted separator with parts to engage the edges of the plain sections, but use instead a separator with small projections on each side to engage the edges of the plain sections, thus giving the bees a

chance to go between the edges of sections and separators, and so giving them a chance to pass laterally from section to section, the principle being very similar to the Hyde-Scholl separator.

It is true that I have never tried one half of my bees with one kind and one half with another; but I did test them—I mean plain sections with separators with a part of my bees—before adopting them. One of the most serious objections to using them, as it seemed to me, at first, was that weak colonies would not finish up as many sections as with the old style of section and separator. With the old style, a colony not very strong would go up into a clamp, and very often finish several sections near the center of the clamp, leaving the rest almost untouched, while with the new plain section and separator they would start many more than they finished, owing to the freedom or “get-at-ability” of the sections, as it seemed to me. But this objection is much more than balanced by the evenness with which they fill them. With these separators there are no naughty corners; but, instead of a post to bump their heads against, a clear passageway around the edges of sections—see? I should now be very unwilling to go back to the old style of sections, because I know I can put up my honey in better shape than any of my neighbors with two-beeway sections. When I first got up, or began using, this style of separator, which was fully illustrated in GLEANINGS, at the advice of E. R. Root, I applied for and secured a patent on it, but have not felt like booming it till I had fully tested it. I can now give it my full indorsement.

Middlebury, Vt.



A prominent bee-writer in Bohemia says, in some foreign journal which I can not just now find, that he has much better success in introducing queens at dark, when the bees are all in the hive, than in the day time. He thinks that light makes the bees more nervous and irritable, while darkness makes them more kindly disposed and reasonable. Just how much there may be in this remains to be seen; but perhaps it is well worth considering.

The *Scientific American* takes a correspondent to task for writing to them with a leadpencil. While it may at times be impossible to use a pen and ink, it is certainly better to do so, especially as a pen is so much easier to use. Writing should al-

ways be on ruled paper. Some of the most objectionable writing editors get is where the top of one line is written over the under half of the line above, clashboard fashion. Please allow plenty of room between the lines; and if you use a typewriter, leave every other line blank. Never send any thing to press until you have read it carefully to supply the missing words; and then let some member of the family read it to supply the words you have left out. Many writers would be surprised to see how careless they have been in the preparation of their manuscript.



The Apiarist is the name of a new bee-journal, the seventh number of which is before me. This being the first number I have seen, it will account for the fact that no mention has been previously made of it, as such work has been referred to this department of late years. This new candidate for apicultural support has 24 pages, well printed, and the subject-matter is well chosen. It is edited by Mr. C. S. Phillips, and published by John Bradley, at Waco, Texas. The price is \$1.00 a year, and the journal is well worth it.

Our old friend Mr. L. Stachelhausen has charge of the Question and Answer Department, and in answer to the old question as to whether bees move eggs or larvae from one cell to another or not he says:

For many years, once in a while somebody has asserted that he has made observations which were positive proof that such transportation takes place. During the last few months even such celebrated bee-keepers as Alpaugh, Holtermann, and Pettit answer yes to this question. Nevertheless I am skeptical. Pettit thinks it is not probable that bees could move larvae. Hasty says: "They are probably capable enough of moving either one." When an egg is laid by the queen its point is glued to the bottom of the cell; and if it should be removed the egg shell would break, its contents float out, and so the egg would be destroyed entirely. For moving young larvae it is hard to understand how the bees would proceed. I will not say that a transportation of eggs or larvae from one cell to another one by the bees is entirely impossible, but it is not very probable. In my bee-keeping experience of nearly 50 years I have never had occasion to observe a case of this kind. Of course, this is no proof at all against the possibility; but I have observed some cases very similar, which were explained in a different way afterward.

As Mr. Stachelhausen is a very careful observer, his opinion certainly has some weight in deciding such a matter.

A list of the principal honey-producing plants of Texas, by Albert F. Conradi, is of special interest. In speaking of yellow sweet clover, Mr. Conradi says:

This plant is reported to occur along the Colorado River. Its distribution in Texas is indefinitely known. It blooms during May and June, and is a fine honey-yielder. The honey is claimed by some bee-men to be superior to the white sweet clover. It grows on many varieties of soils, and would probably make a good honey and forage plant for the poorer soils of the humid sections of Texas. Experiments in growing this plant on the poor soils at the experimental apiary at College Station indicate that it is worth while for all bee-men to try it. In a letter dated May 12, from Mr. C. S. Phillips, editor of *The Apiarist*, he states that, three or four years ago, he sowed seed at Waco, and the plant is now rapidly spreading, there being "nip and tuck" between it and Bermuda grass, and, according to present indications, he believes that both the yellow and white sweet clovers will master the Bermu-

da. Mr. Phillips furthermore says that the bees do not work it like the white species; that, while the yellow is about through blooming, the white will continue to bloom until fall, provided there is sufficient rain. These clovers are valuable for late winter and early spring grazing. The plant prefers lime soils. However pleasant the odor to people, stock must become accustomed to it before the plant is relished for forage.

We shall gladly welcome *The Apiarist* among our exchanges.



SUCCESS IN BEE-KEEPING.

Some General Considerations that Conduce to that End Covering the whole Season.

BY E. W. ALEXANDER.

How that word "success" seems to fire our very souls with ambition! and we again and again think our business over, each time trying to solve some new problem whereby we can add still more to our income and at the same time reduce our expenses. There are two things that always bring success—that is, good seed sown in fertile soil; and that law of cause and effect which predominates in all things, affects our business all the way through. There is no question that bee-keeping, if rightly done, is fertile soil; and it rests with you, my friend, to inform your mind and adopt methods whereby you will become good seed to develop in that soil.

You undoubtedly have had experience enough to know whether you like bee-keeping or not. If not, then sell out and take up something else; but if you like the business, then "Stand not upon the act of your going, but go at once" with a determination to succeed. Work at it by day, and think of it by night. Aim high, and use all the skill you can command to make it a success; get bees of the best honey-gathering strain you can find, for honey is what you are working for; let all other things be secondary to that. If they sting, make the best of it. If they swarm too much, try to curtail it; but get the bees that will gather honey by the ton; then you will be on the main road to success.

THE DIFFERENCE IN COLONIES.

There is as much difference in the amount of honey that different colonies will produce as there is in the amount of butter that different cows will make; so don't waste your time on any poor stock. When you have the best, give them good care and you will be surprised at the results. Look upon every colony as you would an individual whom you had hired; then see that each one contributes its part toward producing a fine surplus.

After you once get your colonies strong in bees, keep them so during the whole year. This can be accomplished to a great extent by keeping only good young well-developed queens. See to it that they continue to breed well into the fall. This can be done by a little feeding.

WHEN TO PUT IN AND WHEN TO TAKE OUT OF WINTER QUARTERS.

In this cold climate I would advise putting them in their winter-quarters about the first of November before they have lost many bees by hard freezing weather. As a general thing I think waiting for a chance to fly in November is a bad practice. If you winter in a cellar, and can keep the temperature about 45, it makes but little difference how damp the cellar is, providing you have a good mat on top of every hive; or a good piece of heavy duck will answer if you have not the mats, and then raise them about an inch off the bottom-boards all around.

Don't take them out in the spring until there is something for them to work on. We have noticed for several years that the first colonies we put into the cellar are the last to be taken out, and they are our best colonies nearly all summer. Heretofore there has been about ten days' difference in the time of putting in the first and the last, and about the same length of time in taking them out. Now we have a new cellar in our bee-yard so handy that two men can put away nearly 800 colonies in a day, and disturb them but very little.

In regard to this wintering problem, in order to be successful there are a few things that must work in harmony together. First, good stores; total darkness; perfect quiet, and an even temperature of about 45. If any of these are lacking it may be necessary to give them a chance to fly earlier than we otherwise should, in order to save them from wasting away badly in the cellar; then when spring comes, do all you can to keep them warm and promote early breeding.

At this time they require man's help more than at any other time of the year; and if you expect to be successful, there must be no let-up until every hive is crowded full of bees and maturing brood. Yes, I mean all that that implies, and a great deal more; for you should now have a fine lot of young queens ready to make whatever increase you may desire; but if you do not understand rearing good queens then you had better buy what you need from some party that can be relied on to furnish you good stock.

DON'T BARREL HONEY DIRECT FROM THE EXTRACTOR.

Now as to barreling up extracted honey, as some advise, right from the extractor. This is something I can not endorse. If you are very careful it might do; but with some careless honey-producers it is liable to do much harm. Even if of good quality when extracted there will be a little scum rising to the top after a few days. This, if left in the barrels, gives it a bad appearance, and many times hurts its sale. Then if there

should be a little thin honey in the barrel this will also rise to the top and have a tendency to ferment. Here is one of the reasons why we have always used large storage-tanks. With them, whatever rises to the top can easily be skimmed off; and in drawing off from the bottom of our tanks we get only the thick pure honey of the finest quality. We are sure that, in giving this part of the business special attention, as we do, it has much bearing on the ready sale we find for all we can produce. If you expect to make bee-keeping a success, you must look close to all these things. Don't be afraid to give a dollar's worth of good honey for every dollar you receive from a customer; for if you are, your customers will soon find it out.

BEE-KEEPING AND OTHER SIDE LINES NOT ADVISED.

In regard to running some other business with bee-keeping I must say I don't think much of it. If you want a larger income, just add on one or two hundred more colonies. I don't know of any thing so nice to go with bee-keeping as plenty of bees. Some are so slack that a large per cent of their colonies give them little or no surplus. This is all wrong, and shows that their owner is not caring for them as he should. The idea of having 100 colonies, and getting surplus from only 75, is on a par with box-hive apiaries. It is now high time that we get away from that slipshod way of caring for our bees. Don't let one single colony sulk away its time. If they will not work without it, take away from them all the honey they have, and then let them work or starve. Sometimes we have swarms that have to be treated in this way. We don't keep bees for the fun of lugging them out and in the cellar spring and fall, and what stings we can get through the summer. We care for them simply for the dollars we can get for their surplus honey; and if we don't get some from every colony we know it is our fault. My advice is, just as soon as you find a colony that is not doing well, attend to it at once. That is your business. Either put it in a shape so that in a few days it will be all right, or unite it with another. If you don't want to do this, put it with your nuclei, and consider it one of them. I frequently find bee-keepers who allow far too much drone comb in their hives. It is certainly much better to restrict the rearing of drones to two or three colonies than to allow many thousand drones to be reared in the place of worker bees. This one thing of itself often makes the difference of several pounds of surplus in many of our colonies. It will pay you well to bear this in mind.

My friends, in the above you will find a few of the many necessary things spoken of that make bee-keeping a success. Please weigh each one separately, and in doing so make all the improvements you can; for it is my hope that you will some day enjoy success in bee-keeping.

Delanson, N. Y.

[When I visited Mr. Alexander it was evident that he practices exactly what he preaches in the foregoing. His colonies are all uniform — so much alike in working capacity that there is scarcely any difference in the flight at the entrances that could be detected. Besides being uniform in strength and working capacity they were all very strong, with the exception of a very few where he was rearing queens or making some experiments.]

This article may serve further to show why it is and how it is Mr. Alexander is able to extract without using the uncapping-knife. When it is remembered that he waits until the bees begin to cap the honey over; that buckwheat honey is very thick in his State; that he allows it to ripen further in shallow tanks, removing any scum or impurities that may have risen to the surface meantime, and when it is remembered, too, that he draws the honey from the bottom, drawing off only the thick honey, it will be seen why he can practice extracting without using the uncapping-knife, wherein in the majority of cases, and in the majority of localities, it would be advisable to wait until the honey is fully capped. In this connection I wish to say I believe that the great mass of bee-keepers, unless they have proved that they can do it safely, had better not extract any honey that has not been covered with capping—especially so if no evaporating-tanks are used, as do Mr. Alexander and others who extract the honey before it is fully capped.—ED.]

THE IMPROVED UNCAPPING-KNIFE.

How to Hold and How to Use; the Value of a Longer Knife.

BY E. D. TOWNSEND.

Some time ago I received a sample of Bingham's uncapping-knife from The A. I. Root Co. to test. The blade is the same as usual, only an inch or thereabout longer than the regular. The handle is the Coggs-shall idea, being flat on the top and bottom, as the knife lies on the table, and is also planed off on the edge next the shank, so there is a flat edge where the thumb comes when taking hold of the knife when using.

And now, Mr. Editor, I will say a few words about uncapping and uncapping-knives. We have felt the want of a longer uncapping-knife for several years, but have been loath to ask for it for fear this extra length would make the knife unwieldy, or, in other words, every little we add to the blade in length we lose in leverage. I wish I could have used this knife with the blade an inch longer than the regular, one season before passing an opinion on it. Our extracting-frames are all the Langstroth size, mostly with $\frac{3}{4}$ inch deep top-bars; but a part are only $\frac{1}{2}$ inch deep. This, after figuring out the bottom-bar, leaves from 8 to 8 $\frac{1}{2}$ inches of comb surface. Eight of these combs are

used in a ten-frame body. In our extracting upper stories this wide spacing, $1\frac{1}{2}$ in., makes great plump fat combs. Now, to uncap, set the comb to be uncapped on end, on the usual sticks, over the uncapping-tank, with the edges of the comb toward you, held in position with the left hand. We start the knife at the lower end of the comb to be uncapped. At this stage the comb, for convenience, will stand on a slant to the left. Now begin the upward movement of the knife, back and forth, endwise, with a seesaw motion. This makes the knife cut more keenly. Now, about the time you see the cappings are going to fall off the knife, with the left hand push the comb to the right until it stands perpendicular. If you are now holding the knife at the correct angle, the beveled edge on the knife being on a level with the comb after it is uncapped, the lower edge of the knife will be an inch or so off from the uncapped surface, so the cappings will clear the comb and fall direct into the uncapping-tank below. Uncap deep, clear down to the frame.

I am convinced that the best honey could be produced by using nothing but foundation in the upper stories to extract from; but as this is impractical the next best thing to do is to uncap *deep* so the comb, when given to the bees to be refilled, will be, say, one inch thick. This leaves the cells only $\frac{1}{2}$ inch deep, and is the *next best* to foundation. Then by $1\frac{1}{2}$ -inch spacing the combs uncap very nicely, and I never could see but the honey was just as good as if more combs were used in the upper story—i. e., closer spacing.

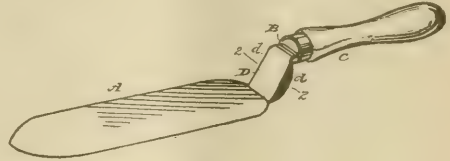
Keep moving your knife up, with the drawing motion mentioned above, until you go the whole length of the comb; and if you have done a good job, and there were no indentations or unusually rough surface, your comb will be finished with one stroke of the knife.

And here let me say, no one will ever go back to narrow spacing after once trying wide spacing; but don't forget to uncap *deep*. This leaves your combs the regular thickness when extracted, and I think the honey will be of a little better quality in these thin combs.



I think that, after reading thus far, it will be easy to convince the reader how hand-capped we have been with the regular short Bingham knife as it has been manufactured heretofore. Of course, those who still practice close spacing will need the regular knife. That brings me to a point. We shall need two knives—the new long broadside knife and the “regular” knife. I inclose a

photograph showing the proper way of taking hold of the knife. The hand is turned up in order to show more clearly the arrangement of the fingers. The thumb and first finger grip clear down on the shank of the knife; in fact, the first finger projects down by the blade $\frac{3}{8}$ inch or so, while the thumb goes clear down and rests firmly against the blade, near the shank. This way of taking hold of the knife gives one very much better leverage than he can get by taking hold of the handle only.



You will notice that, with this grip, the handle can be made shorter when I prefer. Instead of cutting out that part of the material between the blade and where the shank turns into the handle, leaving, say, $\frac{3}{8}$ inch there, and turning it back toward the handle as shown at *d*, in the drawing, so as to make a wider and better grip for the thumb and first finger, as the narrow edge of the shank is a little sharp, and hard on the first finger. You will notice that, with the first finger clear down to the bottom of the shank, one has a very great leverage over taking hold of the handle only; and as one adds to the length of the blade, as the new knife will be, he needs all the leverage possible.

This matter of uncapping-knives and *how* to uncap is getting to be very important, since the tendencies of the time are in favor of leaving the honey in the hive until it is all capped and cured, before extracting.

Remus, Michigan.

[We are making arrangements to put on the market another year, if the trial test in the hands of practical honey-producers justifies it, a honey-knife like that shown in the illustration above, having on the shank a semicircular finger-piece flange on each side. When the knife is held as in the lower illustration the thumb and fore finger get a good solid comfortable bearing on the broadened edges much better than with the thin knife-edge shank of the regular style of knife. This thumb-and-finger shank will in no wise interfere with handling the knife in the old way; but it is obvious that, the closer one can get with his hand and fingers to the blade, the greater *leverage* he will necessarily have, and less strain on the wrist. If the blade be longer it is much more important to get closer to the work.]

The Coggs-shall flattened handle will also probably be used in connection with this turned-over edge of the shank, or that portion between the handle and the blade. The user then can grasp the tool in any fashion that he desires.

It is hardly necessary to state that Mr. Townsend is one of the most extensive honey-producers in the United States, and

one of the most practical. Our assistant editor, Mr. H. H. Root, is now on his way to Mr. Townsend's to test a power-driven extractor outfit. The motor will be of the gasoline type, of special construction.

We have been working on this problem for some two or three years, and now think we have it nearly solved. But in order to *make sure* of it we propose to go into the field where actual conditions are met. — Ed.]

REMOVING COMBS FROM THE HIVE FOR EXTRACTING.

How to Drive a Large Part of the Bees out of the Supers with a Smoker; the New Bee-brush, and How to Use it.

BY R. F. HOLTERMANN.

In how many apiaries throughout the land does the season for extracting become a season of dread? Time was when it was the same to me; but long experience and careful observation, and pointers from others whom I have met at conventions, and the reading of articles in bee-journals, have changed all this; and now we often extract in out-apiaries in buildings very far from bee-tight. During the robbing season we extract all day, and for years have not been compelled to stop work. To go into the details of management to accomplish this will necessitate another article. The present is simply to cover the removal of combs from the hive to the bee-house.

We work in pairs, the least experienced doing the smoking, although to smoke bees "to perfection" requires great skill, close observation, and faithful work.

The next hive to operate upon is smoked while we are about to open a new hive. Smoking is done through the ventilator which has been described and illustrated in my hive. To smoke the bees at the entrance is to drive them into the super. The hive is not jarred, but handled carefully. The cover and cloth or honey-board are removed from the super, and the bees smoked. A swinging motion of the smoker throwing the smoke between the combs from end to end is far more effectual to drive the bees down than to smoke in the usual circling motion, and largely across the combs. If there are two supers on the hive, the combs are taken out of the first super, shaking the bees in front of the hive, but so far in front that they are not likely to reach the brood-chamber before the super next to the brood-chamber is being operated upon. We work quickly but not *roughly*. Let movements be rapid, purposeful, but not nervous. We avoid crushing bees; and by having straight combs and using a little careful judgment we have no trouble about crushing bees. I now catch hold of the top-bar ends with thumb on one side, fore fingers on the side-bar and the rest of the hand on the other side of the frame inside of the hands, facing each other, and make a quick shake followed by a rapid reversal in motion, and

another quick shake down, done in less time than it takes to describe it, and yet the bees have had three attempts to dislodge them, followed in rapid succession. To hold a heavy comb by the top-bar lugs alone would break the lugs in many cases; but by also pressing on the side-bar, much of the weight is taken from the lugs. I also find that the staples driven into the top-bar weaken the lug, and they are more liable to split off. Your metal spacers would have the opposite effect. Unless with some strains of Italians, I find, after such shaking, but few bees upon the comb. Whatever is left upon the comb is brushed off.

For twenty-five years I have tried almost if not every thing recommended as a brush if within reach, and some things which had to be purchased a long way from home. A turkey feather and wing, or a goose wing, was the first. I find these too harsh. There is not give enough to them; and even with an experienced hand the bees are likely to be more or less crushed or rolled under the feather, and they will fight the feather. I have seen the bees do it many a time. Asparagus and weeds do not last, and are too irregular, and much time is lost in looking for more. The Cogshall bee-brush, which should be used only at the end, has sufficient play, but does not cover enough surface at a sweep. The Dixie bee-brush is all right at first; but when it has been put in water it hardens, and when in use becomes tangled. However, I prefer it to any of the above-named articles.

More than a year ago I saw cataloged a German brush, and sent for two. It is a hair brush. Water has had no effect upon it. The hairs are long enough to be pliable and not crush the bees if caught between the brush and the comb. There are neither too many nor too few hairs in the brush,



THE GERMAN BEE-BRUSH.

either being a defect. With that brush we brushed at least comb surface enough to contain 30 000 lbs. of honey, 60,000 lbs. being one crop. I showed the brush to many, the editor of this journal among the number, and it looked, aside from a dulling of the paint on the wood, about as good as new. Even when used by a novice, as it was many a time, we never saw the bees try to fight it. It was shown at conventions here in Canada, and many wanted to buy one like it, among them some of our very best-known Canadian bee-keepers (I have none for sale). I never used a brush its equal. It could be washed in a moment, and be again ready for use, water not changing its texture as with vegetable matter. I know the brush has saved us from many stings and annoyances. The lower-story combs, when a third have been removed, have their bees shaken into the

super. An empty super is taken out on a barrow and filled. If two supers are on the hive the first super will then be empty, and it can be placed on top of the first upon the barrow. We often (one man) wheel a barrow with two twelve-frame supers from the apiary to the house. By means of a plank or other device the barrow is wheeled directly into the extracting-house, and this method is much easier and more rapid than carrying in buckets.

Brantford, Canada.

STRAINING HONEY.

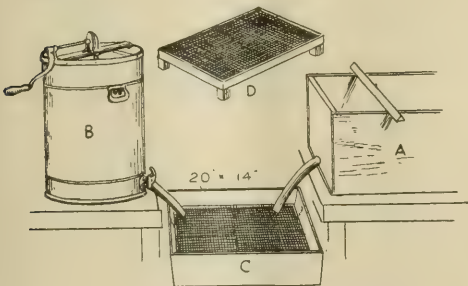
How to Arrange the Uncapping-tank, Strainer, and Extractor.

BY T. ARCHIBALD.

I have read with pleasure R. F. Holtermann's method of straining honey in your issue of Feb. 1. I have not the least doubt that it works well. The readers of GLEANINGS are legion. They live in every part of the country where lives the honey-bee. It looks quite reasonable then that a method of manipulating bees or honey in one locality might not be suited to another in which the climate is altogether different. The apiarist who reads the up-to-date bee journals has access to a fountain of knowledge he can not afford to be without in these days of competition.

The method of straining honey is not one of much interest to the bee-men of this climate. Honey deposited in the large tanks used here settles at once. In a few hours every foreign substance is on the surface, where it can be skimmed off. Straining through cloth is out of the question.

I will give a method of my own, which some of my neighbors are adopting. The following sketch will be its best explanation.



A is the uncapping-box. It is one of McIntyre's make. B is the extractor. C is a pan which receives the honey from both A and B. Inside of this pan is the strainer. The pan is 14 by 20 inches and 5 deep. The strainer is made by tacking wire cloth on to four strips of wood $\frac{3}{4}$ by 1 and the length and breadth of the receptacle. This strainer is raised from the bottom $2\frac{1}{2}$ inches. Four blocks of wood, 1×1 and $2\frac{1}{2}$ long, stand in each corner as its support. From this pan

the honey flows through a two inch pipe to the tank.

This method is simple, cheap, and easily kept clean. You can have a number of these strainers. They make good covers for hives at the time of moving bees. The size, 14 by 20, just suits an L. hive. I change the sieve every half-day.

Mr. Holtermann is opposed to exposing honey to the air. "The aroma is lost," he says. It may be; but here our best honey is that which lies in the tank exposed to the sun's rays for the longest time. Had I tanks enough I would leave it all out until the close of the extracting season, simply covering the tank with a white sheet. After a week or so of exposure a scum resembling the white of an egg covers the surface one-fourth inch thick. I want this out of the honey before I can it up.

Los Angeles, Cal.

[It is my opinion that the arrangement here shown has something of more than ordinary merit. It is simple and cheap. Conceding that the Holtermann inside of the extractor strainer is good, it requires an extra-deep can and a special strainer, one that is not easily get-at-able, and therefore not easily cleaned.—ED.]

IF I WERE TO START ANEW, WHAT STYLE OF FRAMES, SUPERS, AND APPLIANCES WOULD I ADOPT?

Prefer 8-frame Langstroth Hive and Nail-spaced Frames with a Special Bottom-board.

BY DR. C. C. MILLER.

To tell what contraptions I would use if I were to begin bee keeping all over again is very nearly equivalent to telling what I am using now; for in nearly all cases I have not hesitated to change, no matter what the cost, whenever I have learned of something better. Certainly I would not begin with bees in a sugar-barrel, as I did 45 years ago.

But to begin at the foundation, if I were to begin anew I would have at least the home apiary paved with Portland cement, with slight elevations at the proper places to serve as stands, so that the stands would be part of the pavement, always ready in place. This latter for two reasons: Because in the long run it would be cheaper than even the cheapest wooden stands; and also because bottom-boards would probably rot less on cement than on wood.

But the first cost of the cement paving would be considerable, and I should have a strong desire to have the feeling that any investment in that, as well as in buildings, etc., would be a safe investment, without any fear that, in the years to come, others might locate so close, and in such numbers, as to drive me out of that location. So I think if I were to begin again I would do my utmost to start a crusade for legislation that would in some way give me a legal right to a given territory, even if I had to pay heavy-

ly for it. The day may never come when the bee-keeper shall have a legal right to territory; but if so, then the day will never come when bee-keeping will be on a stable footing like any other business.

After getting that Portland cement laid I'm not sure but every thing else would be about the same as I have to-day; so I'll tell you what I have, mentioning it wherever I'd like any thing different. It is well to premise that white clover is pretty much the only source of surplus in my locality, making it advisable to work for comb honey; although a fall flow from cucumbers and some other things generally helps to fill up the hives for winter.

My hives are eight-frame dovetailed, used two-story high whenever needed before the honey-harvest, but always reduced to one story when supers are given. (If I were not giving close attention to my bees I should want larger hives so as to avoid the danger of starvation in winter.)

My frames are Miller frames, and here is a good place to say that preference is always given to that which is like what others have—in other words, to that which is in fashion and to be found listed in the catalog of dealers so long as they catalog any thing *nearly* as good as the best; so I'm pretty well in fashion. I think the Miller frame is the most unfashionable thing I have. That's as much as to say that I think it a good deal better than any thing regularly listed, although it doesn't vary so much from the fashion after all. It's a plain wood frame, with top-bar, end-bars, and bottom-bars all the same width, $1\frac{1}{2}$ inches. Top-bar is $\frac{3}{4}$ thick, with the ordinary double saw-kerf and wedge for fastening in foundation, with cut-off ends. Bottom bar is in two parts, each $\frac{1}{2}$ inch wide, the lower edge of the foundation occupying the $\frac{1}{2}$ space between the two parts, thus making the finished bottom-bar $1\frac{1}{2}$ inches wide. The frame is filled with foundation which touches the end-bars at each end. It is deep enough so that, after it is wedged in the top-bar, it comes down between the two parts of the bottom-bar. Only one part of the bottom-bar is nailed on until the foundation is in place; and after the foundation is in place the second half of the bottom-bar is nailed on, and at the middle a nail is driven through both parts, squeezing the foundation tight between the two parts. The frame is spaced automatically endwise by the usual staple; but the side spacing is by means of common $1\frac{1}{4}$ -inch nails driven in so as to project $\frac{1}{4}$ inch. If I lived in Europe I'd use nails with heads of the proper thickness to be driven in automatically the right depth. But I don't live in Europe. If I were beginning all over, I'd send to Europe for the right kind of nails, or else have them made to order, although I suppose it would be an expensive thing to have only a few thousand made to order.

As already shown, the frame is entirely filled with foundation, and to prevent its sagging or buckling I again depart from the fashion by using five foundation-splints per-

pendicularly, each splint being $\frac{1}{8}$ square, and boiled in wax.

Proof that I am not over-conservative lies in the fact that I have deserted the reversible bottom-board—my own invention—although the one I am now using is equally my own invention, if any thing so simple can be called an invention. It is nothing more than a plain box two inches deep, open, of course, at the entrance end. That allows a space of two inches under the bottom bars all the year round except during the honey-harvest. At that time the space is filled up so as to leave only $\frac{1}{2}$ or $\frac{3}{4}$ inch under bottom-bars. To fill up this space a sort of rack is made of any old stuff split up and then nailed together, raft-fashion, by cross-pieces. This keeps the bees from building down just as well as if it were solid, but gives extra chance for ventilation.

For surplus arrangement the T super (but I wouldn't like to have the T super without knowing how to use it), with plain wood separators, and one-piece two-beeway sections $4\frac{1}{2} \times 1\frac{1}{2}$, with possible experimenting to get a section of some weight but a little thinner and taller.

For hive-covers I'd get an outfit to start with of zinc-covered ones with dead-air space, groan at the thought of paying about 30 cents apiece for them, and then go to experimenting on cloth, paper, rubberoid, etc., to see if I couldn't find something just as good at less cost.

Perhaps that's as far as I need to go; for those are about all the things that would make any serious trouble for one if he should make the wrong start. Of course, I would have smoker, bee-brush, hive-tool, bee-veil, tent-escape, etc., but it wouldn't be a serious matter to change any one of these; but it would be a serious matter, as I know from experience, to change hives.

THE FERRIS SYSTEM OF PRODUCING COMB HONEY, AND SWARM CONTROL.

The Ferris Comb-honey Attachment; its Advantage over other Forms of Supers.

BY A. K. FERRIS.

Continued from page 882.

A comb of brood is used on either side of the attachment, as shown in cuts 11 and 12. These combs of brood are the most powerful agents we have to induce comb-building and honey-storing.

A few days before we remove the old queens we slip a frame or two of foundation in the center of each brood-nest, in order to get nice clean white combs to be used in connection with the attachment. This will be drawn out, and, if done properly, will be well filled with eggs and larvae. It is very important that they be as full as possible.

In some localities where pollen is very abundant at the time of the flow, drone-comb foundation may be used in sections to exclude it, for, no doubt, nearly all have no-

ticed that the pollen is stored exclusively in worker comb. At one time I confined a queen on drone comb, and found that, although they would rear worker brood in drone comb when compelled to do so, and would even carry pollen freely, yet it remained on the bottom of the hive, but was not stored in the drone comb. In localities like mine this drone comb is not *absolutely* needed, as but very little pollen is coming in during the flow.

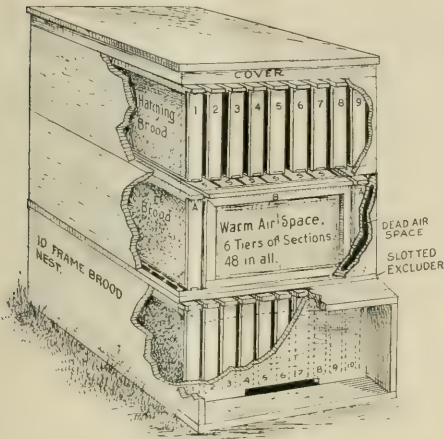


FIG. 12.

With a bottom entrance and a full story of brood below and an excluder between, the amount of pollen that would be placed above would be exceedingly small; in fact, I have put combs of pollen above which resulted in its being used up; but I know that localities differ, and one has to adopt methods to suit his locality.

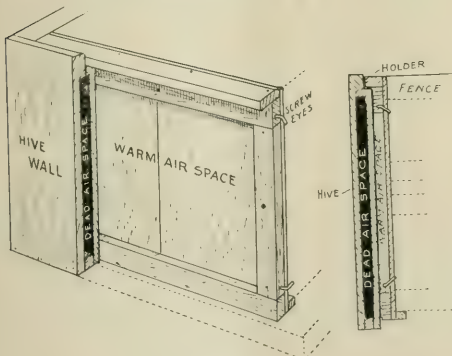


FIG. 12 1/2.

At this point we might notice profitably SOME ADVANTAGES GAINED BY THIS METHOD.

The first thing generally considered by bee-keepers is the cost, so we will begin with that. With the equipment for extracted honey, the only extra necessary is the comb honey attachment, which costs about

half the amount for a half-depth super and that of the cheapest make; yet in this we use the wire-cloth separator, which has been excluded on account of cost largely, and this still brings the cost of fitting up an apiary about \$1.00 per hive less than if fitted with the ordinary single-depth super.

Again, these attachments are so open that honey can be stored away in them until you wish to prepare for shipment, as it gives a free circulation of air on all sides; then when through with them for the season they can be taken apart easily and quickly, and stowed away in an exceedingly small space.

Last, and best of all, you are prepared for any kind of season; and if you wish to run for extracted honey wholly, or for comb, you can do so. In other words, you are master of the situation, and have the appliance that will produce more pounds of honey, and that strictly fancy, than any other device now in use. All of this is on the side of controlling swarming besides, but this will be considered later.

PREVENTION OF INCREASE.

This subject is so broad and so many factors enter into it that it will be necessary to discuss it from these varied conditions. In the first place, we all know that what will entirely prevent in one case will have but little effect in another. In some cases bees have filled their hive and portico, and then gone underneath and filled all the available space with honey. In other cases bees have filled their hive, and, when no more space was available, have simply done nothing practically, because they had no more room. In this case it will be readily seen that it would be almost impossible to make them swarm.

On the other hand I purchased two tested gray Carniolan queens of Mr. Frank Benton, and their bees prepared to swarm when no honey had been coming in, and they had only three frames of brood and plenty of empty combs, room, and honey. On account of their persistent disposition to swarm, later in the season I broke up these two colonies and made nuclei of their brood; but in nearly every case these nuclei constructed queen cells persistently, and finally one swarmed with less than a quart of bees.

The other colonies in the same yard of different races, and from a number of different breeders, made no attempt whatever at swarming. In another case our neighbor had a swarm of blacks that had reared brood extensively in the cellar, and had queen cells in process of development when set on their summer stands. In this case he cut them out and used them in some queenless hives. This man has kept the same stock of bees for twenty-one years, and during all that time has run for comb honey and encouraged swarming.

This shows that the disposition to swarm or not to swarm is much more prevalent in some cases than in others; so what would absolutely control in one case would have but little effect in the other. In order to

comprehend fully this subject let us take another illustration—one we are all familiar with:

In an early day the potato-plant bore seed freely; but men continued to cultivate them from tubers, until now the tendency to produce tubers at the expense of seed has been so intensified that it is almost impossible in some varieties to obtain seed; yet no one will argue that the potato of to-day is in any way inferior because it does not produce seed; for all know that it is just the opposite.

Look again at the wild maize, or Indian corn, with its flat cob and only an occasional kernel here and there, not in rows, very ungainly in looks, and then at some of the varieties that have been developed from it. This is a good example of what can be done by careful selection. Now in regard to bees:

Conditions and operations have tended to breed certain races in certain lines for almost centuries, as in the case of the gray Carniolan. They have encouraged swarming so long in Carniola that in some instances it has become very prominent. The black or German bee no doubt at one time was one of the best of races; but their mode of procuring honey by the brimstone-pit resulted in destroying the best colonies, and the continual breeding from the more inferior ones has greatly affected their offspring. But, we say, what has all this to do with control of increase? Very much indeed; for in order to control swarming suc-

cessfully all these things must be taken into consideration; and remember that the hive or method that will prevent in one case may have little or no effect in another.

Madison, Wis.

PROF. H. A. SURFACE AND HIS STUDENTS IN BEE CULTURE.

BY E. R. ROOT.

The illustration below shows a view taken of Prof. Surface and his class at the State College of Pennsylvania. The apiary where this picture was taken is located in a little grove a short distance from the college grounds. It is at this yard where the professor has been conducting various experiments along practical and scientific lines. It is here, too, where he took his students to make demonstrations and at the same time instruct them along the lines of practical management of bees.

On one of these occasions, apparently, a kodaker was present and secured the accompanying picture. Prof. Surface is in the foreground, pointing out the queen on the frame he is holding, to his other queen (at his right) who at the moment looked up, scarcely repressing a smile, while her husband with intense seriousness is evidently oblivious to the kodaker's presence.

We had expected to have Mrs. Surface sing for us at the field-day meeting at Jen-



PROF. SURFACE AND HIS STUDENTS IN APICULTURE.



SOLAR AND ARTIFICIAL HEAT WAX-EXTRACTOR.

kintown, but we had to forego that pleasure, as it was impossible for her to get away.

At the left of the picture will be seen a large open drygoods box. Prof. Surface had put a number of the colonies in winter cases of this construction, packing them in straw or leaves for the winter. When we examined the bees between sessions at the State College convention held during the last of March we found them in good condition save that one or two had succumbed from some unknown cause. These cheaply constructed winter cases doubtless serve an excellent purpose.

As the trees were not leaved out at the time this picture was taken, it will be seen that this "dissected" colony was a fair one, as the bees were fairly well bunched over the frames.

BEE-KEEPING IN IDAHO.

A Solar Wax-extractor so Designed as to Take a Small Stove to be Used Early in the Morning.

BY E. F. ATWATER.

Last spring we built the solar extractor shown in the cut. It turns on a tin or bolt in front, and on two furniture-casters in the rear. In front you see a door which gives access to the lower compartment. The galvanized pan will hold a lot of cappings or other material to be melted, and the wax, as melted, flows down into a pail, and from that into another, on the well-known Rauchfuss principle. A part of the floor under the galvanized pan is cut away; and if we wish to start

the apparatus to work early in the day we melt as much wax as possible, and as long as possible we insert a small coal oil stove in the lower compartment so the heat is applied directly to the lower side of the pan. The only objection to this arrangement is that such a stove requires some watching or your whole extractor will "go up in smoke" some day.

Note the glass. Instead of buying a big sheet of glass, which, if broken, makes a considerable loss for Somerford's "poor bug-man," we get narrow strips, 3 to 8 inches wide, and build them together with white lead. These narrow strips usually cost nothing. The sash and glass may be taken off; the compartment containing the pan may be taken off from the lowest compartment; the machine is effective, economical, dissectible, and repairable. See the piles of comb-honey supers. We prepared last spring over 800 of them, with sections and full sheets of foundation. We have them yet.

Meridian, Ida.

[The scheme of having artificial heat in connection with solar heat I saw in practical use in Colorado some seven or eight years ago. Mr. R. C. Aikin and one or two others in that State had employed the combination for some time. Whether the principle was original with them or not I do not know; but as I now remember it they claimed much greater efficiency—that is, they got much more wax from a given quantity of comb than when solar heat alone was used. This reminds me that solar heat with the sun extractor is a very inefficient wax-rendering device. The sun extractor should *always* be used in connection with a wax-

press, otherwise there will be a lot of valuable wax lost.—Ed.]

CORNERING THE COMB-HONEY CROP IN 1905.

The Biggest Honey Deal on Record; a Little Inside History Just Made Public.

BY E. R. ROOT.

It will be remembered that, during the early part of 1905, the condition of the honey market, so far as prices were concerned, was any thing but satisfactory. Had the season of 1905 been an extraordinarily good one, or even an average one, there is no knowing where prices would have gone. Whether fortunately or otherwise, the season proved to be the shortest ever known in the experience of bee-keepers, and the actual returns showed that the crop was a very light one. In the Western States the amount of honey secured was unusually light. In the East no honey of any account found its way into the markets except from Michigan, where the season proved to be good. When it became evident that the crop would be short, prices began to tone up.

But there was another factor at work stiffening the prices that had already slumped to a low level—a factor that the general bee-keeping world knew nothing about, and we bumped up against it only incidentally a short time ago.

Thos. C. Stanley & Son, formerly of Dixon, Ill., now of Manzanola, Col., learning from GLEANINGS that the crop was a very short one, conceived the idea of buying up all the western car lots of comb honey in sight. This would seem impossible if not foolhardy. But the junior member of the firm, Thos. J. Stanley, relying on the reports in GLEANINGS, traveled extensively through the West; and where the honey had not already been sold he bought it up until he had *actually cornered some 35 carloads of honey*. He bought in Arizona, California, and Nevada, as well as in his own State, Colorado, until he had all the available supply of table honey. Wherever he could hear of another carload he bought that up; for it would not have done to let a stray carload get into the Eastern markets and knock the price away down, even below some of the prices he had already paid. It was, therefore, necessary to get into the position where he could "bull" the market. He was, therefore, forced to put out an investment of between \$90,000 and \$100,000, trusting to luck to come out whole, and, if possible, to make a little profit. This took "nerve" to go in that deep when it is remembered that comb honey rapidly depreciates in value, and that the selling season would soon be gone.

The junior Mr. Stanley figures that if 35 carloads had been allowed to break loose on the Eastern market, depressed as it was early in the season, prices would never have advanced. But he held it until they began to tone up, now and then letting loose a car-

load as the market would stand it, never letting it be known, of course, the big reserve he was holding. After a little the buyers were forced to come to him as he was the only man who had any supply. He kept selling until he had got down to about twenty carloads. This was as late as Thanksgiving day. Things began to look a little dubious to him, especially when he heard that Cuban honey was being shipped into New York. But this, fortunately for Mr. Stanley, proved to be a mistake. He held the prices up, selling a carload here and there, until at the close of the selling season he had disposed of practically the entire lot.

When asked as to whether he had made any money out of the deal he merely remarked that, while he advanced and held up prices, he was not sure that he had cleaned up any very big profit. When I ventured to inquire whether he would try it again or not he gave his head a doubtful shake, saying it took too much nerve and worry to handle such a lot of honey; that if the season should be at all favorable with an output of between 600 and 700 carloads of comb and extracted honey—well, he just would not try it.

Probably this feat of Mr. Stanley could not be duplicated except in a like season of scarcity of honey. It is doubtful whether any one else will ever have the nerve to buy up \$90,000 or \$100,000 worth of honey and trust to luck to get out whole. The very great danger of damage in shipment to comb honey would necessarily make capital very slow about laying in a big store of it.

Thos. C. Stanley & Son have been in the bee business for a number of years, having started in 1884, in the swampy lands of Skillet Fork River in the southern part of Illinois. They have had all the way from 500 to 2000 colonies, some winters losing large numbers in wintering. The senior member of the firm spent seven years in the Cumberland Mountains of Tennessee, some 75 miles north of Chattanooga; but it is the junior member, Thomas J. Stanley, who has been the active honey-buyer. We are glad to introduce both of these gentlemen—the senior member of the firm in his characteristic attitude, for he is devoutly religious, an ardent Methodist, and now in his 76th year finds great pleasure and solace in reading the Bible and other religious works.

The junior member has appeared at a number of the National conventions, and will be recognized as the active man of the firm of Thomas C. Stanley & Son. He is a gentleman of large physique and commanding presence, with a pleasant manner.

I may state that it was with some reluctance on the part of the younger Mr. Stanley that I obtained the facts for this writeup. He felt that *some* among the bee-fraternity might misconstrue the facts here given, to the disadvantage of his company; for he it known there are a few bee keepers who believe that many of the honey-buyers are but little better than a hungry vulture, ready to squeeze the last cent out of them, buying at



THOS. C. STANLEY.



THOS. J. STANLEY.

So far as the editor knows, Thos. C. Stanley & Son are the only people who have ever attempted to corner the carload comb-honey market to the extent that they bought up nearly all of the large lots of honey in sight last year, and sold it before the close of the season. Such a feat would be possible only in a poor season.—Ed.

a low price and selling at a high one; but when they one and all remember the services performed by this firm last year, and when they consider that the Stanleys made "no great speck" out of the big deal with all its worry, I think we may safely exonerate them—nay, rather, extend them a vote of thanks, for the market has been stiffer ever since.

Are Thos. C. Stanley & Son on the market again for comb honey for 1906? Really, I do not know. The last talk I had with the junior member was to the effect that they would probably quit the honey-buying business and go into something more profitable, involving less risk.

THE BABY-NUCLEUS IDEA NOT NEW.

Some Experiments with Different Forms and Sizes.

BY E. F. ATWATER.

From articles written for the bee-journals of the last few years one might be led to imagine that the "baby nucleus" is something new, but such is not a fact; for at various times in the past many bee-keepers have tested, adopted, and discarded some such arrangement for the economical mating of queens. My own first experience with them was in the late nineties, when I saw them in successful operation at the home apiaries of Mr. Thos. Chantry, then of South Dakota. His baby nuclei consisted of a case similar to the old Heddon super, containing four little colonies under one roof, with $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$ beeway sections for frames. With these I had partial success in South Dakota and Idaho, so that when E. R. Root called in 1901 I had in operation several such quadruple nuclei of the Chantry type.

These proving, on more extended trial, unsatisfactory, my next move was to make frames $8 \times 8\frac{1}{2}$, so that two such frames would go into a standard frame. These were very satisfactory; and if I had been content to end my experiments as to size of nuclei and nucleus frames at that time I would certainly have mated far more queens with less labor and expense during the past three seasons. However, to ease a surplus of ingrowing ideas I made 50 boxes of the Banks-ton-Laws type, using them one season, mating a good many queens from them; but they proved to be failures except when every condition was very favorable. Then, of course, I had to test the little two-comb Pratt box for frames $4 \times 5\frac{1}{2}$; also 50 boxes to hold one ordinary $5\frac{1}{2} \times 17\frac{1}{2}$ shallow extracting-frames.

Let no one imagine that I did not study all available literature in regard to these "monkey fixins'," for I think that few have entered upon the subject with more interest, or given it much more study.

The cuts herewith show a part of my baby-nucleus mating-yard as it appeared last

August. The Pratt boxes are seen in the middle row, while the others contain one shallow extracting-comb each. These long one-comb boxes were made so that one side could be removed; and by cleating two such boxes (minus one side each) together, and adding a single wide lid, a fine three-frame nucleus box is the result, and all were so remodeled during the past winter.

These boxes, by a suitable dividing wall across the middle, may be converted into double mating boxes for the frames $5\frac{1}{2} \times 8$. This latter size of frame I think will prove best of all—a happy medium: at least I have such confidence in them that I have enough on hand for 100 nuclei. I never use less than a large cupful of bees in a mating-box, and in cool weather a pint will be better, for the 100 to 200 bees in the little boxes seldom could or did induce a queen to mate or lay promptly unless weather and nectar-flow were favorable.

We use two styles of feeders in our mating-boxes. We soon found that Pratt's plan of waxing the lower inside of the hive was a failure *here*, as no such arrangement will long hold water or feed in this climate.

A plan that does work very well is to make the bottom-board of $\frac{3}{4}$ material grooved as in the Alexander feeder, well waxed. Then squirt the feed right into the entrance.

Another good plan is to make a shallow pan, say $\frac{1}{2}$ inch deep, of roofing-paper (not tarred) of a size to fit loosely on the floor of the nucleus, under the frames. In this pan put a float or a little excelsior, and squirt in the feed with a Pratt bulb feeder.

Another useful point—in confining nuclei or full colonies well ventilated, if you must leave for an out-apiary, and can not return in time to release the bees, just fill the entrance with "Good" candy; or, if this will not retain the bees as long as you wish, make a tin or wooden tube as long as necessary; fill with candy, and adjust to the entrance so that the bees must eat through to get out.

A SUGGESTION BASED ON THE ALEXANDER PLAN OF MATING.

As the Alexander plan of mating queens has been very successful with us it has occurred to me that two to four nuclei can be built together, the compartments separated by double queen-excluders. In this case brood will probably be necessary in each compartment; and if one queen is wanted, all must be taken, and young virgins or cells introduced to all at one operation.

Now a point which I think valuable to users of the new $5\frac{1}{2} \times 8$ nucleus frames. As these frames are unspaced we make use of the "Chantry stick-bar," little bars $\frac{3}{16} \times \frac{5}{8} \times 9\frac{1}{2}$, which, when placed between the top-bars of the little frames, not only space them but form, with the top-bars, a warm bee-tight inner cover to the little boxes. If one has to haul these mating-boxes I think it would pay to add little end-bars to the stick-bar, say two inches deep, making a



ATWATER'S BABY-NUCLEUS MATING-YARD.

bottomless shallow frame, which, when placed between the $5\frac{5}{8} \times 8$ frames, would both space them and prevent all "swing" in hauling. Less and less do I care to run any size of mating-box without *brood*, and every thing in as nearly normal condition as possible.

Meridian, Idaho.

[These small or miniature mating-nuclei in point of use go back of Thomas Chantry. Both Mr. Henry Alley and D. A. Jones antedate him from eight to ten years. We used the Jones nuclei back in 1882, and at that time we didn't know its value. History repeats itself sometimes, in that we have to rediscover some good things.—ED.]



ANOTHER VIEW OF THE SAME YARD.

THE HONEY-MARKET.

A Railroad Engineer's Views on the Subject;
Why Honey Should be Sold Direct to
the Consumer.

BY A. C. ARMSTRONG.

I can not say that I can give any secret for stimulating the appetite for honey, page 299. I think it's born in us to like honey; anyhow, I have been fond of honey ever since I was born. Why! is not honey high enough now—that is, to the consumer? I saw in a store in Syracuse, N. Y., a month ago fancy honey marked 30 cts. (seems as if this is nearly high enough), while over on the public market the dealers pay the producer 10 cts. It appears that the middlemen get the lion's share of the deal. Hence we should dispense with middlemen as much as possible, and I am sure it can be done to a great extent. I should see that my neighbors know I had honey to sell at a reasonable figure; and, if within driving distance of any town, I would advertise somewhat, as the consumer always pays for the advertising. I would see that all in it knew that I had honey, even if I had to have a house-to-house canvass of the place. Go weekly. Don't think if you have asked a party to buy honey once, and met with refusal, that there is no need of trying again, for the next time he may want some, and have the money handy or some other thing.

Twenty years ago my father had a farm of 130 acres. He raised grain and potatoes; kept two cows. One day his shoe-dealer asked him to bring him a little fresh-made butter. Father took him four pounds, and the shoe-man gave him 30 cents per pound, just the same as he was paying at the store. The next week father took him more butter; and the shoe-man's wife's sister wanted some butter. On the way home father bought two Jersey cows. In less than three months he was supplying 15 families with butter, eggs, lard, maple syrup, sausage, vinegar, apples, and potatoes, all direct from the farm to the consumer. At present my brother does the business, and they sell all the butter from 40 cows, all the eggs from 22 farms, buys 200 pounds butter per week from a creamery, has sold 35 dressed chickens per week since July last, also made 30 hogs into sausage and lard, and the butter route has taken all of it fresh, and no middleman in the deal.

In 1904 I had some honey to spare. I made a case that would hold each section by itself, or would carry one section alone, and put 24 fancy sections on the wagon with the butter-man to sell at 15 cts. The first day he sold six sections—just a bait, you see; next week he sold 13 sections; third week a whole case, and more called for, and they took all I had to spare in 1905. I had no honey to sell. My brother says his customers wanted a ton or two.

From this we have learned that there are people who like good, fresh, clean stuff from the farm, and who are willing to pay

for it, and that a good fresh article will sell itself, while a poor article needs a life-insurance agent to sell it.

Now, I'd like to tell you about buying honey. In 1884 I called on my grandmother. She sent me to the store, near by, to get a little honey, while she made some biscuits for supper, as I was fond of honey. Well, I got the honey, and the sections had considerable empty space. All this was filled with dust, and the cappings were covered with fly-specks. As my aunt said, "You got the honey at retail and the fly-specks at wholesale." She uncapped it before it went to the table, but somehow my appetite for honey was not as good as usual just then. It did not taste just right.

Another time I was at the house of a friend when the grocer's boy came in with some goods in a box. He dropped it on the table with a thump, and away he went, whistling "Down went McGinty." My friend went to taking the goods out of the box, and a section of honey and a cake of stove polish had entered into partnership—that is, the stove-polish was inside the section, while some of the honey was outside. No harm was done to the stove-polish, but the honey appetite got destimulated a bit.

Another time I bought a case of honey and had it shipped seven miles to me. It was in good condition at the time of purchase; but on arrival it was mush—case leaking. After that I generally carried my honey home.

Now a word about wasting honey, p. 351. Do people throw away what butter there is left in the butter-dish at the end of a meal? I fancy not; and a honey-dish with a cover that will hold a section thick or thin won't waste very much honey, any more than it will of butter.

Again, Mr. Crane's article, page 284. I bought honey in 1870, and had to go to a drugstore to get it. The grocers did not handle it, but druggists had a "strained" article.

My family are all healthy, but my wife says I am the "honey hog," and I am healthy. I have worked since Nov. 10, 1890, every day but two. I was sick one day in 1901, and Jan. 8 this year.

I think Mr. Secor overdoes the thing in putting honey and cream on his pancakes (honey is enough for me). I wonder he doesn't want some maple syrup on top of the cream—page 364.

Wait a while about the photograph. There may be some of the other bee-keepers who also eat some honey, although I have heard of people who kept bees who never tasted of the honey; but I keep bees for my own honey, and I sell only what I can't eat. I have some call from among my neighbors. One man says his wife is very fond of honey, and he buys her *two sections* each year! Yet she loves honey and he doesn't.

My brother found a woman who came from Germany twenty years ago who had never tasted honey in America.

Warner, N. Y.

QUEEN-BEE RAISING.

**Favors the Establishment of Record-books,
and Keeping Data Relative to All Queens.
The Importance of Good Queens.**

BY HENRY HEIDORN.

[This article by Mr. Heidorn was read as a paper before a meeting of the Central California Bee-keepers' Association, and was afterward printed in the *Hanford Journal*. The Association voted, however, to send the paper as an article to GLEANINGS, and we hereby take pleasure in placing it before our readers.—ED.]

In response to the secretary's request to prepare an article that may be of interest to the members along the line of bee keeping, more especially on the value of good queens, allow me to say that I do not believe I can give you any thing that is new, or that you do not know; and while to elaborate in a theoretical manner on the value of good queens might be somewhat of a dry subject, I will resort to the results of my observation in the field of daily experiences. The subject is rather too large to do justice to in a short talk, and for that reason I will mention but a few conditions that appear to every bee-keeper, making a demand on his time, skill, patience, and endurance, in the accomplishment of his aims, which, I think, might help us to realize the value of a good queen. I have no doubt that all bee-keepers who are extensively engaged in bee-keeping, and more especially those who make bee-keeping a success through their efforts, instead of simply making money out of bees because of an unusually good pasture in a favorable season, will agree with me that queening and requeening has much to do in keeping the apiaries in healthy, strong, and profitable condition, for health and vitality and the making of good opportunities are necessary in the acquirement of success in any line. It, therefore, behooves every bee-keeper to look into and become familiar with the art of raising his own queens, instead of being always dependent upon what others should do for them, or to do without what he should have.

But before I say anything on this subject let us consider one other point which may prove to be of some consequence; namely, order and system. No banking institution, railroad corporation, or government is without an orderly system which enables it to transact and maintain tremendous institutions with success. Order is heaven's first law. How many of our bee-keepers keep order—such as enable them to reap a benefit from it? I think there are some. When I first started to raise bees, and inquired concerning queens, having been much disappointed I was referred to a man in Southern California who was said to be quite successful. I learned that he kept a record-book, and raised his own queens, but not for the market. Having obtained several queens from him I tried my own skill, and in 1899 I adopted the book system. I numbered all of the hives, began to raise from the two queens imported a goodly number, and in

discarding the old ones introduced, I recorded the young queens. Time offered opportunities to observe their usefulness, disposition, and their several distinctions; and as the season advanced, this book showed me the year during which the greatest number of queens were raised, which queen they were raised from, their color, size, and general appearance, and indicated their relation, if any. This information enables me to trace usefulness, disease, and worthlessness in all instances. It enables me to avoid inbreeding when selecting queens for breeding; gives me the age of all queens, by which I avoid that indolent and inactive disposition associated with feeble bees superseding when retarded by adverse conditions; it avoids many instances where a disorderly hive would go to pieces, or, if able to hold on, would raise an inferior queen or encourage the appearance of laying workers. Knowing a queen, when failing, to be three years old, I can act with safety accordingly. If but two years old I look for a cause. In this way, by observation, I have gained some remarkable experience. Unruly, rank, indolent, and unskilled bees can more easily be traced and checked when opportunities present themselves. I need worry but little about the yearlings during the swarming season, when work is so plentiful; but during that time I can watch the two-year-olds, and in case there are extra-good queens, such as I should not like to lose, I can swarm them off, which will render a valuable queen, which, perchance, you might have lost while being busy elsewhere. I am able, if occasion requires, to find a superseding queen among the three-year-old bees that are ready and fit to do good work in building queen-cells.

This brings to us the consideration of raising queens. Many are the ways and methods adopted by the different queen-breeders, as treated in the magazines and instruction-books, known everywhere. I think there is but little to be said at this time on any special method. A swarm in good condition, preparing to swarm, will do good work. If the queen does not suit, take unhatched eggs from your good queen, and place a limited number of cells in a broodless hive; and, when started, transfer the cells to the swarm before mentioned, and, if more suitable, transfer these larvæ into newly started queen-cells of the same hive, destroying the rest not wanted. This work should be done before any cells are found capped in the hive. If you are obliged to resort to forcing cell-building by removing or caging a queen, give but one set of cells, and, when completed, restore order. It is not profitable to give them a second hatch, after removing the cells when completed, neither should a new swarm, having lost its queen in swarming, nor a remaining swarm in a mother hive, having a young queen, be given brood to raise its own queen, nor any swarm having lost its queen. These we will class as disorderly hives; all are incapable of doing good work. A laying queen should be given

to them, and the swarm restored to order as soon as possible. Among these three classes are to be found the various stages of demoralization, all more or less connected with danger, threatening the queens to be introduced into such hives. For this purpose I use the queens which for any reason are next in order to be discarded. This is a satisfactory method of saving any uncertain swarm. Even if found quite reduced it takes much work off your hands and puts these rambler to work again, giving them time and assistance, if need be, to recuperate, after which they receive, in turn with the rest, a young queen. All young queens should be given to orderly swarms only so as to insure their safety and to give them a fair opportunity to exhibit their ability in as short a time as possible. And for another reason—in giving a No. 1 queen to demoralized bees they will find themselves incapable of providing for the brood, which is neglected, and in time decays, while the queen is retarded and disgusted; nor could this be overcome until enough young bees are matured to resume the work, and the result would be altogether unsatisfactory. A few of the yearlings may prove to be poor, some of the two-year-olds show signs of failing, and all of the three-year-olds are to be replaced by young queens as the season advances, using the superseding swarms for cell building, giving them the smallest number possible, say from one to three, under construction at one time, when they can be transferred, cell by cell, to the hives to be superseded.

I will not go into the details of the process, but call your attention to the fact that you are gaining considerable time in this way. By taking the matter in your own hands the young queen will be ready to lay before all of the eggs in the hive have hatched.

Now a few words in regard to the value of a good queen. Those that gather the most honey are not the most valuable, in my estimation, but a queen having the greatest number of desirable qualities. Some years ago I raised a queen which I called a Taylor queen. She was a great honey gatherer, but her bees were cross. I found among her third generation a queen superseding, when but a little over one year old, which attracted my attention, and an examination of the Taylor queen, in the different apiaries, found them all in the same mood. I raised from another queen of good habits, color, and form, requiring two supers for two seasons, and found that all the young queens were absolutely useless. This I state to demonstrate what it would have meant to me if they had been allowed to remain. Both of the mother queens were very good in one way, and very poor in other ways. A third queen, of bright color, excellent form, and good disposition, was hardly ever found laying in the super. The combs were built smoothly, and were filled in less time than any other in her locality. She was certainly more valuable than the two before-mention-

ed queens, taken together. I had been disappointed in both, lost an opportunity while raising and trying the young queens, and, on finding them worthless, the old queens had also ceased to be, while the young queens from the last one mentioned were mostly raised cell by cell, while superseding.

I feel certain in saying that I gathered over two tons of honey last summer more by having these young queens, and have no doubt that there will be a fair stock to improve upon during the coming season.

I trust that, in selecting and relating these personal experiences, the value of a good queen will be more fully realized; yet, without a proper system of management, these points can not be successfully brought out, nor should we forget that making greater demands on the queen, under certain conditions, their vitality is exhausted in a shorter length of time than if left to themselves, and their health is more often impaired. We should, therefore, learn to raise good queens, ever to raise the standard of health, and never allow any condition to prevail that will bring on a decline, as would have been the result had I allowed those undesirable queens to spread through the apiaries.



WHY A BUCKWHEAT HONEY-FLOW CHECKS FOUL BROOD.

In footnote to article in June 1st GLEANINGS you wish to know why I claim buckwheat honey is death to foul-brood germs, etc. I will say frankly I do not know. Absolute knowledge is not to be had in this world. I *believe* buckwheat honey to be strongly acid from the amount of poison in bee-stings and the odor of the apiary at that season; and I *believe* in its efficacy as a disinfectant, because, while foul brood will gain steadily during a flow of clover, raspberry, etc., yet just as soon as buckwheat starts in, foul brood disappears. For instance, last summer I left one colony untreated to show my brother from Florida, on his arrival, what real foul brood is; but a flow from buckwheat set in two weeks before his arrival. On his arrival not a cell could be discovered in the colony, and the colony is free to date.

My deductions are drawn from an observation of more than a dozen years, yet they may be in error, although Alexander's experience seems to confirm my views. A colony or two show slight traces of disease at present, and, as usual, I find it steadily gaining during apple, raspberry, and clover flow. I wish you could see it as I have it now.

Truth is what we all want, and I should be pleased to find myself in error.

Frenchtown, N. J. W. W. CASE.

[I can scarcely believe that buckwheat honey is more antiseptic than any other kind; but it is a well-known fact that a heavy honey-flow from any source will check and often cure black or foul brood. As buckwheat appears to be your main source it naturally receives the credit for its apparent curative qualities. Your other honey-flows are not *heavy* enough to act as a check on the disease. — ED.]

PAROID ROOFING FOR HIVE-COVERS.

Have you had any report on the use of paroid roofing as a hive covering underneath the wooden lid? I have used this now for two seasons, and find it very satisfactory. The taking-off of the cover of a hive is sometimes troublesome on account of being glued down so tightly by the bees; and when it comes off it comes with a jump and a jar which is not very quieting to the bees. With a sheet of paroid roofing under the cover, just large enough to cover the hive without extending over the ends or sides, the lid comes off easily, and one can take hold of the paroid at one corner of the hive and lift it up gently, exposing a portion of the hive or taking it off altogether, as one wishes. The bees do not eat into this material the way they do into table oil-cloth or any other covering that I have ever tried. Another point in its favor is that, no matter how much the lid warps, this piece of roofing will lie flat on top of the hive and close it tightly. I have used the two-ply roofing only.

WM. HAHMAN.

Altoona, Pa.

[We have never tested this paroid roofing to go next to the brood-nest, but I have seen it in use on top of hive-covers in lieu of tin or other cover material. So far as we know it is giving good satisfaction. We shall be glad to receive reports from others who have tested it. — ED.]

A SIMPLE AND EFFECTIVE WAY TO CLEAN UNFINISHED SECTIONS.

A great deal is said of late about how to clean sections. To me it is a very simple matter. First, extract from all that are worth it; then at the close of the day, when bees are done flying, place from one to five of them at the entrance of every hive, where the bees still come to the entrance. They will be cleaned before morning. Leave them there till toward night, then remove them and replace by another lot.

Harvard, Ill. J. L. ANDERSON.

[Your plan will work satisfactorily; but a much simpler way is to store the sections in a hive, put the hive a distance from the yard, and let the bees rob them out. This may seem like foolish advice to put in a bee-journal; but knowing so many practical bee-keepers who use this method I am the

more bold to recommend it. But the beginner, at least, should remember to put the supers containing these wet sections quite a distance from the yard, otherwise he will cause more or less of an uproar in the apiary; but as soon as the honey is all gone and cleaned off from the combs in the sections, every thing will quiet down. — ED.]

A SUGGESTION TO SAVE BREAKING SECTIONS WHILE FOLDING FOR THE SECTION-PRESS.

It has always been impossible for me to fold sections and press without breaking seemingly a large portion of them. I am aware that the kind of lumber and proper use of machinery have much to do with it. I also discovered that a great many were broken because, in folding by hand, we were very apt to bend the middle corner a little too far, or because it was the middle corner it received more strain from a longer and consequently harder strain. To avoid this extra strain on any one corner more than another I fastened a square block, $1\frac{1}{2}$ thick by $3\frac{1}{8}$ by $3\frac{1}{8}$, on my Hubbard press just below the casting which supports the section while the corner is being locked.

It will be seen that, when the section is folded around this block, each corner receives its right angle-bend and no more. The section can then be placed above in the casting, and the corner locked in the usual way. With me the above saves hundreds of nice sections from being broken every year; besides, I can save a little time in crimping. The above dimensions are for $4\frac{1}{2} \times 4\frac{1}{2}$ sections.

F. H. CYRENIUS.

Oswego, N. Y., May 28.

SECTION STAMPS OR LABELS.

I do not like C. G. Dickson's inscription, p. 1250, for the simple reason that it leaves the impression that there *is* comb honey that is *not* pure. Here is my idea:

Comb honey can not be made by any thing but bees.
From apiary of —.

Let us put this fact plainly in sight of every purchaser, and the horizontal bar of the shipping-case is the place to put it; also, if the manufacturers can not stamp our sections at reasonable cost, each producer can have his own stamp. I should like my stamp to print on each section, besides the inscription above, "This assertion is backed by the National Bee-keepers' Association with \$1000. This honey came from the apiaries of F. D. Andrews, near Walsenburg, Colo."

Now, to go further, if we had laws to compel each producer to stamp his name on each section, or if dealers would refuse to buy any that is not stamped, we could then accomplish something, as people desire to know where their food comes from; but when there is no way of knowing, it is very easy for them to remember some of the newspaper stories as to where it came from.

Walsenburg, Colo. F. D. ANDREWS.



CHAPTER VIII.

PROGRESS IN THE SUPERS.

Nearly a month has passed since my last visit to the out-apiary, and it is now August 18. The buckwheat is now in full bloom, and the snow-white fields, nestled down here and there among the meadows, cornfields, and pasture lands, remind one of days in early spring when the snowbanks are loath to leave under the enlivening influences of the oncoming summer sun. With the blooming of buckwheat, cool days and colder nights come on, which are not what is needed for a good yield of honey from that source. Hot days, with heavy dews, and an occasional foggy morning, are the ideal for a prolific yield of nectar from buckwheat. But the bee-keeper always looks on the hopeful side, seeing the silver lining to the cloud, even though this lining may be on the side from him, and hidden from his outstretched arms. In just such a hopeful mood I am again at the out-apiary, this time to see that all colonies have sufficient room, should there be a heavy flow from buckwheat through returning good weather.

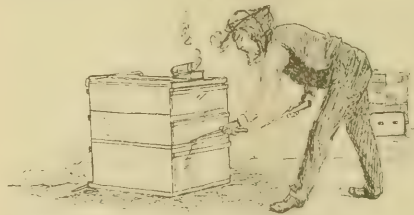
Notwithstanding the poor weather, I find that most of the colonies are well along in the super next to the brood-chamber, while the most of them are beginning work on the foundation in the one above. Four or five are quite well advanced in these, and with such the supers are exchanged, the one being nearly completed set over that having less work done in it, with a super of empty sections on top of the two. In this case this top super was of no value, as the season was so poor that the bees did no work in it. However, in this race for honey we can not tell how things are going to turn out, and I hold to the idea that it is always better to do a little work for naught than to have a loss of 10 to 25 pounds of honey from each colony through any inattention of mine. Forty minutes to an hour sufficed for all that was necessary to be done at this time, and the whole gave me an excuse for an enjoyable outing with the auto. This was visit No. 8. If greatly pressed for time, this visit could be dispensed with without experiencing any great loss in honey in the average year.

CHAPTER IX.

A SIMPLE WAY TO PUT ON ESCAPES WITHOUT LIFTING.

It is now September 8th, and the honey season for 1905 is ended, as no surplus is ever secured in this locality from fall flowers. And it has been one of the most

singular seasons I have ever known as to poor weather at the time of the blossoming of our honey-producing flora. It was mostly wet, cool, or very windy, during the time of clover, basswood, and buckwheat bloom, our three resources for surplus honey, and quite generally fine and warm outside the time they were in bloom. We often have poor bee weather during the time one of these sources for honey is in bloom, and once or twice I have known it thus during two of the sources of supply; but to have it poor during all three puts the season of 1905 at the top, along the line of bad weather, during the expected harvests from all sources, and giving it the name of the "poorest season ever known" among my bee-keeping neighbors. Enough this nectar was gathered to keep their bees rearing an abundance of brood, resulting in much swarming, and hives light in stores for winter; but the surplus crop with them was very meager.



USE OF THE WEDGE BETWEEN SUPER AND EXCLUDER BOARD.

I now go to the out-apiary for the ninth visit, and the chief work at this time is to put an escape-board between the brood-chamber and the supers of the whole 28 colonies. To do this best, one of the escape-boards is placed by the side of each hive, before I commence, when I take the piece of wagon-spring used to pull the staples out at the first visit (a long stout chisel will answer in place of the spring), the smoker and a wooden wedge, 1½ inches wide by one foot long, the same being two inches thick at the big end, and go to hive No. 1, row 1, stepping to the back side of the same. The point of the wagon-spring is now pushed between the supers and the hive, or between the supers and the queen-excluder, where one of these has been left on, as with the tiered-up hives. I now bear down on the "handle" end of the spring, enough so a crack is made of sufficient size to insert the point of the wedge, pushing the wedge until a one-eighth-inch opening all across the back is made, when puffs of smoke are driven through this crack to drive the bees away. I am careful not to make this crack big enough at first to let out any bees; for if I do, they are sure to crawl all about on the back side of the hive and supers, to become a nuisance through my killing them, and their stinging my hands during the rapid handling now required. By smoke driven through this one-eighth-inch crack, the bees are "stampeded" in all directions away from the place where I am at

work, and thus are entirely out of the way. By the use of the piece of wagon-spring as a "pry," the wedge is soon pushed in one-half its length, this giving a one-inch opening into which I can blow smoke, which is now done quite freely. The smoker is now quickly set down, when one hand grasps the escape-board, and by thrusting the fingers of the other into the opened crack, the supers are lifted up at the back end as high as possible without having them slide off the front of the hive, and the escape-board pushed in as far as it will go toward the front of the hive, when the supers are

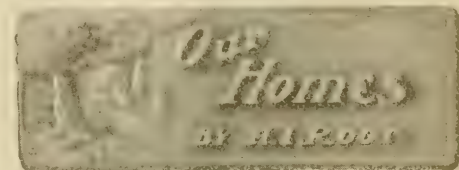


HOW TO PUT ON THE ESCAPE-BOARD.

quickly lowered on to it. The smoker is now quickly grasped again, and a stream of smoke sent in at the opening which this has made at the front of the hive by the escape-board not being quite in place. The chisel end of the spring is now caught under the back end of the bottom super, while the other hand grasps the top (forward end) of the cover, when, by bearing down on the spring, so as to make a fulcrum of the escape-board, and at the same time pulling with the top hand, the supers are easily and quickly slid in their place, so as to cover nicely the escape-board. Quickly go to the front, catch the chisel end of the spring under the escape-board, with the other hand at the back, on top of the cover; bear down on the spring so as to make a fulcrum of the hive below, at the same time pulling with the top hand, when the board with its load of supers is quickly and easily brought completely over the top of the hive. If a sort of rocking motion is given to the piece of wagon-spring when bearing down, it will facilitate matters much, especially where there is a heavy load of supers or hives to go on the escape-board. The heavy end of the wedge takes that to the ground and out of the way, immediately upon the lifting of the super, so neither of the hands is obliged to touch it, thus saving one motion when we are in a hurry to get what is needed done before the bees realize what our interference means. The wedge should be made of some kind of hard wood, and be polished smooth. Otherwise it will "broom" up from the heavy pressure that is brought to bear on it in handling supers or heavy hives, three or four stories high, which are filled with honey. In this way I have put the supers in a whole apiary on the escape-boards without killing scarcely a bee or arousing the anger of a

single colony. It has taken some time to tell this in writing; but when the "trick" is once learned, it takes but a moment to do it, and that with an ease which seems like magic, even with three or four filled supers on the hives. This is one of the *easy* "short cuts" I use when taking off supers at the end of the season. An editor of one of the bee papers, after seeing me put on escape-boards in this way, wrote a friend about it in these words: "It was a caution with what speed and dexterity he could manipulate the hives and supers. With his practice and skill he killed very few bees, and he did not irritate them either."

I have dwelt on this because it saves so much of the labor and backache required with the usual ways of clearing the supers of bees when taking off honey, at the end of the season. After the whole are treated in this way I am off for home, as this is all there is to be done at this visit, this being the ninth in number since we commenced operations in the spring.



What is man, that thou art mindful of him? and the son of man, that thou visitest him? Thou madest him to have dominion over the works of thy hands; thou hast put all things under his feet; the fowl of the air and the fish of the sea, and whatsoever that passeth through the paths of the seas. O Lord, our Lord, how excellent is thy name in all the earth!—PSALM 8:4, 6, 8, 9.

Away back when GLEANINGS started I used to know all our subscribers by name. Their letters were read with such intense friendly interest that I could remember name, locality, and most that they had written in previous letters; and I followed many of them in after-years as they branched out into different occupations aside from bee-keeping. Among the first was G. W. Park, present editor of a little magazine on flowers called *Park's Floral Magazine*. Friend Park started in the "posy business" just about the time I started GLEANINGS.* Some years ago, I do not remember just how many, he

* George W. Park was educated at the Michigan Agricultural College. He was a student under Prof. A. J. Cook. The latter said some very kind things about myself in our journal a little time back. They were more kind than I deserved. And this reminds me that I have got something to say about Prof. Cook. His students, those who were educated under him, are scattered all over the world. The results of his faithful, careful, God-fearing work will live in the hearts of those students long after he is dead and gone. Can any human being do a greater work for humanity than to teach young men to love to follow in wisdom's ways? and our good friend Cook has all his life had a peculiar faculty for teaching his pupils to fall in love with their work—especially rural pursuits. Who can tell the amount of good that has been done the world by the agricultural colleges of our different States, especially with such men to lead as dear friend Cook?

began offering little packets of flower seeds for three cents a piper, or four packets for a dime. I thought at the time he was getting the price exceedingly low, and watched his publications year after year to see how he held out. His particular bent seemed along the line of supplying poor people—yes, *very* poor people—with the means of having some flowers and plants, not only in windows, but around in little bits of dooryards, brightening their humble homes; and I tell you, friends, such an undertaking is no small matter in this land of ours. The care of flowers and the sight of flowers may do more for directing the steps of many people in the way of “stepping heavenward” than anybody knows. Two or three years ago I began testing some of these very cheap flower seeds. I have told the result through GLEANINGS. I have also mentioned that friend Park has for some time offered valuable plants for so small a sum one could hardly understand how he could make it pay expenses. Let me illustrate:—

Some years ago there was a new tree advertised, and it was called a honey-plant—the *Paulownia Imperialis*. Even though the trees were \$1.50 apiece I invested in one. It grew with wonderful rapidity, and was the admiration of the neighborhood for a number of years, when it finally died. Since then I have thought of trying the *Paulownia* again. About a year ago I was delighted to find it in friend Park’s list of plants sent by mail postpaid for only four or five cents each, where you bought half a dozen or more, of the *Paulownia*. I uttered an exclamation of surprise, and picked out some more plants to go with it (to make a $\frac{1}{2}$ doz.), and got the order off at once. The plant that came was rather small and insignificant-looking, it is true; but I put it in a little pot, and in a very few days it showed the peculiar characteristic of that plant or tree, rather. I think it was in August when I put it in the ground outdoors; but when the frost came it was three or four feet high. Thinking I started it too late to winter over I paid no more attention to it. This spring, when the weather began to get warm, it shot up from the roots and commenced again to put out its great leaves, and, like Jack’s beanstalk, it is now four feet high, and one of its leaves is 23 in. across. Friend Park, in his description of the plant, says the leaves are sometimes 14 inches wide; so you see he did not tell all of it, even in a florist’s catalog; and I believe this is characteristic of the man. You do not find in his catalog any “billion-dollar oats” nor “mortgage-lifter potatoes.” He may have just as good seed, but he does not talk about them in that way. At the same time I got the *Paulownia*, I panted a couple of campanulas, or Canterbury bells. Instead of sending me plants for only four cents each, I received a little clump that I separated so as to make half a dozen. For lack of room I put them down by the auto-house; and when they came in bloom Mrs. Root told me I had put the prettiest flowers on all the grounds away out of sight where

nobody could see them. The flowers are bell-shaped, of ever so many shades of color. Once more, in passing a country home a few days ago I was startled by a plant in a dooryard, three or four feet high, with delightful dark-green foliage, and such a mass of scarlet bloom that I stopped and went in to investigate. The place belonged to a bee-keeper, and so I was soon quite at home. The plant they called the perennial pea, and it winters out of doors without any trouble at all. As soon as I got home I looked over several catalogs and found perennial peas for 30 or 40 cents a plant. Then I thought I would look in Park’s list of cheap plants, and there it was, sure enough, different colors, in his four and five cent list. This decided me that I would not wait any longer, but I would go and see how this friend of olden times sells things so cheap. He is located about 60 miles west of Philadelphia. His whole establishment is run by water power. Right in front of the factory is one of the handsomest round beds of pansies I ever saw in my life. Other beautiful plants were scattered everywhere.

The first piece of machinery that took my eye as we stepped into the factory was a new printing-press that takes a big roll of paper in at one end and turns out magazines all stitched, trimmed, and ready for use at the other. A boy takes out the magazines and packs them in boxes. The machine itself does all the rest. Only two people are required to operate it. A man sits near the machine, holding a lever to stop it quickly if any thing should go wrong. But I judge, from what I saw while I was there, he does not have very much to do. Now, I can not take time to tell you of all the wonderful machines in that great humming beehive; but I will just mention one more. It is also an automatic machine that goes by water power. It puts up packets of garden and flower seeds. I never knew before how it is that Bro. Park offers ten packets of garden seeds for a dime, postpaid. In answer to my questions he said something like this:

“Why, Bro. Root, there are lots of poor people in this country who find it a hard matter to pay even a nickel each for a packet of seeds. Besides, they do not want a whole packet. They have only a little bit of ground, only room enough for a few things of a kind. Seeds enough for a dozen cabbage-plants is all they need. If there were any left they would probably be lost before another season comes around. Well, you can give this machine 2 lbs. of cabbage seed for instance, and tell it to put 20 seeds in a packet, and keep on doing it till you come around again, and ask it to do something else. The machine says ‘All right,’ and goes to work. It will put up seeds all day, and, as it goes by water power, all night for that matter, without anybody to watch it. It counts correctly, does not forget what it is about, does not loaf, nor acquire bad habits. Now, as long as it would just as soon work as stand still, why not let it go ahead and thus help the poor people?”

During that summer day Bro. Park and I talked about a great lot of things—how we did our advertising; how we treated our customers so as not only to keep them but make each customer get more out of his neighborhood, etc. Finally I spoke something like this:

"By the way, Bro. Park, there is another queer thing about your management. You not only sell seeds and plants for *less* than a nickel, but, if I remember correctly, you guarantee that all money shall reach you, and that all plants shall reach your customers. Am I right about it, and do you still keep it up?"

He smiled, and said he did—that is, where they send money according to his printed instructions. Then he added something like this:

"Mr. Root, I believe you too started out with the idea of bearing not only your share of losses and mistakes, but a little more. I believe your customers soon became satisfied that you are trying hard to do right. You paid a good many bills that outsiders might say did not belong to you, and perhaps some would have prophesied that you could not keep on doing business in that way. Well, you have stood it pretty well, haven't you? You have enough of the things of this world so you get along very comfortably. Yes. Well, I too have paid bills where it was hardly fair and right that I should do so. But I have got along pretty well, after all. I have all I need, notwithstanding these losses and these burdens. Does it really pay to be small in business, and to make a fuss over a few cents one way or the other?"

There is a great moral in this matter, friends. I hardly need tell you that Mr. Park is a Christian. He loves the Lord Jesus Christ, and tries to make him his pattern in business as well as every other way. His hands looked satisfied and happy. He has built quite a lot of pretty homes for them. They have nice dooryards, pretty little gardens, and an abundance of *flowers*, as you may readily imagine.

I almost forgot to tell you how many subscribers during the space of forty years Mr. Park has picked up for his journal. There are over 400,000—pretty close to half a million; and a good many of them have had the journal so long that it is a part of their home. They send in their subscriptions for three, four, and five years in advance. I presume a lot of you have it already. The water power is secured by putting a dam across a stream that comes down between the beautiful hills of Lancaster Co., and this makes a little pond or lake toward a mile long that twists about among the hills with overhanging trees, and some of the trees were basswoods, and were full of blossoms.

Let me digress a little. The day before my visit a man belonging to a section gang was killed on the railway. He was too stupid to get out of the way of a lightning train that came along; and that is not all. After he was killed, not one of his comrades knew

his name nor any thing about him. Another one of that gang had been killed in a similar way only a few days before that. The foreman is instructed to watch for trains, and to give a peculiar whistle in ample time for all of his workers to get out of the way of a moving train. This poor man who had not intelligence or energy of life enough to keep out of the way of the train was a *part* of humanity. I do not think he committed suicide; but it would seem as if he did not care very much if he did get killed. Whose fault was it, or who is responsible for such things? How does it come that humanity, created in God's own image, should be so *widely* different? This man evidently considered life no boon. He not only gave no thanks to God for giving him a life to live, but perhaps he recognized no God. He may have been partly intoxicated. We do not know. Contrast his comparatively useless life with that of such a man as friend Park, or, if you choose, one like Edison, who has been such a benefactor to the *whole wide world*. What a difference there is in humanity, and even human beings who stand side by side! Is it birth and education and other advantages such as environment, etc.? Not so. Good environment is often a misfortune. See what the sons of millionaires are doing who have lots of money and nothing to do. Edison came from very humble parentage, if I remember correctly; and I used to read about him in the papers when he was only a newsboy. Abraham Lincoln had what we might call no advantages, and so it is the world over. If any boy has a *poor* chance, it seems as if it were, as I have said, the son of a millionaire. All the other boys, especially those who have to work for a living, can read the words of our text and thank God for the possibilities and the opportunities that lie before them, especially the boys who are just beginning to look out and see what God is placing within the reach of those who are born at the beginning of this twentieth century.

While at that meeting at Jenkintown one of these old friends whose name has been for many years familiar said he had something to say to me that he thought I would appreciate; and after he had said it I told him to write it down and put his name at the end of it. I think it will make a very good closing word for this Home Paper.

The greatest achievements of mankind pale into insignificance, and excite but little enthusiasm or admiration in the minds of those sufficiently intelligent to comprehend in the slightest degree the magnificence and grandeur of the stupendous works of Almighty God.

AN APOLOGY TO OUR FRIENDS WHO CAME FROM HUNGARY.

On page 833 of our June 15th issue, after making an extract from a Cleveland daily about the boy who was drowned, where the reporter said more than a hundred people were looking on, I said: "The last sentence informs us that the father and son were Hungarians. Was that crowd all Hungari-

ans, or what were they?" Since then I have received a copy of the Hungarian *Daily News*, of Cleveland. This paper is printed in a language I can not read, with the exception of one article, and this article gives me about as bad a "scorching" as any thing I have ever seen in print, just because the editor takes it that I slandered or slurred the Hungarian people. I did not intend any thing of the kind. If the reporter for the daily paper was mistaken when he said the father and son were Hungarians *he* should apologize. The responsibility for that inhuman piece of work rests on the crowd that were gathered there that Sunday morning. I simply said, "Was that whole crowd Hungarians, or what were they?" We do not know, only that they seemed to have but little regard for the sabbath. Let me quote from the article in the Hungarian daily:

Were he not too ignorant in his own line he would know that Hungary is pre-eminent in bee culture, surpassing all nations in the quality of its honey and bees; and in this industry Hungary is recognized as leading the world.

If the above is true, and I sincerely hope it is, I shall have to confess that we have not been giving the friends from Hungary the credit they deserve. Two young men who assist us in our apiaries came here from Hungary to learn bee culture, and they are very nice Christian boys. God forbid that I should think of casting any slur on such as they. I find by our subscription-list, which goes largely into foreign countries all over the world, that we have just four subscribers in Hungary.

Let me repeat: The responsibility of the shameless scene I described rests on that crowd; and it is a disgrace to the nation they represent, whatever it may be. I think good people the world over will agree with me in this; and if what I wrote will be the means of stirring up more manhood in any nation or every nation, then I have not written in vain, and I will try to be patient under the severe and, as I think, unfair and uncalled-for criticism.



ORCHARDS—THEIR MANAGEMENT, ETC.

It grieves my heart to see there are not more of the farmers and gardeners in Ohio who visit the Ohio experiment station at Wooster oftener, that they may get the benefit of the experiments that are constantly being made there, especially for the benefit of the farming and gardening people. Let me give you a couple of illustrations—first, on the management of apple and other

fruit-trees. On one part of the great farm there is a very pretty orchard of different varieties of fruit-trees, one whole row of each variety running north and south. Well, in order to test different methods of cultivation or management, there are strips running east and west to cut across all the different varieties managed in this way. First, there is a strip embracing three or four trees, of clean cultivation. Nothing is allowed to grow at all, except apple-trees. Next to this is a strip managed in the same way except that cover crops, crimson clover, soy beans, cow peas, or something of that kind, is put on to cover the ground in winter and be plowed under in the spring to furnish fertility. Then there is a third strip, in grass or clover. The grass or clover is cut off at different periods and taken away; but right around every tree as far as the limbs extend the sod is removed entirely, and clean cultivation practiced. No weeds, grass, nor any thing else is allowed to grow at all. Last, but not least, is a strip in grass and clover, and all the growth is cut off at different times like the other; but the grass, clover, etc., are all put around the trees for mulching, say as far as the limbs extend.

Here are four different methods of managing an orchard, right side by side, and each strip embraces trees of different varieties, habits of growth, etc. Which method comes out ahead? If somebody had asked me before I had seen it I should have said where the leguminous cover crops were put in and plowed under; but, dear me! what an object-lesson the sight of that orchard was! This process had been carried on for three or four years, and the mulched trees were *away* ahead in every respect. The strip next to them, where the ground was left bare in a circle as far around as the limbs went, was the poorest in the lot. Then there was the cover crop next to the mulching. The mulched trees all had dark-green healthy foliage. Many of the trunks were twice the size of those adjoining where the ground was bare and clean the year round. I presume the mulching was largely clover hay; for on kicking down into it the soil was loose, dark-colored, and looked almost like woods dirt from the forest. The decaying grass and clover not only furnished nutriment for the trees, but it shaded the ground and prevented the sun from scorching the roots that ordinarily come near the surface for air. Come to think of it, is not that Nature's plan as we see it in the forest? The roots are covered with dead and decaying leaves. The ground is shaded from the sun, and kept damp and moist even during a dry time. Unless the ground is very rich I presume the grass and clover that can be grown between the trees, especially if they are large ones, would hardly be sufficient mulching, and I believe it is sometimes necessary, especially when the trees get large, to bring in spoiled hay, straw, or something of that sort from somewhere else.

On my place in Michigan there was quite a little clover that contained quack grass

that had got into one corner of my farm. The man who took my hay did not want that part, so we hauled two pretty good loads up into my peach-orchard, and that clover hay seems to make the most satisfactory mulching I have ever got hold of. Now, that whole experimental farm is covered with similar object-lessons. Let me give you one more.

TOMATOES UNDER GLASS.

A year ago I told you they were having trouble in the greenhouses at Wooster with the white fly. Well, this year they have completely routed the exasperating insect. It was done by the use of hydrocyanic-acid gas. Our readers, especially greenhouse men, are familiar with this gas, so I need not go into details. Well, the experiment station had discovered that this treatment, given when the tomatoes are small, so it can penetrate all around through the dense foliage, is a complete remedy; and I saw the largest crop of tomatoes grown under glass, I was almost tempted to say, that had ever been produced anywhere. By judicious pruning they had succeeded in getting a crop that was just wonderful—great clusters of tomatoes were almost piled one above another. In one greenhouse the plants were set 2 ft. apart each way. Here the tomatoes were fine and extra large. Some of them would be almost too large to bring the best prices in the market. In the house adjoining they had experimented with plants only a foot apart each way. I thought this was altogether too close; but they were tied to stakes three or four feet long, and pruned (as I have explained in a former paper) so as to encourage the best fruiting. In this house there were the greatest number of tomatoes (and largest yield of fruit per square foot), but they were smaller in size, owing to the crowding. They averaged, say, the size of a hen's egg or a little larger, and the shape was very much better than the larger ones in the other house. While I was there, June 18, they were selling the crop at 20 cts. per lb. They said that, heretofore, 2 lbs. per square foot had been considered a fair yield; but it seemed to me there were many places in that bed where there were *four times* 2 lbs. per square foot. Now, some of you mathematicians can figure that out for yourselves. Put it 4 lbs. per square foot. If the same thing could be done outdoors (and I do not see why it could not) just figure up the number of tons you would get per acre. Why, the idea is more fascinating to me than any of your gold-mine or oil-well speculations. Of course, it will take hard, careful work; but we have boys and girls—quite a lot of them—who love and enjoy this kind of hard work more than any thing else in the world. May God be praised for the *possibilities* that our experiment stations are showing us along the lines of "high-pressure gardening."

PRUNING TOMATOES TO MAKE THEM SET FRUIT.

Francis Ball, of Jenkintown, Pa., recently showed me a process he had discovered for making rank-growing tomatoes set fruit. While in Florida last winter I had some very thrifty tomato plants in my garden, but all the blossoms dropped off without producing any fruit. My friends on the island, however, told me they would bear fruit later on. Well, Mr. Ball's invention is, that you can make any stem of buds bear fruit if you pinch out the little shoot close to the base of the stem bearing the embryo blossoms. You have got to commence about as soon as the buds or blossoms can be seen. Mr. Ball said he became satisfied the reason why there were no tomatoes was because the plant put all its energies into growing thrifty shoots, letting the blossoms shrivel and fall because they did not get enough nutriment. Taking off this thrifty shoot forces the growth into the buds and blossoms. It was plain to be seen that, where this pinching or pruning had been done, the blossom stem was much enlarged, and showed evidence of fruit. At the present writing I have not had an opportunity to test this matter thoroughly; but I feel sure it will help in getting tomatoes for early market before they would set fruit otherwise.

GREENHOUSES COVERED WITH CHEESE-CLOTH INSTEAD OF GLASS.

The plants at four cents each I have mentioned elsewhere (at Geo. W. Park's) are grown in a row of greenhouses covered only with cheese-cloth. This cloth costs so little it is put on new every spring. It is then white and clean, and lets in plenty of light, but cuts off the severe rays of the sun, and gives plenty of ventilation without the necessity of manipulating ventilators. I suppose these cheap houses are vacated when snow and severe winter comes on; but Mr. P. says the cheese-cloth will keep out quite a good deal of frost. The slope of the rafters is pretty steep, probably so as to shed rain better, and snow if it should come before the plants are all removed. I should judge the benches are 2½ or 3 feet wide, and the walk perhaps 2 feet. The plants are in two-inch pots plunged to the rim as close as they can stand. These four-cent plants are not "rooted cuttings," but each one is grown in a pot; and, when well rooted, the soil is washed off and the plants are mailed post-paid at this price. I feel sure these cheap cloth-covered greenhouses will prove a great success in growing lots of stuff in mild weather. They can be built of any rough strips of lumber nailed up in the cheapest way, for they are more to protect from the sun, and to preserve a *moist atmosphere* inside than to keep out the cold. You may remember I described, about a year ago, a variety of stuff grown under a cheese-cloth cover at our Ohio Experiment Station that greatly excelled a similar line of vegetables grown near by in the open air.

Special Notices by A. I. Root.

In speaking of the perennial pea, in Homes, I meant to say that I find this is a near relative of the *Lathyrus silvestris* that was boomed as a forage plant some years ago. In fact, I think I once said the plant was handsome enough, both flowers and foliage, to give it a place as a dooryard ornament. Perennial pea is *Lathyrus grandiflorus*.

The Perfect pamphlet-preserver, which we are advertising on page 972 of this issue, is a very neat and simple binder in which our subscribers can safely preserve several months' copies of GLEANINGS so as to have them handy for reference. The style of binding copies of GLEANINGS is very novel. Simply run a cord through the center page of each number, and fasten this by twisting it around one of the little pegs on the back-board of the binder—an operation which is much more simple than it sounds. The price of one of these binders is 25 cts. You may send your order to us, or direct to the manufacturers, Alden Brothers, Bible House, New York.

A POCKET TOOL-CHEST.

Several times in years past I have come across pocket-knives with so many tools that they were a sort of pocket tool-chest; but none of them seemed to be very practical. They have, one after another, gone out of date, so far as I know. Just now I have, however, in my pocket something much better than I have ever gotten hold of before. It is pictured on page 972 of this issue. This arrangement is a little larger than an ordinary pocket-knife. The knife-handle itself makes an excellent handle for a screwdriver or any other tool. It is of good size, easy to grasp; and the best of it all is, the various tools are held in the end of the handle absolutely solid; and from the test given I find them the very best steel and excellent temper. I think the rig would be specially suitable for a bee-keeper, one who runs an automobile, or it is a nice thing to have around the house where you have not a set of good tools handy.

Golden-All-Over ITALIAN - QUEENS

I have a few choice untested Golden-all-over Italian queens, reared from Pratt stock, by Pratt's methods, and will be able to supply a limited demand for balance of the season at \$1.25 each.

Wm. A. Shuff, Philadelphia, Pa.
4426 Osage Ave.

Queens-Italian-Queens

Bred from the old reliable 3-band stock. Great honey-gatherers, gentle to handle, and not inclined to swarm. Prices for the balance of season, 60c each; \$6.00 per doz. Selected untested, 75c each; \$7.00 per doz. Tested, \$1.00 each; one-half dozen, \$5.00. Address all orders to

W. J. FOREHAND, - Ft. Deposit, Ala.

SUPERIOR STOCK.

I make a specialty of long-tongued Italian red-clover honey-queens. Untested queen, 75 cts. each; ½ doz., \$3.00; tested, \$1.00; ½ doz., \$5.00. Bees for business is my motto.

FRED. LEININGER, Ft. Jennings, O.

Marshfield - Hives - and - Sections

kept in stock; none better. DITTMER'S foundation and all kinds of bee-keepers' supplies sold right. Thousands of shipping-cases, 24-pound, 13 cts.; fancy white basswood, 16 cts, HONEY and BEESWAX wanted. Send for free list, and save 20 per cent on your order.

W. D. Soper, Route 3, Jackson, Michigan

BANKING BY MAIL

Depositors in all parts of the country find our method of sending deposits by mail satisfactory in every way, for the reason that they not only receive

4 PER CENT INTEREST

but they obtain the greatest safety by having their money in the care of a responsible and safe banking institution.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system. Write for the booklet to-day.

THE SAVINGS DEPOSIT
BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

WISCONSIN - BASSWOOD

FOR SECTIONS

We make them and the very best of Dove-tailed Hives, Shipping-cases, and a full line of Bee-keepers' Supplies always on hand. We make very prompt shipments. Let us hear from you.

Marshfield Manufacturing Company
Marshfield, Wisconsin

Golden and Leather- colored Italian Queens.

MONTHS	BEFORE JULY 1			AFTER JULY 1,		
NO. QUEENS ...	1	6	12	1	6	12
Untested	\$ 1.00	\$ 5.00	\$ 9.00	\$.75	\$ 4.00	\$ 7.00
Warntd. Tested ..	1.25	7.00	13.00	1.25	7.00	13.00
Tested	1.50			1.50		
Select Tested ...	2.00			2.00		

Breeders, \$5.00. Caucasian queens will be ready to mail July 1. Untested, each, \$1.00; six for \$5.00. Warntd. tested, each, \$1.40; six, \$8.00. We have three yards—two Italian and one Caucasian—and mean to meet the trade. Prices on nuclei on application.

D. J. Blocher, : Pearl City, Ill..

HOW TO KEEP BEES

By Anna Botsford Comstock

A charmingly written manual describing clearly and in detail the outfit, first steps, and methods. The author's well-known literary ability has combined with her enthusiasm for a subject to produce a very unusual volume. It is a handbook for those who keep bees for happiness and honey, and incidentally for money. It serves as well as an introduction to the more extended manuals already in the field.

"I had another of my happy surprises when Mr. Boyden put in my hands a pretty book with the above title. My first thought was that we had almost enough bee-books already; but when I noticed this one was written by a woman, and a noted woman too, I began to turn over its pages. . . .

"Finally, with all due deference to the authors of the excellent books on bee culture which we have already, my opinion is that this new book, 'How to Keep Bees,' is the best one for a beginner, or one who does not wish or expect to keep more than a dozen colonies, that has yet come before the world."

—A. I. Root, in *Gleanings*, July 1, 1905.

From a typographical standpoint one could hardly desire a better book. The cloth cover is a warm brown with lettering in white. The book is printed on fine paper; large clear type and ample margins; 32 full pages of splendid photographic illustrations; coming from the press of Doubleday, Page & Co. is a guarantee of best workmanship.

The price is \$1.00, postage 10 cts. extra. We make a special combination offer of GLEANINGS one year and the book postpaid for \$1.75. For sale by most dealers in bee-keepers' supplies.

The A. I. Root Company
Medina, Ohio

"If Goods are wanted quick, send to Pouder."

Established 1889

Bee-Keepers' Supplies

Distributor of Root's Goods from the best shipping-point in the Country. My prices are at all times identical with those of The A. I. Root Company, and I can save you money by way of transportation charges.

**New Metal-spaced
Hoffman Frames
are Here in Stock**



**Headquarters for the
Danzonbaker
Hive**

**Dovetailed Hives, Section Honey-boxes,
Weed-process Comb Foundation,
Honey and Wax Extractors, Bee-smokers,
Bee-veils, Pouder Honey-jars, and,
in fact, Every Thing used by Bee-Keepers.**

BEESWAX WANTED!

I pay highest market price for beeswax, delivered here, at any time, cash or trade.
Make small shipments by express; large shipments by freight.
Always be sure to attach name to package.

Catalog Free

Walter S. Pouder
513-5 Massachusetts Av., Indianapolis, Ind.

Bee = keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

Good Goods, Low Prices and Prompt Shipments

are the **POINTS** in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

Page & Lyon Mfg. Co., New London, Wis.

Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

BEES AND QUEENS—Orders booked now for spring delivery.

HONEY AND WAX—We handle honey and wax. Write for particulars.

The A. I. Root Co.

Northwestern Branch,
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

DO YOU KNOW

That the sale of Dittmer's Foundation has increased so much that we were forced to double our melting capacity in order to fill orders promptly?

There is a Reason for This

It is because Dittmer's Foundation is tough, clear, and transparent, and has the natural color of beeswax.

AGENTS FOR DITTMER'S FOUNDATION:

W. D. Soper.....Jackson, Mich.
Bee and Honey Co.....Beeville, Texas
E. H. Taylor....Welwyn Sta., Herts, Eng.
E. Grainger & Co.....Toronto, Ont., Can.

Our warehouse is well stocked with all kinds of bee-keepers' supplies.

Beeswax always wanted.

Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trester Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.



Michigan Distributors

—FOR—

**G. B. Lewis Co.'s Beeware,
Dadant's Foundation.**

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service.

ADVANCED BEE-VEIL. Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

A. G. Woodman Co., Grand Rapids, Mich.

Dear Sirs:—Your advanced bee-veil just arrived, and is, as advertised, the best on the market. Find enclosure for ten more veils
Platteville, Wis., April 14, 1906. *N. E. FRANCE.*

**A. G. Woodman Co.,
Grand Rapids, Mich.**

Beeswax Wanted.

Is 25 per cent on Sections worth Saving?

If it is, you should write us before buying. We not only make the **BEST SECTIONS**, but our patented specially constructed machines, built exclusively for us, enable our sections to be folded without wetting. That means 25 per cent less breakage, and consequently 25 per cent saving to you. Our prices are no higher than others. Let us quote you. Special prices on immediate orders.

Minnesota Bee-supply Company

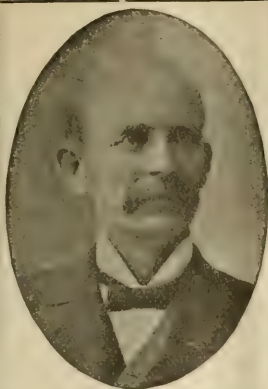
John Doll & Son, Proprietors

Nicollet Island, No. 20, Minneapolis, Minnesota

Bee Supplies. Lewis' Goods at Factory Prices.

Best of everything the bee-keeper needs. Large and complete stock. Fine Italian and Caucasian queens. Prompt service. Catalog free. Get our prices before ordering.

C. M. Scott & Co., Indianapolis, Indiana
1004 East Washington Street



Established 1881

YES!

Same Place 1906

THIS IS THE MAN WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year. ♣ ♣ ♣ ♣ ♣

Geo. E. Hilton, - Fremont, Mich.

FIRE - SALE - OF - BEE-SUPPLIES

Come and see the goods before buying, if you can. It will pay you, as you will

SAVE 25 TO 50 PER CENT

As announced last week, a fire which caused almost a total loss occurred June 20, in the building we then occupied. We are now in our new quarters—191 and 193 SUPERIOR STREET (two blocks north and one block east of our old location)—where we've the slightly damaged goods that we have sorted out, and also a stock of **NEW LEWIS GOODS AT FACTORY PRICES**

Any bee-keepers living within a reasonable distance of Chicago can make money on any supplies he may need now or later, by coming to Chicago and looking over the goods that we selected out after the fire. Better order quick if you want any of the goods we are selling at twenty-five to fifty per cent reduction.

Send for free catalog of new goods. Address

H. M. Arnd, Propr. York Honey & Bee Supply Co. (Not Inc.)

Long Distance Telephone, North 1559.

191 and 193 Superior St., Chicago, Ills.

BINGHAM
Original
Direct Draft
CLEAN
Bee Smokers



Pat'd 1878, '82, '92 & 1903

Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and *last*; don't *spit fire*; don't *go out*; don't *daub* themselves all over. We are the most extensive *exclusively* bee-smoker makers in the world.

T. F. Bingham - Farwell, Mich.

Chico, California, October 28th, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.

J. M. RANKIN.

A Fine Lot of Queens

now ready for delivery. Double your crop of honey by stocking your apiary with my queens. That's what many of my customers report they did last year. I am sure my queens will please you.

I am a breeder of Holy Lands and Carniolans. Nuclei and colonies. Large or small quantities.

PRICES: Queens, each, \$1.00; six for \$5.00. Breeders, each, \$5.00. Ask for prices on quantity lots.

W. H. LAWS, Beeville, Bee County, Texas

TO SOUTH DAKOTA

The Land of Bread and Butter.

South Dakota is long on wealth and short on people.

Today it presents the best opportunities in America for those who want to get ahead on the Highway to Independence. More than 47,000,000 bushels of corn, more than 47,000,000 bushels of wheat, live stock to the value of \$41,000,000, hay to the value of \$12,000,000, and products of the mines above \$12,000,000, were some of the returns from South Dakota for 1905. With a population of only 450,000, and the annual production of new wealth above \$166,000,000, it can be readily understood why South Dakota people are prosperous and happy. The outlook for 1906 crops is the best South Dakota has ever known.

Why don't you go there and investigate the openings along the new lines of this railway for yourself?

From Chicago, and from many other points in Illinois, Minnesota, Iowa, and Missouri, direct service to South Dakota is offered via the

Chicago, Milwaukee & St. Paul Railway

Its main lines and branch lines fairly gridiron the rich agricultural and stock country of South Dakota. Its mileage in South Dakota is more than 1,200 miles, and by the building of extensions is being rapidly increased.

A NEW LINE IS NOW BEING BUILT from Chamberlain, S. D., to Rapid City, S. D., through Lyman, Stanley, and Pennington Counties. Some of the best opportunities for success are along these new lines. The railway company has no farm lands for sale or rent. If you are interested, it is worth while to write today for a new book on South Dakota. It will be sent free by return mail.

F. A. MILLER, General Passenger Agent,
CHICAGO.

Baby Nuclei.

2nd Edition.

The second edition of this popular treatise is on the press. This book thoroughly covers the field of small mating under management. The experience of 20 years in mating young queens in baby nuclei is given. A delightful little book—good printing, enjoyable reading and easy understanding. Price 25c postpaid.

SIMPLIFIED QUEEN-REARING.—A revised edition of this book just out. It tells the honey producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just an effective and economical plan for the bee-keeper who works for profit. Price 25 cts. a copy, postpaid.

INCREASE.—Don't depend entirely upon swarming for your increase. It's too slow and uncer-

tain. Swarthmore tells of a way in his delightful little book entitled "Increase"—a natural way, simple and safe, no labor, little trouble. Colonies formed on this plan will work like prime swarms, and store a surplus. Price 25 cts. a copy postpaid.

CELL-GETTING.—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life. Price, postpaid, 50 cents.

Swarthmore Queen-Rearing Tools.

The simplicity of these devices places the art of queen-rearing in the hands of the average bee-keeper. Every honey-producer can be his own queen-rearer. Full directions go with each outfit. Here is a chance not only to rear your own queen but for your neighbors at a profit.

Prices of Complete Outfits:

Outfit No. 1—Experimental

POSTPAID, \$1.50

1 Cell-bar, 1 Holding-frame,
16 Waxed Flange Cups, 12 Transfer-cages.

Outfit No. 2—Amateur

POSTPAID, \$3.50

2 Cell-bars, 1 Holding-frame,
35 Waxed Flange Cups, 18 Transfer-cages,
1 Needle, 1 Cell-stick.

Outfit No. 3—Professional

BY FREIGHT OR EXPRESS, \$7.50

2 Blank bars, 2 Cell-bars,
3 Holding-frames, 1 Incubating-cage,
1 Cage-pocket, 1 Grace Cell-compressor,
1 Grafting-plug, 100 Flange Cups,
2 Double mating-boxes, 2 Swarth. nursery-cages,
1 Bar-holder, 24 Transfer-cages,
1 Swarm-box with lid, 1 Needle, 1 Stick.

Prices of Separate parts: post.

Bar-holder	\$.10	post. .04
Blank Bar	.05	extra .04
Bottle Feeder	.10	.05
Bulb Filler and Feeder	.75	.08
16-hole Cell-bar	.10	.02
Cage-pocket	.25	.09
Flange-cups, unwaxed, 1c each; per 100 ..	.75	.09
Flange-cups, waxed, 2c each per 100 ..	1.75	.14
Grace Cell-compressor, each	1.75	.15
Grafting-needle, each	.15	.01
Grafting-plug, each	.10	.01
Grafting-stick, each	.10	.05
Holding-frame, each	.35	.07
Incubating-cage, each	7.50	
Double Mating-boxes, complete.\$1.00; 10 ..	.35	.05
Nursery-cages, complete, waxed cell-cup ..	.25	.04
Nursery-cages, no cups	1.00	
Swarm-box, with lid	.25	
Swarm-box, lid only	.10	.06
T Stands, each	.10	.02
Transfer-cages		

The A. I. ROOT CO.

AT ALL BRANCH HOUSES.

FOR SALE BY ALL DEALERS IN BEE-KEEPERS' SUPPLIES.

PENNSYLVANIA

Ours is the largest bee-supply house in the western half of the State. Every thing which the bee-keeper will need is in stock awaiting your order.

ROOT'S GOODS AT ROOT'S PRICES

You can save time and expense by ordering from us.

Best shipping facilities.

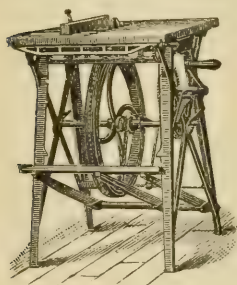
Complete stock.

Do not put off ordering to-day what you will urgently need a little later on in the season.

Frank W. Prothero

Successor to Prothero & Arnold

Dubois, Clearfield Co., Pennsylvania



BARNES' HAND and FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

MACHINES ON TRIAL

Send for illustrated catalog and prices. Address
W. F. & JNO. BARNES CO.
545 Ruby Street,
ROCKFORD, ILLINOIS.

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.,
Ashland, Ohio.



Deming's Sprayers

are the ideals for many thousand fruit growers. Get the best. Something for every purpose. Knapsack, Hand, Bucket, Barrel, Etc. Also Power Outfits. Every approved device for right working. Agitators, superior nozzles, etc. Send for free catalog. The Deming Co., 230 Depot St., Salem, O. Hanlon & Hubbell, Western Apts., Chicago.



Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements.

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

CARNIOLANS our SPECIALTY

WE HAVE been breeding this wonderful race of bees for over twenty years, and during all this time we have been making very careful selections, and we now claim to have one of the best and purest races of Carniolan bees in this country.

They are very gentle, hardy, and prolific; the best of workers; they come out of winter quarters healthier and stronger in bees; they build up very rapidly in the spring, are great comb-builders, and their sealed combs are of snowy whiteness.

Also Breeders of Golden and Leather Italians

No foul brood or other bee-diseases here. Bees and queens guaranteed to arrive in good condition at your postoffice in the United States or Canada. Descriptive price list free.

PRICES.—Untested queen, 75c; six, \$3.90; doz., \$7.00. Tested, \$1.25. Best breeding, \$2.50. Best imported,

F. A. Lockhart & Co.,

\$4.00. One L-frame nucleus, 75c; two-L-frame nucleus, \$1.50; three-L-frame nucleus, \$2.00. Add price of queen wanted to nucleus. Special prices quoted on large orders to dealers.

Banater Bees from Hungary

This wonderful new race of bees takes the lead over all other races, all points considered, that we have seen. The three colonies we are testing are strong in bees; do not offer to swarm; are great honey-gatherers; build snowy-white combs, and are very gentle; in fact, no smoke is needed to handle them. They resemble the Carniolans in color, though somewhat darker. We have never seen a race of bees with so many desirable qualities. We shall breed a limited number of queens for sale, and have started a queen-rearing apiary five miles from other bees, and expect to have laying bees ready to mail by July 15. Price \$5.00 each. Pure mating and safe arrival guaranteed.

Lake George, New York

QUEENS

By Return Mail at the Following Prices for the Balance of this Season. Golden or Leather-colored Italian.

Our folks say that your queens are extra fine.

The A. I. Root Co., Medina, Ohio

We have good reports from your stock from time to time.

George W. York & Co., Chicago, Ill.

On every hand I hear good words of Quirin's queens.

B. S. K. Bennett, Los Angeles, Cal.

Your queens did finely. It was one I purchased last year that gave me over 600 pounds of honey.

J. L. Gandy, Humboldt, Neb.

The breeder is surely a very fine one; her daughters do grandly.

Campbell & West, Hartstown, Pa.

I had a queen of your last year which produced bees that beat anything ever seen in this part of the country.

E. L. Messenger, New Haven, Conn.

The nuclei you sent J. A. Adams did just splendidly. Each colony stored at least 75 pounds of honey.

F. P. Merritt, 13 Breckenridge St., Lexington, Ky.

A few years ago I bought a queen from your which proved to be the best I had for years.

H. C. Shirley,

Cashier of Liberty Bank, Liberty, S. C.

I have had the pleasure of seeing the results of your queens at Mr. George W. Stanley's apiary, at Scuffletown, Ky., and that is why I am ordering this half-dozen.

C. W. Brenner, Newburg, Ind.

I bought a queen from a neighbor last year who said he got her from you. She made me 193 sections of honey after July 4th—the best my other queens did was 64 sections.

C. E. Woodington, St. Anne, Ill.

With great respect I write to you in regard to your dealing and queens. If you want any references you can refer to me, as I can't recommend you too highly. Your queens are the best I ever saw. I have one hive of bees among my 45 colonies containing a queen from you that \$50.00 will not buy.

Morris Coon, Route 2, Locke, N. Y.

The two-frame nucleus you sent me was put in a hive May 25th. In July I brushed a swarm; had a swarm in August, and took off 75 boxes of honey. I consider this a wonderful record. I had four nuclei from different parts of the country, and yours was far superior to any of them. They are very gentle, easy to handle, hustlers to work. All bees and queens needed by me will hereafter come from Quirin-the-queen-breeder, Bellevue, O.

S. A. Peck, Box 124, Northumberland, Pa.

	1	6	12
Select queens.....	75	\$4 00	\$ 7 00
Tested queens.....	1 00	5 00	9 00
Select tested queens.....	1 50	8 00	15 00
Breeders.....	3 00	15 00	
Straight five-band breeders...	5 00		

Safe delivery and satisfaction guaranteed of all queens. Any queen not satisfactory may be returned any time inside of sixty days and another will be sent gratis.

Address all Orders to

Quirin-the-Queen-Breeder
Bellevue, Ohio.

CARNIOLAN and ITALIAN QUEENS!

Untested, 50 cts. each. Warranted, 75c; tested, \$1.00. None better at any price.

Grant Anderson - Sabinal, Texas

Queens from 50 Cents Up!

Bred from Root's imported Italians. Write for prices, stating wants.

C. M. Church, Arnold, Pa.

Did you Ever

figure the difference in value between a good queen and a poor one?—one colony which brings in a large surplus, and another which, although you spend much more time on it, does not give you any?

Extra Honey Queens

give the best results for the least labor, and are therefore a good investment.

Prices

One.....\$1.00 Six.....\$5.00 Twelve..\$9.00

Francis J. Colahan

Bernardo, San Diego Co., Calif.

COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.

Tennessee-bred Queens

From Extra Select Mothers

Three-band from dark leather imported; Moore's long tongue or my own; Golden from Laws, Doolittle's, or my own; Caucasians and Carniolans from direct imported. No disease. Contracts with dealers a specialty. Apiaries from 3¼ to 7 miles apart. Write name on postal, and get circular and what others say.

JOHN M. DAVIS

Spring Hill, Tennessee, U. S. A.

Caucasian - and - Italian Bees and Queens

Mr. Walter S. Pouder, Indianapolis, Ind., June 30, 1906, writes: "Friend T., queen arrived to day in good condition. I consider her a very choice specimen of the Caucasian."

Mr. Frank G. Odell, Lincoln, Neb., writes: "The yellow Caucasian queen you sent us is an unusually fine queen and very prolific. We are very much pleased with her."

I can send such queens for \$3 00 each by return mail. Send for circular and price list.

A. E. Titoff, Loamasa, Calif.

Quality Queens

Are the Best Italians yet.

Send for circular. ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀

H. H. JEPSON,

182 Friend St., - Boston, Mass.

H. C. Simpson, Catawba, S. C.

Dealer in

BEE - KEEPERS' SUPPLIES!

Breeder of Italian bees and queens. Root's Goods a specialty.

CAUCASIAN QUEENS!

For beginners, the timid, and the city bee-keeper. Not stingless, but gentle. With this race many will master the art of handling bees. I breed HIGH-GRADE ITALIAN QUEENS also. The demand for these queens is great; the supply is limited. Write for particulars today. Address

Robert B. McCain, Yorkville, Ills. R. F. D.

Superior Queens!!!!

(Before June 15) (After June 15)

Italian and Carniolan

Untested..... 75c; \$8.00 per doz. 60c; \$6.50 per doz.

Tested..... \$1.00; 11.00 per doz. 75c; 8 00 per doz.

Select Tested... 1.25; 12.00 per doz. 1.00; 11.00 per doz.

Caucasian

Untested..... \$1.00; \$11.00 per doz. 75c; \$8.00 per doz.

Tested..... 1.50; 16.00 per doz. 1.00; 11.00 per doz.

Select Tested... 2.00; 20.00 per doz. 1.25; 12.00 per doz.

Write me a postal card for my circular.

Chas. Koeppen, Fredericksburg, Virginia

MOORE'S - STRAIN - OF - ITALIANS

as Red-clover Workers.

L. C. Medkiff, Salem, N. J., says: "I bought an untested queen of you last year, and her bees have filled three comb-honey supers, and did not swarm, while thirteen out of the fifteen other colonies did not get more than half that amount."

"I have queens from six different breeders, and I class yours 100 per cent above them all. Your bees worked very strong on the first crop of red clover. I know they were yours, because I floured them with a dredge-box and watched the hive. They also worked strong on the second crop of red-clover and lima-bean blossoms."

Untested queens, 75c each; six, \$4.00; dozen, \$7.50.

Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00.

Safe arrival and satisfaction guaranteed. Descriptive circular free.

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Ky.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them."

MALAN BROTHERS, Luserna, San Giovanni, Italy.

Queens - Italian - Queens

and bees from Root's Red-clover stock and

Golden Italian queens. Better than ever.

Untested..... 60c each; six, \$3.50

Selected untested..... 75c " " 4.00

Tested..... \$1.00 " " 5.00

Selected tested..... 1.25 " " 5.00

Two-frame nuclei with untested queen. .200

Orders filled in rotation. . Send orders to

E. A. Simmons, Greenville, Ala.

ITALIAN QUEENS

bred from best of honey-gatherers, either three or five banded or Golden races. Untested, 65c each, 3 for \$2.00, 6 for \$3.75, 12 for 7.25; tested, \$1.00 each, 6 for \$5.00, 12 for \$9.00; select tested, \$1.50 each; breeders, \$300 each.

J. W. Taylor, Beeville, Bee Co., Texas

Orders Filled Promptly by Return Mail

Queens from our fine strain of three-band Italians will not disappoint you. Bees are gentle and the best of honey-gatherers. Queens are large and prolific, and every one guaranteed. Untested, 50c; \$6.00 per dozen. Tested, \$1.00.

J. W. K. SHAW & CO.
Loreauville, Iberia Par., Louisiana

Rose Lawn Queens.

Italians - Carniolans - Caucasians.

We thank our friends for the liberal patronage extended to us, and beg to announce that we are prepared to fill orders promptly after July 1.

Our prize offer on honey production still stands, and will be extended to October 1 for those who wish our "Pure Gold" queens.

We call special attention to our Red Clover Italians and Yellow Caucasians, which are worthy the attention of any progressive bee-keeper.

Prices after July 1:

Italians and Carniolans, select, untested, 75c; six, \$4.00

Caucasians, select, untested, \$1.00, six, \$5.00.

Special prices on larger orders and breeding stock on application. Write for catalog.

Rose Lawn Apiaries, Station C, Lincoln, Nebr.

The Best Stock

Nice three-banded Italians that are guaranteed to please, or money refunded. The Robey queens now go to nearly all parts of the globe. They are being used by many of the largest honey-producers of this and other countries, who pronounce them to be very superior strain of bees. I have spent 21 years in building up this strain of bees. Warranted purely mated, in any quantity, 60 cts. each; selected warranted, 75 cts. each.

L. H. Robey, Worthington, W. Va.

Untested Queens!

Golden Italian

75 cts. each; six for \$4.00; an extra fine one for \$1.00. Warranted purely mated and good queens. . . .

J. B. Case, Port Orange, Fla.

Red-clover Queens from Westwood Apiary

will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.

Henry Shaffer Westwood, Ohio

From Long-tongued Imported Italians.

Untested, 75c; \$7.50 per dozen. Tested, \$1.25;

\$12.00 per dozen. Breeders, \$2.00 to \$3.00.

Postal orders drawn on Decatur, Michigan.

E. E. MOTT, Glenwood, Mich.

MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, 75c; six, \$4.00; twelve,

\$7.50. Tested, \$1.25; six, \$6.00. Twelve, \$11.00.

Best breeders, \$2.50. Safe arrival guaranteed.

W. H. Rails, - - - Orange, Calif.

Red Clover and Italian Queens.



Untested, 65 cts.; 2, \$1; tested, \$1.00. Select tested, \$1.25; 4-frame nuclei in a nice painted hive, and tested queen, all for \$3.75. "Your bees are swarming on my red clover fields," says G. W. Slaybaugh, York Springs, Pa.

G. ROUTZAHN, Biglerville, Pa.

1906 Italian and Caucasian Queens. Price list now ready. Write E. E. LAWRENCE, Doniphan, Mo.

BEES and QUEENS

BY RETURN MAIL.

**The Three-banded
Long-tongued Strain
of Italians.**

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

Superior Qualities.

Honey-gathering, size of bees, non-swarmer, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price

Quality Our Motto.

1300 colonies to select from.

Untested queens.....	75c; 6,	\$4.25; 12,	8.00
Select untested queens....	1.00; 6,	5.00; 12,	9.00
Tested queens.....	1.00; 6,	6.00; 12,	11.50
Select tested queens.....	1.50.		
Breeding queens, \$3.00 to \$5.00.			

Yours for best service,

**The Victor-Knolle Apiary Co.,
Hondo, Texas.**

Golden Queens.

My goldens are yellow from tip to tip. Every queen is worth a dollar, but I have a large number of them and offer them cheap. One, 65 cts.; 3 for \$1.95; 6 for \$3.75; 12 for \$7.50. No finer or better queens can be had at any price. They are reared right. Have had 35 years' experience in rearing queens. I insure satisfaction in every particular. Try at least one of my all-golden queens, and see how promptly I can serve you. Send for circular. It's free.

Daniel Wurth, 1111 North Smith St., San Antonio, Texas

Boston Headquarters

— FOR —

Bees-Queens-Supplies

H. H. Jepson - 182 Friend St.

Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:

Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

H. M. PARKER, Jr.

James Island, South Carolina

Italian and Caucasian Queens and Bees



Choice homebred and imported stock. All queens reared in full colonies.

PRICES FOR JULY

ITALIANS	
One untested queen	65
One tested queen	90
One select tested	1.10
One breeder queen	1.65
One comb nucleus, no queen ..	80
Caucasian queens, untested ..	1.25
Tested	1.75

Safe arrival guaranteed. For prices on quantities, and description of each grade, send for free catalog.

**J. L. Strong, Clarinda, Iowa, U. S. A.
204 East Logan Street**

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,

Box 18, Beeville, Bee Co., Tex.

California Sage Queens

For balance of season choice untested queens, 75 cts. each; six for \$4.00. Good, healthy Italian stock. No small or inferior queens sent out. Circular free.

**J. W. GRIFFIN,
528 Gladys Ave., Los Angeles, Cal.**

Yellow from Tip to Tip!!!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce golden queens and beautiful bees; non-swarmer, very gentle, and hustlers for honey. Each queen, \$1. Catalog ready.

H. ALLEY, - - Wenham, Mass.

MINNESOTA-BRED QUEENS.



Try our Northern-bred queens—nothing finer; three-banded and golden Italian queens, untested, 75 cts.; tested, \$1.50. Hardy and prolific. We want your orders, and will fill them by return mail, and guarantee safe arrival and satisfaction. Write for circular to

**MENNIE & FENTON,
Pine Island - Minnesota.**

I. J. STRINGHAM

OF 105 PARK PLACE

New York

furnishes every thing a bee-keeper uses. Strong colony of bees, with tested Italian queen, in Dov'd hive complete, \$8.00; in a chaff hive, \$9.50. Three-frame nucleus, with Italian queen, \$4.00. Silk-faced bee-veil, 40 cts. postpaid. Italian queens, 85 cts. Catalog of bee-supplies free.

Apiaries, Glen Cove, Long Island.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Bee supplies in exchange for 300 colonies of bees. See ad. elsewhere. Manufacturers write me if interested. LEO F. HANEGAN, Glenwood, Wis.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—Utah, Nevada, and California honey. We are now contracting with bee-keepers for our year's supply, small lots as well as carload lots. We pay cash, or, to all who prefer, bee-supplies in payment. We give extremely low figures. We have the agency for The A. I. Root Co.'s goods in Utah, and buy by the carload.
SUPERIOR HONEY CO.,
F. W. Redfield, Mgr. Ogden, Utah.

Help Wanted.

WANTED.—A man to help us through August at general work among our bees. State wages wanted and what experience you may have had.
E. W. & F. C. ALEXANDER, Delanson, N. Y.

WANTED.—Position in comb, extracted, or queen-rearing yard; 15 years' experience; at present manager of the largest apiaries in Northern California. Reasons for leaving.
JAMES DUNN,
Route 1, Vacaville, Cal.

WANTED.—A cook in a private family of three. Good home for respectable woman. Good wages paid. Address
JOHN RICK,
434 Oley St., Reading, Pa.

For Sale.

FOR SALE.—400 cols. pure Italian bees in lots to suit. Write for prices. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Bees and bee-supplies.
J. GOBELI, Glenwood, St. Croix Co., Wis.

FOR SALE.—Untested Italian queens at 60c; two for \$1.00; tested, \$1.00 each.
MRS. J. W. BACON,
Waterloo, Seneca Co., N. Y.

FOR SALE.—500 colonies of bees as soon as 1906 crop of honey is off. Apply to
W. P. COLLINS, 1112 Pearl St., Boulder, Col.

FOR SALE.—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog. F. R. DANIELS,
117 Florence St., Springfield, Mass.

FOR SALE.—My apiary complete in the great irrigated alfalfa belt; no failure yet. See GLEANINGS of Dec. 15, 1903, page 1051. C. K. C., Lovelock, Nev.

FOR SALE.—170 colonies of bees in eight and ten frame hives; honey-house on wagon; uncapping-tank, honey-tank, four-frame extractor; mare, colt, horse, cow, 200 chickens, 10 acres of land with improvements. Rt. 3. Mrs. T. HARRIS, Visalia, Cal.

FOR SALE.—Yellow hybrid queens, 50c each, five for \$2.00. A. RICHTER, Harvey, Cook Co., Ills.

FOR SALE.—\$200 will buy 100 full colonies and 10 nuclei, strong; Italians and hybrids.
G. P. HOWELL, 6101 Dauphine St., New Orleans, La.

FOR SALE.—Five acres near Manzanola, Colo.; is improved; half in fruit. Also 70 colonies bees for sale.
WM. WORDEN, Manzanola, Colo.

FOR SALE.—Twenty colonies bees in Danz. hives at \$3.00 each, or \$2.75 each for the lot.
EDWARD TRENT, Butler, N. J.

FOR SALE.—Queens from 50c up. Bred from Root's imported Italians. Write for prices, stating wants.
C. M. CHURCH, Arnold, Pa.

FOR SALE.—Queens. I breed a superior strain of fine golden-all-over Italians. Ask for prices.
T. L. McMURRAY, Ravenswood, W. Va.

FOR SALE.—The Alexander wire bee-veil. The best face-protector on the market. Try one and be convinced. At 75c each postpaid.
FRANK C. ALEXANDER, Delanson, N. Y.

FOR SALE. 275 colonies of bees in good condition. Also can locate you on first-class homestead claim under Gunnison tunnel, one of Uncle Sam's biggest reclamation projects. Address Box 782, Montrose, Col.

FOR SALE.—About 300 sixty-pound cans; mostly new, good condition, new cases, two cans to a case; 40 cts. per case, f. o. b. Preston.
M. V. FACEY, Preston, Fillmore Co., Minn.

FOR SALE.—15 queens, Italian hybrids, and a few blacks, either at 25 cts. each. Ready for delivery at once. Get northern stock.
WALTER NYGREN, Maine, Minn.

FOR SALE.—Special sale of sections—Wisconsin basswood—equal to the best, No. 1, \$4.20; No. 2, \$3.70. Root Dovetailed and Danz. comb-honey hives, and all kinds of supplies on hand. Italian queens and bees.
H. S. DUBY, St. Anne, Ills.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to
FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Bees; the right kind, right prices. Safe arrival and satisfaction guaranteed. Ask for illustrated Outfits for Beginners, price list, and our hints on buying bees. MASON SUPPLY CO., Mechanic Fs., Me.

FOR SALE.—Thirty-five colonies bees—part are Italian and part hybrid. Must go; but if not taken in July I must have half the honey. For further particulars see or write, and enclose stamp when writing.
MRS. ANNA E. CHESTERMAN, Cowden, Ills.

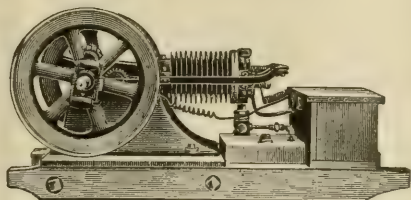
FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season.
W. N. CANNON, Greenville, Ala.

FOR SALE.—At a bargain, 300 colonies of bees in well-painted, factory-made, eight frame Dovetailed hives; good strain, no disease. A model outfit. No supers. Can fill orders immediately after Aug. 1. Will sell in lots to suit buyer, or will exchange for stock of bee-supplies. Write for further information.
LEO F. HANEGAN, Glenwood, Wis.

Poultry Offers.

FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free.
A. H. DUFF, Larned, Kansas.

FOR SALE.—Alger's rose-comb Brown Leghorns hold the world's record; first at Chicago International, St. Louis World's Fair, exposition at Portland, Oregon. Italian bees—Root strain direct Flemish Giant hares, very large. Red Belgians from 16-lb. buck. Get circulars.
FRED ALGER, Waukau, Wis.



Power for Extractors.

We have finally found what we have been looking for in a gasoline-engine to run our large-sized honey-extractors. They are very reasonable in price, and simple to operate.

They are economical, using but a quart to a quart and a half of gasoline a day, per horse power.

There is no waste of power, as a sensitive governor cuts out both gasoline and batteries when engines are at their proper speed, and charges are resumed as soon as speed slackens.

As the engines are air-cooled and use no water there is no danger of cracked cylinders in cold weather. They can be operated in any temperature.

They are light in weight, and can be easily moved, and used for a multitude of purposes, as well as for extracting. They are the most satisfactory engines for running cream-separators, churns, fans, sewing and washing machines, ice-cream freezers, meat-choppers, printing-presses, and, in fact, all kinds of light machinery. They are the ideal pumping-engines.

They are made of the best materials, with as careful attention to details as the larger and more expensive engines. Each engine is mounted on a board with tank and battery box, ready to run. They are thoroughly tested before shipping, and fully guaranteed.

Shipping-weight of one-horse-power engine complete, ready to run, 300 lbs. Price \$60, f. o. b. factory in Wisconsin, Medina, or Chicago. In running a large extractor by power the ratio of the gear should be one revolution of the reel to two of the crank-shaft; and in place of the crank a flanged clutch-pulley or a pulley with belt-tightener should be used. These attachments are worth \$5.00. Write for further particulars.

The A. I. Root Co.,
Medina, Ohio.

Perfect? What better can you wish? You can now, by use of the

PERFECT PAMPHLET RESERVER

them to get it, or write to

BIND **GLEANINGS** AT A TRIFLING COST!

On the shelf it looks just like a book; holds one number or a volume; as simple as tying a shoe. See it at news, book, or stationery dealers. Ask **The A. I. Root Company, Medina, Ohio.**

PATENTS.

Twenty-five Years' Practice.

PRINDLE & WILLIAMSON,

Patent practice in Patent Office and Courts.
Second National Bank Bldg., Washington, D. C.
Patent counsel of The A. I. Root Co.

JOSEPH HORNE CO.

Pittsburgh, Penn.

The Hoe Safety Razor.

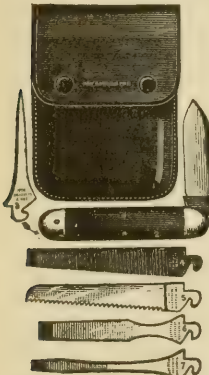
All beards are alike to the Hoe, the heavy gristly beard that requires to be reduced every morning, and the light, unnoticeable beard that calls for a shave only twice a week.

The Hoe Safety Razor is by all odds the simplest safety razor on the market to-day, as well as the most perfect. It is composed of three parts, the hoe, the guard, the razor itself; and this razor can be honed when necessary just like any other razor.

It costs only \$1.50, and the price includes half a dozen keen-edged blades, which ought to last any beard a couple of years. Then you can buy more blades.

No. 602 Bee-keepers' Pocket-Knife Tool Kit.

Made in America



Every one has use for a Knife, Reamer, File, Saw, Chisel, or Screwdriver. This outfit is practical, yet so small, being contained in a Leather Pocket-Book $4\frac{1}{4} \times 3\frac{1}{4}$ inches, is, by carrying it in your pocket, always at hand for immediate use, whether Camping, Boating, Teaming, Driving, in the Shop, Factory, Office Store Warehouse, Automobile, on the Farm, Bicycle, or around the Home.

Any Tool firmly attached or detached to the Pocket-Knife in a second.

Sent postpaid on receipt of price, \$2.25.

Use it five days and if not satisfactory return it and I will refund your money.

U. J. ULERY CO., No. 7 Warren St., New York, N.Y.

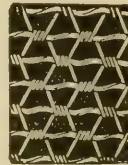
THE "BEST" LIGHT



Produces a safe, white, powerful light, brighter than acetylene or electricity. 100-candle power at a cost of 2c per week.

Made in over 100 different styles—every one warranted. Agents wanted No dirt, smoke or odor. Everywhere.

THE BEST LIGHT COMPANY,
806 E. 5th St., Canton, Ohio



FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today

COILED SPRING FENCE CO.
Box 101 WINCHESTER, INDIANA.

You Need It.

If you have only a few chickens;
If you are at all interested in poultry;
If you are breeding for fancy points;
If you cater to the market trade;
If you are in the business on large scale, you need

Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. a year, but we offer it **AT HALF PRICE** for a short time to introduce it to readers of Gleanings. Send only 25 cts. and get it a year; or, if you send us \$1 for a year's subscription to Gleanings in Bee Culture, we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.

\$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size 8x11 $\frac{3}{4}$ inches) of valuable poultry, pigeon, and pet-stock reading, costing us thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

Poultry Item, Sellersville, Bucks Co., Pennsylvania

DO YOU RAISE CHICKENS?

If so, you will find The Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cts. a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

TO THE BEE-KEEPERS OF CANADA

WE ARE pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we are not able to offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers. Moreover, what we do list we propose to keep in large quantities, and will be able to ship promptly.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY

Deer Park

Toronto - Ontario - Canada

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

BEE-KEEPERS!

Have you secured your hives, sections, foundation, honey-cans, and extractors yet? If not, you should not put it off any longer. Be prepared when the flow comes on. Let us assist you. We carry the largest stock of goods in the Middle West. The low freight rates from

Toledo

will save you money. We will buy your honey and beeswax, and pay highest market price. It will pay you to correspond with us when your crop is ready to market. No shipment is too large for us. Carloads a specialty.

Queens! Queens!

We have a yard at Toledo with 100 colonies and over, which we use for queen-rearing only; besides several out-yards which we run for honey, also for extra bees and brood, and queens are mailed same day order is received.

Our 70-page Catalog

is sent free to any one asking for it. No matter whether you keep one colony or five hundred. We also handle a large line of poultry supplies, and sell eggs for hatching. Our 1906 mailing list is sent with every catalog. Don't buy until you have seen it.

Griggs Brothers

523 Monroe St. : Toledo, Ohio

CENTRAL AND NORTHERN PENNSYLVANIA

Distributor of Root's Goods from the
Best Shipping - point in this State.
WHOLESALE - AND - RETAIL

I sell at catalog prices, and, with the low low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also rear Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

E. E. PRESSLER, WILLIAMSPORT, PENN.

The Best ^{is} Always The Cheapest

We have been furnishing bee-keepers all over the World with Supplies for over 25 YEARS, and no complaints.

Our PRICES are as low as any, while the QUALITY of our goods is HIGHEST. Catalog and price list free. We have for 16 years published THE AMERICAN BEE KEEPER, an illustrated 32-page monthly, edited by two of the most experienced bee-keepers in America. Fifty cents a year. Sample copy free.

The W. T. Falconer Mfg. Co., Jamestown, N. Y.

NORTHEASTERN & NEW ENGLAND BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

NOW is the TIME!

to improve your stock by purchasing some of our Red Clover and Leather-color Italian queens. All of our queens are bred for their honey-gathering qualities, and you'll find them prolific and gentle.

Prices for July			
	1	6	12
Untested	\$.75	\$4.25	\$8.00
Select Untested	1.00	5.25	10.00
Warranted Purely Mated.....	1.00	5.00	9.00
Select Warranted.....	1.25	6.00	11.00
Tested 1906 Queens.....	1.25	7.00	
Select Tested	1.50	8.50	
Extra Select Tested.....	2.00	11.00	

All orders accompanied with cash are booked and filled in rotation. Safe arrival by mail guaranteed. Send for price list of bees and supplies.

W. W. Cary & Son, Lyonsville, Mass.

Dadant's Foundation It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!
No sagging; no loss.
Twenty-eighth Year.
We Guarantee Satisfaction.
Wax Worked into Foundation.

Bee-supplies of All Kinds

Beeswax wanted at all times.
Send for Our 1906 Catalog.

Dadant & Sons, Hamilton, Ill.

New Goods-Big Stock

New Warehouse, Root's Goods,
Prompt Shipment, Low Freight.

Everything for the Bee-keeper at Savannah, Ga.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory.

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog sent free. Correspondence solicited. .

HOWKINS & RUSH

124 West Liberty Street

SAVANNAH - - GEORGIA

GLEANINGS

IN BEE CULTURE



FIELD-MARSHAL
SELSER

THE A. I. ROOT CO.
MEDINA, OHIO.

Eastern Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

Washington, D. C.

A convenient place to get your supplies. Lowest rate by rail and water to all parts of Virginia and South Atlantic States.

We carry a full line of our goods at this branch, and give you prompt and satisfactory service. Give us a trial.

Write for catalog.

The A. I. Root Company

H. G. La Rue. . Manager
1100 Maryland Av., S. W.
Washington, D. C.

Bee-Supplies

For Southern

Bee-Keepers

I have been over 20 years in the bee-supply business, manufacturing hives and fixtures, and raising bees and queens. With all this experience and the excellent facilities I have, I am able to fill your orders promptly, and give absolute satisfaction. Though I make my own hives I carry a complete stock of The A. I. Root Company's manufacture. Just specify "Root's Goods" and you will get them.

Bees and Queens

I breed with scientific, intelligent methods, from the best imported and long-tongued stock. Cheap queens may be had elsewhere. My stock is worth every cent of the price. You will be pleased with it. I GUARANTEE IT.

64-page Catalog

of Supplies and Bees sent free. Tell me you saw my ad. in GLEANINGS.

J. M. JENKINS

WETUMPKA : ALABAMA

FAIR CONTEST!

CONDITIONS

FIRST.—That subscriptions entered in contest are obtained at the fair on dates named in application below, or obtained as results of work during fair.

SECOND.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, 6 mos.) are equivalent to one year's subscription.

THIRD.—Contest closes Nov. 15th, and announcements will be made in Dec. 1st GLEANINGS.

FOURTH.—That only one agent will be appointed for any one fair.

FIFTH.—That advertising matter sent is to be carefully distributed to best advantage.

OUR agents made money at fairs last year. The work was easy, our commission liberal, and the prizes large. We supply you with sample copies and printed matter. Better make arrangements with us to represent Gleanings at your State or County Fair. Do it now before some one else gets ahead of you.

PRIZES: First, \$10.00; second, \$5.00; third, \$3.00; fourth, \$2.00; fifth to tenth, a copy of A B C.

Write us, asking that your name be entered, and Fair rights be reserved for you.

Gleanings in Bee Culture, Medina, Ohio, U. S. A.

Fair Contest Department

C. H. W. Weber,

Headquarters for

Bee - Supplies.

**Distributor of Root's Goods Exclusive-
ly, at Root's Factory Prices.**

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, rain or otherwise; in all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight: one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

MILWAUKEE.—The present indications are encouraging that the honey business will be good here, as the old crop stock is well out of sight, and the arrivals of the new crop, which we have received, are excellent in quality and condition, showing care in grading by the shipper, and careful handling, and will result in better returns, also attractive to the eye, which entices the taste of consumer; and we believe a more general use of the delightful and charming nectar by the people will result. We now quote fancy 1-lb. sections, 16 to 18 cts.; any grade below fancy white, 14 to 16 cts.; dark or off grades, 10 to 14 cts. Extracted, white, in barrels, pails, and cans, 7 to 8½ cts.; dark, 6 to 7½. Beeswax, 28 to 30.

A. V. BISHOP & Co.,
July 29. 119 Buffalo St., Milwaukee, Wis.

ST. LOUIS.—The honey market is practically in the same shape as reported last. There is some new comb arriving, and is quotable as follows: Fancy white comb, 15; No. 1, 14 to 14½; amber, 12½ to 13; extracted honey is slow at 6 to 6½ for light amber California, 1905 crop; Spanish needle is quotable at 6½ to 7 in 5-gallon cans; Southern new, 4½ to 4¾; for dark and inferior, less. Beeswax, for prime, 28½; all impure and inferior, less.

R. HARTMANN & Co.,
July 20. St. Louis, Mo.

SCHENECTADY.—We have received two consignments of new honey. In one lot the combs are somewhat discolored, but quality is fair. Write for instructions before shipping, as some styles of sections do not sell well in our market, especially those weighing over a pound. We advise using shipping-crates, and sending by freight instead of express.

C. MACCULLOCH,
July 18. Schenectady, N. Y.

CINCINNATI.—We are having new comb honey arrive, and it finds ready sale, fancy white at 14½, and No. 1 at 13½. Extracted white clover in barrels, 7½; in cans, 8½; amber extracted, 5 to 5½. Beeswax, 30.

C. H. W. WEBER,
July 7. 2146-8 Central Ave., Cincinnati, O.

TORONTO.—Inquiries for honey come in now every day; but honey is scarce, practically no new honey at all yet, and the prospect of having any quantity for some time is poor. Reports from most of that portion of the province of Ontario bordered by the great lakes would go to show that only a very light flow from clover, at least, can be expected; basswood and late flowers may improve the situation somewhat. However, the crop will not be very great this year.

E. GRAINGER & Co.,
July 21. Toronto, Can.

DENVER.—To date but very little comb honey is in sight in this State. We have handled only a few small lots of new No. 1 white comb honey so far, which has brought \$3.40 per case of 24 sections. We could handle more to good advantage. We pay 24 cents for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASS'N.,
July 21. Denver, Colo.

PHILADELPHIA.—Advices from different points are rather conflicting regarding the honey crop this season, and, consequently, there is no market price established. Some new arrivals of comb honey sell at 13 to 15, according to quality, and extracted honey at 6 to 7. Beeswax firm, 28. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
July 21. 10 Vine St., Philadelphia, Pa.

TOLEDO.—Market on comb honey at this writing is rather quiet, as people are waiting to see how the crop will turn out before making any stated market. Fancy white comb honey would bring 15 to 16 in the retail way; No. 1 at 4; extracted white clover and basswood in barrels would bring 6½, cans the same, possibly ½ ct. higher. Beeswax, 26 to 28.

GRIGGS BROTHERS, Toledo, Ohio.

DETROIT.—No shipments of new honey in yet, and prices unsettled. Some offers are made, but no sales as yet. The impression seems to be among the buyers that the crop is large, and they want to buy very cheap. Nothing will probably be done for two or three weeks yet. Very little or no old honey in market.

M. H. HUNT & SON,
July 20. Bell Branch, Mich.

KANSAS CITY.—There is a fair demand here for fancy white comb honey in 24-section cases at \$3.00 to \$3.25 per case, according to quality; no new extracted in as yet, but some demand for the old at 5½ to 6. We look for prices to remain firm at about these figures, and think the demand will increase from now on.

July 20. C. C. CLEMONS & Co., Kansas City, Mo.

ATLANTA.—On account of heavy fruit receipts, honey seems to have taken a place of secondary importance; however, we anticipate a reaction when the fruit season is over. We quote: Fancy white comb, 14 to 15; A No. 1, 12½ to 14; extracted, slow at any price. Beeswax, 28 to 30.

JUDSON HEARD & Co.,
July 12. Atlanta, Ga.

STANDARD BRED QUEENS.

BUCKEYE STRAIN RED CLOVER, GOLDEN ITALIANS

By Return Mail. Safe Arrival Guaranteed.

PRICES

	ONE	SIX	TWELVE
Untested	\$0.75	\$4.00	\$7.50
Select Untested	1.00	5.00	9.00
Tested	1.50	8.00	15.00
Select Tested	2.00	10.00	18.00

Select Breeders, each \$3.00
Two-frams Nucleus and Red Clover Queen 3.00

THE FRED W. MUTH CO.,

No. 51 WALNUT ST.,

CINCINNATI, OHIO.

CHICAGO.—Not any new comb on this market, and the old is used up so far as good grades are concerned. What the volume of sales will be on the new crop is problematical; but judging from the past it should sell in moderate quantities. R. A. BURNETT & Co., July 19. 199 South Water St., Chicago, Ill.

FOR SALE.—15,000 lbs. clover and raspberry honey in 60-lbs. cans. Sample 5 cts.

JAMES McNEIL, Hudson, N. Y.

FOR SALE.—3000 lbs very fine clover and basswood honey. Sample and prices free. Also 1000 lbs. white comb honey in 4¼x1½ plain sections

W. H. TOWNSEND Hubbardston, Mich.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.

O. L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—Choice extracted clover honey. Extra choice, selected from all new combs, in round-jacketed five-gallon cans, for family use; \$5.00 per can. Prices on larger quantities in 60-lb. square cans, two cans in case, on application. Sample, 5 cts.

G. A. BLEECH, Jerome, Mich.

WANTED.—Fancy white comb and extracted honey. I pay cash—no commission.

WALTER S. POWDER, Indianapolis, Ind.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT, 199 South Water St., Chicago, Ill.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.

GRIGGS BROS., Toledo, Ohio.

WANTED.—Comb and extracted honey. State quality, quantity, and price.

JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Well-ripened extracted basswood and clover honey, light in color; prompt payment on receipt; 7½ cts. per lb., f. o. b. West Bend.

H. C. AHLERS, West Bend, Wis.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & EGGELKEN,
265-267 Greenwich St., New York.

WANTED.—Beeswax. We are paying at this date for pure average beeswax delivered at Medina or any branch office named below, 27 cts. in cash or 30 cts. per lb. in exchange for bee-supplies, less transportation charges. We can not use old combs. Pack securely and address plainly. Be sure to send bill of lading when you make shipment, and advise us how much you send, net and gross weights. Ship to home office or nearest branch named below.

THE A. I. ROOT CO.,
Medina, Ohio.

Chicago, 144 East Erie St.; New York, 44 Vesey St.; Philadelphia, 10 Vine St.; Washington, 1100 Maryland Ave., S. W.

WANTED.—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.

THE A. I. ROOT CO., Medina, Ohio.

Chas. Israel & Brothers

486-490 Canal St., New York.

Wholesale Dealers and Commission Merchants in Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments Solicited. Established 1875.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL

at the World's Fair,
St. Louis, 1904.



UP-TO-DATE,
STRONGEST,
COOLEST,
CLEANEST.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Platteville, Wis.

SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."

Grant Stanley, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, pages 1370; sent free with price list.

F. DANZENBAKER, MIAMI, FLORIDA

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.

POULTRY DOLLARS COME EASY.

Our large 52 to 112 page beautifully illustrated magazine, best printed and edited poultry journal, makes it easy to add dollars to your income by keeping a few hens on a town lot or make a success on a large scale, covers every thing. Contains information that will put you in comfortable circumstances if followed. **POULTRY SUCCESS** one year, 50 cts. Large illustrated poultry book free to annual subscribers. Three months' trial, 10 cts. **POULTRY SUCCESS CO., Springfield, Ohio.**

EVANS & TURNER,

Columbus, Ohio,

will be in the market for white comb honey, and especially want some fine stock from Wisconsin, Michigan, Indiana, and New York. They would also like to hear from Iowa producers. Write fully what you expect to have; and if you care to name price, do so, stating about what time your crop will be ready to move.

JELLY-TUMBLERS AT REDUCED PRICES.

You can double your money from your honey crop by using Jelly-Tumblers of correct style, as containers and keeping your market supplied. No other glass so economical. Write for quotations.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

E. R. ROOT
Editor

A. I. ROOT
Editor Home Departments

H. H. ROOT
Asst. Editor

DR. C. C. MILLER,
LOUIS H. SCHOLL,

Department Editors:
J. A. GREEN,
G. M. DOOLITTLE,

PROF. A. J. COOK,
W. P. ROOT,

J. E. CRANE,

J. T. CALVERT, Business Manager

A. L. BOYDEN, Advertising Manager

Circulation 30,000. Reaches every State and 60 foreign countries.
Established in 1873. Sixty-four pages. Semi-monthly.
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

Terms---\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.

Postage is Prepaid by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent onewweek before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of **THE A. I. ROOT COMPANY, MEDINA, OHIO.** Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS., 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 6/.*

Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publisher.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY STATE

DATE..... If you want Gleanings discontinued at expiration, check here ()

FEEDING BACK

honey to secure the completion of unfinished sections can be made very profitable if rightly managed during the hot weather of July and August. In **ADVANCED BEE CULTURE** may be found complete instructions regarding the selection and preparation of colonies, preparation of the feed, manipulation necessary to secure the rapid capping of the combs, time for removing the honey, and how to manage if a few sections in a

case are not quite complete; in short, all of the kinks that have been learned from years of experience, and the feeding back of tons of honey. Remember, too, that this is only one chapter out of 33 treating as many vitally important phases of bee culture.

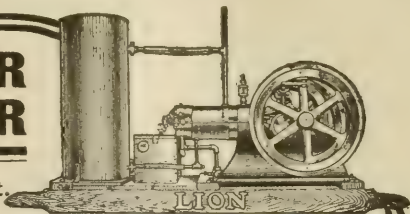
Price of the book, \$1.20; or the Review one year and the book for only \$2.00

W. Z. HUTCHINSON, Flint, Michigan.

A READY POWER AT ANY HOUR

That's the kind of a power you want.

You do not have to wait for steam, or until the wind blows, before you can pump water, grind feed, saw wood or the hundred and one other jobs about the farm, if you have a **Lion Gas or Gasoline Engine**. Have you ever thought just what a saving of time, labor and money it would be to have such a practical power **always ready to operate** your various machines on the farm, in the shop, printing-office, or—anywhere?



The LION Engine



is such a power. It is **simple** in construction, **practical** in operation, and **economical** in the use of fuel. You do not require the services of an engineer, as anyone can operate it. We send the **Lion engine**

Direct From The Factory

on a **ten days test trial** and give explicit instructions and directions for setting up and operating it. Write now, stating your power needs, for our easy payment plan. Remember, we send **the engine**, not the agent.

LYONS ENGINE CO., Lyons, Mich.

GOLDEN Opportunities!

EXIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

J. W. WHITE

Gen. Indus. Agt., Portsmouth, Va.

Seaboard Air Line Railway

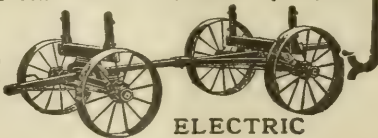
Let Us Send You Our Book.

about good wheels and good wagons that will save you a lot of work and make you a lot of money—the

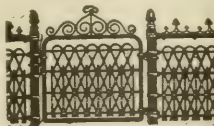
ELECTRIC STEEL WHEELS —and the— ELECTRIC HANDY WAGON.

By every test, they are the best. More than one and a quarter millions sold. Spokes united to the hub. Can't work loose. A set of our wheels will make your old wagon new. Catalogue free.

ELECTRIC WHEEL CO., Box 95 Quincy, Ills.



ELECTRIC



LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address **COILED SPRING FENCE CO., Box 148 Winchester, Ind.**

CONTENTS OF THIS NUMBER.

MARKET QUOTATIONS.....	578	Wax-rendering Methods.....	1000
STRAY STRAWS.....	997	The Automobile for Out-apiary Work.....	1001
EDITORIAL.....	689	The Big Field Day at Jenkintown.....	1004
How to Move Bees a Short Distance.....	989	The Ferris System of Producing Comb Honey.....	1006
Sweet Clover.....	989	Bee-keeping in California.....	1007
What to Do if Foul or Black Brood Appears.....	989	Colony of Bees 60 feet from the Ground.....	1008
The Honey Crop this Season.....	990	Projections on Frames for Spacing Combs.....	1009
Robbing and its Consequences.....	990	HEADS OF GRAIN.....	1012
Red Clover as a Honey-plant.....	990	Combs that Have Been in Use 20 Years.....	1012
AMONG THE ROCKIES.....	991	Separating Queen-excluding Zinc from Top-bars.....	1012
CONVERSATIONS WITH DOOLITTLE.....	993	Comb Built over Wires without Starters.....	1012
GENERAL CORRESPONDENCE.....	994	Perpendicular Wiring Preferred.....	1013
Emptying Supers.....	992	The Alexander Treatment for Black Brood.....	1013
If I were to Start Anew.....	994	Letter from a Ten-year-old Bee-keeper.....	1013
Women and Bees.....	995	A YEAR'S WORK IN AN OUT-APIARY.....	1014
The Value of Double-wailed Hives.....	997	HIGH-PRESSURE GARDENING.....	1015
Bee-hunting.....	998	OUR HOMES.....	1017
Extracting Honey Before it is Capped Over.....	999	SPECIAL NOTICES.....	1019

INDEX TO ADVERTISEMENTS.

Banking by Mail.	Colahan, F. J.....	1027	Honey-buyers.	
Savings Dep. Bank Co.....	Forehand, W. J.....	1029	See page.....	978
Bee-books.	Jepson, H. H.....	1027	Household Specialties.	
Hutchinson, W. Z.....	Koeppen, Chas.....	1028	Best Light Co.....	1032
Swarthmore.....	Lawmaster, L. A., & Sons.....	1027	Horne Co., Joseph.....	972
Bee Smokers.	Lawrence, E. E.....	1028	Ulery Co., U. J.....	1032
Bingham, T. F.....	Laws, W. H.....	1027	Machinery.	
Danzenbaker, F.....	Leininger, Fred.....	1029	Electric Wheel Co.....	981
Bee Supplies.	Lockhart & Co., F. A.....	1026	Empire Mfg. Co.....	1032
Cook, J. H. M.....	Malan Brothers.....	1028	Lyons Engine Co.....	981
Falconer Mfg. Co., W. T., Back Cover	McCain, Robert B.....	1027	Myers & Bros., F. E.....	1032
Hershiser, Orel L.....	Mennie & Fenton.....	1029	Miscellaneous.	
Hilton, Geo. E.....	Moore, J. P.....	1028	C., M., & St. P. Ry.....	1024
Hunt & Son, M. H.....	Mott, E. E.....	1025	Lester Co., F. E.....	1032
Jepson, H. H.....	Parker, Jr., H. M.....	1029	Prindle & Williamson.....	1032
Kretschmer Mfg. Co.....	Quirin the Queen-breeder.....	1021	Seaboard Air Line R. R.....	981
Lewis Co., G. B.....	Rails, W. H.....	1025	Stutzman, D.....	1032
Minnesota Bee Supply Co.....	Rambo, J. R.....	1028	T. T. Poultry Co.....	979
Muth Co., Fred W.....	Robey, L. H.....	1025	Publishers, Agricultural-paper.	
Page & Lyon.....	Roselawn Apiary.....	1028	Southern Fruit Grower.....	979
Pounder, Walter S.....	Routzahn, G.....	1028	Publishers, Bee-Journal	
Prothero, Frank W.....	Shaffer, Henry.....	1028	Falconer Mfg. Co., W. T., Back Cover	
Reeves, A. H.....	Shaw & Co., J. W. K.....	1028	Hutchinson, W. Z.....	981
Root Co., The, Syracuse, N. Y.....	Shuff, W. A.....	1029	Root Co., A. I.....	980
Root Co., The, St. Paul, Minn.....	Simmons, E. A.....	1028	York & Co., Geo. W.....	985
Scott & Co., C. M.....	Simpson, H. C.....	969	Publishers, Poultry-paper.	
Stringham, I. J.....	Strong, J. L.....	1027	Ohio Poultry Journal.....	1032
Weber, C. H. W.....	Taylor, J. W.....	1028	Poultry Gazette, The.....	1032
Woodman Co., A. G.....	Titoff, A. E.....	1027	Poultry Item.....	979
York Honey & Bee Supply Co.....	Victor-Knoll Apiary Co.....	1029	Poultry Success.....	979
Bees and Queens.	Würth, Daniel.....	1029	Wants and Exchanges.	
Alley, H.....	Comb Foundation		See page.....	1038
Atchley Co., The Jennie.....	Dadant & Son.....	Back Cover		
Case, J. B.....	Dittmer, Gus.....	1021		
	Fences.			
	Coiled Spring Fence Co.....	981, 1032		

ADVERTISING TALKS

BY THE AD. MAN.

GLEANINGS A SAFE AND SURE ROUTE.

So many of our friends have made the above statement when writing to us that we have chosen the title "THE BEE-LINE TO PROFIT" as the name of the GLEANINGS souvenir booklet which has just been issued.

This little book is quite the best literature we have ever gotten out to advertise GLEANINGS. It tells all about the days when GLEANINGS was a "beginner," and leads right down to the present time.

We should be very glad if we could afford to place a copy of this beautiful little book in the hands of every bee-keeper; but the expense of preparation and mailing forbids. However, we have set aside a generous number of copies which will be mailed, one copy at a time, to our friends. We hope that those who receive the booklet, and who are already subscribers, will use it to interest a fellow bee-keeper in this profitable way to successful bee-keeping. Address requests to the Ad. Man.

The A. I. Root Co., Medina, Ohio.

Dear Sirs:—That booklet, "Bee-line to Profit," is excellent and a beauty. After one reads it he sort of feels acquainted with GLEANINGS, and I feel sure much good will result. Very truly,

Indianapolis, Ind.

WALTER S. POWDER.

Great interest is being manifested in the GLEANINGS FAIR CONTEST, which is now on. When sending your name with the request that we enter you as a contestant, please be sure to give the name of the fair, and the date and place where it will be held. We want to secure absolute protection for our agents in their particular locality, and must have the information we ask for. Remember the prizes are cash, and that the regular cash commissions are also paid.

We have just printed a very neat 12-page illustrated price list of comb and extracted honey, for Messrs. J. E. Crane & Son, Middlebury, Vermont. We are very glad to see a honey-producer go after business in this really business-like way. We are sure that a great many bee-men would find it a profitable venture to follow the example set by Messrs. Crane. Should you be interested we will see that you get a copy of this price list if you will write.

HARVEST DAYS.

In August begin the days of harvest. Everywhere in agricultural communities grain is being garnered, and the farmer is figuring where he stands in this season's profits. He is, as it were, planning his next season's spending campaign. There is so much to be saved and so much for use in

supplying the wants of himself, his family, and his farm. Then this ought to be a good time to introduce yourself to the farmer if you have something which will make his work easier, more pleasant, or more profitable.

In the bee-keeping world, honey crops are coming in. In some localities crops are exceedingly good; in others, but normal. Whether the best or poor, the family needs and expenses go on.

This fall we shall introduce to our readers many new advertisers—new, perhaps, only to GLEANINGS. We shall, by admitting these advertisers to our columns, recommend them to the favor of our readers. Any advertiser who is acquainted with the personality of GLEANINGS IN BEE CULTURE realizes what this will mean. Do you wish to join the new comers, and reap a harvest to which your seed-sowing will entitle you? There is a word which we like—*seed-sowing*—that is what you do when you insert your advertisement in GLEANINGS, and we promise that, if you join us, we will do our best to prepare the field for your goods so that your returns will be fifty or one hundred fold.

The Francis E. Lester Co., Inc., Mesilla Park, New Mexico, whose advertisement appears on page 1032, are dealers in Mexican and Indian goods. There is one article which they handle very extensively, and which should especially appeal to bee-keepers; namely, a Mexican palm-leaf-fiber hat. These hats are the best kind we know of to wear in the apiary. The rim is broad, thus the veil is held away from the face; the hats are tough and everlasting. Another good point is that they are cheap. In the Lester Co.'s catalog we find a hat of the sombrero type—same as shown in the illustration in their advertisement—but without designed rim—priced as low as 40 cts. Other styles priced up to \$5.00. Mr. W. K. Morrison, one of GLEANINGS' correspondents, speaks very enthusiastically of the value of these closely woven hats in the bee-yard, and we would advise every one of our readers to send for a copy of this company's free catalog.

A letter illustrating the way in which GLEANINGS readers value the journal:

The A. I. Root Co.:—Please find order enclosed. I am very much pleased with GLEANINGS IN BEE CULTURE and could not afford to be without it. I find it up-to-date in every respect. I received ABC of Bee Culture, which is very interesting, and consider it a great work. I enjoy very much the articles by Mr. A. I. Root.

W. H. KNARR,

Manager Hawksworth Farm.

Greensburg, Pa., July 23.

A testimonial of the quality as well as the quantity of the results of GLEANINGS ad's:

The A. I. Root Co.:—Please discontinue our ad. in GLEANINGS for help, as we have been almost flooded with applicants since the last issue. This certainly is a fine way to get good competent help.

Delanson, N. Y.

E. W. & F. C. ALKXANDER.

Successful Bee-keepers

Use the best goods obtainable. This is the secret of the success of ROOT QUALITY. It has for its users more successful bee keepers than any other brand.

This extract from a letter we received from E. D. Townsend, Remus, Mich., who carries on the most extensive bee-keeping business in Michigan:

M. H. Hunt & Son, Gentlemen:—In thirty years Root's goods have been used almost exclusively in my yards with entire satisfaction.

Remus, Mich., July 7.

E. D. TOWNSEND.

Again, a letter from a man whose experiments in non-swarmer, covering years of time, and costing many hundreds of dollars, have met with entire success:

M. H. Hunt & Son, Gentlemen:—The supplies purchased of you for twelve years have been the very best. As I produce comb honey exclusively, the sections and foundation have proven uniformly first class and are a guarantee for the future.

Your truly,

L. A. ASPINWALL.

Jackson, Mich., July 9.

Again, from a young man who has built up a big apiary in a very few years:

M. H. Hunt & Son, Dear Sirs:—Please accept my thanks for the good quality of bee supplies sent me. The best is none too good. That is why I buy Root's goods. Have at present 280 colonies of bees.

Flint, Mich., July 10.

LEONARD S. GRIGGS.

Join the ranks of the successful Michigan bee-keepers, and use Root's goods. We have the largest stock of supplies in Michigan, and can supply you promptly. Orders receive prompt attention.

M. H. Hunt & Son,
Bell Branch, Wayne Co., Mich.

A 30c "Trial Trip"

The Balance of 1906

This Offer is Made Only to New Subscribers

to the **WEEKLY AMERICAN BEE JOURNAL**, and that means to those who have never read it regularly, or at least, have not had it during the past year or more. If you have been a subscriber at any time during the past 12 months we would not consider you a "new subscriber."

On this 30 cent "Trial Trip" offer, the sooner you order (sending 30c in stamps or silver), the more copies you will get for the money, for we begin to send as soon as we get your 30c.

No reader of **GLEANINGS** should be without the old **WEEKLY AMERICAN BEE JOURNAL**, now in its 46th year, and better and brighter than ever—so its oldest readers say.

A sample copy **FREE**. \$1.00 a year, or special trial-trip offer as above. Better order **NOW**, if you are not already a subscriber. Address

GEORGE W. YORK & CO.,

334 Dearborn St.,

CHICAGO, ILL.



Mr. Bee-keeper

Just a minute of your time, please. Swarming will soon be over and honey coming in. We can send foundation and sections, if you need them, by express promptly.

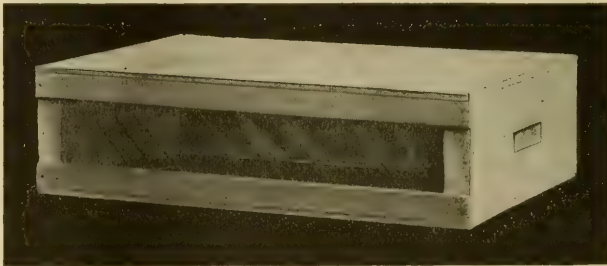
The A. I. Root Company
Syracuse, New York

BE CAREFUL OF YOUR HONEY

Now that you have got to the shipping-point, be sure to see that your honey is properly packed in nice, white, smooth basswood cases accurately fitted, which adds dollars and cents to market price of your product.

Lewis Shipping-cases are the Finest in the World

Thousands of shipping-cases and millions of sections now ready for you in the warehouses of ourselves and our agents as given below.



Beware where You Buy Your Beeware

ENGLAND—E. H. Taylor, Welwyn, Herts.
FRANCE—Raymond Gariel, 2 ter Quai de la
Megisserie, Paris.

CUBA—C. B. Stevens & Co., Havana.
C. B. Stevens & Co., Manzanillo.
CALIFORNIA—Chas. H. Lilly Co., San Francisco.
SOUTHERN CALIFORNIA—

Fletcher-Doyle Co., San Diego.
Fallbrook Co-operative Association, Fallbrook.
Paul Bachert, Lancaster.

COLORADO—R. C. Aikin, Loveland.
Arkansas Valley Honey-producers' Ass'n, Rocky
Ford.
Colorado Honey-producers' Association, Denver.
Fruit Growers' Association, Grand Junction.
Robert Halley, Montrose.

IOWA—Adam A. Clark, LeMars.

Louis Hanssen's Son, Davenport.
ILLINOIS—York Honey & Bee Supply Co., 191-198
Superior St., Chicago.

Dadant & Son, Hamilton.
INDIANA—C. M. Scott & Co., Indianapolis.
MICHIGAN—A. G. Woodman Co., Grand Rapids.
MINNESOTA—Wisconsin Lumber Co., 432 Lumber
Exchange, Minneapolis.

MISSOURI—E. T. Abbott, St. Joseph.

OHIO—Norris & Anspach, Kenton.

OREGON—The Chas. H. Lilly Co., Portland.

PENNSYLVANIA—Cleaver & Green, Troy.

TEXAS—Southwestern Bee Co., San Antonio.

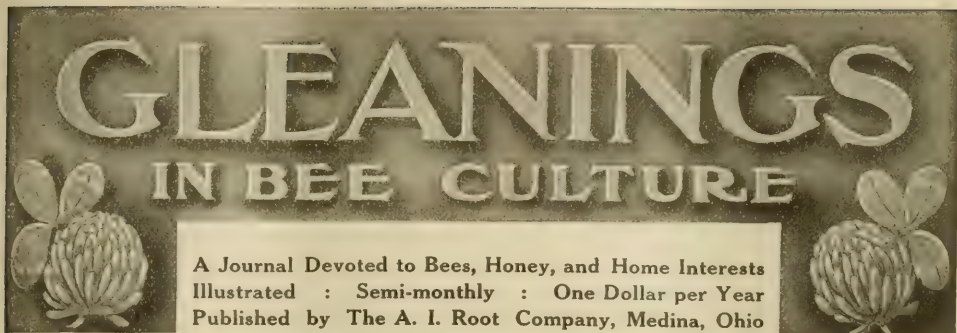
UTAH—Fred Foulger & Sons, Ogden.

WASHINGTON—The Chas. H. Lilly Co., Seattle.

G. B. LEWIS CO.

Manufacturers Bee-keepers' Supplies

WATERTOWN, WIS., U. S. A.



Vol. XXXIV.

AUG. 1, 1906.

No 15



DR. MERRIAM, Chief of U. S. Bureau of Biological Survey, says skunks hunt mice and insects, and rarely kill poultry.

LAST YEAR 700,000 pounds of Canadian bluegrass seed was brought into this country, says government officials, and 250,000 pounds of yellow-trefoil seed, and all of it used to adulterate other seed.

SWEET CORN will lose, even in a cool place, and with the husks on, almost half of its sugar in 24 hours—the sugar, perhaps, converted into starch. So don't pluck your corn long before meal time.—*U. S. Report.*

JULIUS STEIGEL has been using metal combs 16 years, and has 1000 in use for extracting-combs. The cells are $\frac{3}{4}$ inch deep, and so they can not be used for brood, and no excluder is needed.—*Deutsche Imker aus Boehmen.* [I should like to know what those metal combs cost.—ED.]

P. NEUMANN mentions in *Leipzig. Bztg.* that the Texas Bee-keepers' Association admits only whites, and wants to know whether all the larger bee-keepers' associations of this country exclude colored people. I don't know. I never heard of any except the Texas association.

WONDERFUL ACCOUNTS are appearing of great yields of alfalfa over a large acreage near Fayetteville, N. Y. You know, Mr. Editor, that bee-keepers are not scarce in that vicinity. Can you get one of them to tell about alfalfa as a honey-plant there? [Alfalfa honey from York State is unknown.

I do not know of any place in the East where that plant has ever yielded any honey. I have never seen our bees go near our fields of it.—ED.]

A. C. ARMSTRONG doesn't approve of honey and cream on pancakes, page 948. I want cream on pancakes, or milk if I can't have cream, no matter what else is on them—helps their digestibility. Without it they pack into chunks of dough that the juices of the stomach can not easily penetrate.

TWO CASES of a person being stung by a queen are reported in *Deutsche Imker aus Boehmen.* In each case the pain was less severe than the average sting from a worker. A queen also in rare cases stings a worker. I saw one case, and never but one. A virgin stung a worker, killing it instantly.

KIDNEY DISEASE is alarmingly on the increase, says the U. S. Chemist. Extra work is put upon the kidneys by coal-tar dyes in butter, and preservatives in canned goods. Large quantities of sugar are injurious in the same way. Safety lies in substituting honey for sugar. [That is a good doctrine to preach; and it is true, every word of it.—ED.]

E. W. ALEXANDER says, page 935, "After you once get your colonies strong in bees, keep them so during the whole year." Don't you know, Mr. Alexander, that you are to have your bees strong for the harvest only, and not have a lot of useless consumers when there is nothing for them to do? Well, I don't know how it may be in other localities, but I never can get my bees strong too early in the season, and they never can be too strong to suit me afterward.

P. NEUMANN, in *Leipziger Bztg.*, gives a reason for a similarity of the contents of German bee-journals which is to the credit of German bee-keepers. It is the fact that each bee-keeper who is a member of the Central Bee-keepers' Association demands

that his journal shall give a report of the meetings of that association, and the number of members of that association is 50,000! That makes us Americans feel pretty small. Herr Neumann, with our big country and our little association of 2000 members.

MORLEY PETTIT says in *American Bee Journal* that the reason there are bur-combs between my top-bars, and none between his, is that my top-bars are $\frac{3}{4}$ inch thick and his $\frac{5}{8}$. If that's true I wish mine were all $\frac{5}{8}$. Does that same difference prevail in all other cases? [Mr. Pettit may be right; but my experience (as I now remember it) has been rather the other way. The nearer the comb comes to the top of the top-bar, the more of these brace-combs there will be. I should be glad to get reports on this question.—ED.]

REFORM of our abominable spelling is a thing that will not down. The papers say that simplified spelling is likely to obtain in the New York schools by adopting the spelling of the 300 words listed by the simplified-spelling board. But "shook" as a participle or adjective is not one of them. It is still spelled "s-h-a-k-e-n." [Now, doctor, I tried for nearly two years (just to please you) to get our correspondents to adopt the grammatical equivalent for "shook;" but they just wouldn't, and one fellow was mad, yes, *real* mad about it because we changed his copy.—ED.]

I DON'T KNOW whether buckwheat honey is more antiseptic than any other kind, as W. W. Case believes, p. 950; but I think it is a somewhat general belief. Why not decide by analysis the amount of formic acid in buckwheat as compared with other honey? [Buckwheat honey may be slightly more antiseptic than other honey, but I doubt it; but the point I desired to make was that a heavy flow from *any* source will *always* check and sometimes cure either black or foul brood. As buckwheat is a very strong yielder in New York, the honey would not have to be any more antiseptic than ordinary clover or basswood to account for the check or cure of the cases reported.—ED.]

J. L. ANDERSON's plan of cleaning up sections isn't so simple as yours, Mr. Editor, p. 951, but it is a good deal safer. His sections will be all right, but yours will be torn to pieces. Didn't you mean to add that the entrance should be only large enough for one or two bees at a time? [In looking up page 951 I see I did not make it clear in the first part of the footnote that the sections I would put in the hive remote from the beeyard were to be first extracted; but in the next column, at the top of the page, you will see that I referred to the bees cleaning up the "wet sections." I do not think the bees would mutilate or tear down combs that have been uncapped and extracted. For such I wouldn't reduce the size of the entrance; but if not extracted I certainly would reduce the entrance to a space that would admit only one or two bees at a time. There, do we agree now?—ED.]

"Out of 119 counties in Kentucky, nearly 100 at the present time are under local option, and there is little doubt that a good many more will adopt local option under the County Unit Bill passed by the last legislature." That's not the jubilant note of a Prohibition paper, but the doleful wail of a leading liquor paper, Bonfort's *Semi-Monthly Wine and Spirit Circular*. Mind you, too, that's in Kentucky. [Of course, you do not mean that Kentucky in your last sentence is any worse than any other State, but that some other States have made greater pretensions, and yet are away behind on the temperance question. Another thing, Kentucky has a governor who is enforcing law. It is getting to be more the fashion nowadays to have governors who enforce law. With more good laws and governors who do things we shall soon drive out the rummies.—ED.]

YOU SAY, Mr. Editor, page 947, that you used the Jones nuclei back in 1882. Some years before that I saw Adam Grimm use them, and I don't know who used them before that. [It would not be at all surprising if Adam Grimm were ahead of all of us in the use of miniature nuclei; for it is a fact that this remarkable bee-keeper, who is said to have started a bank off from the money he made on his bees, was clear away and ahead of the times in several things. In speaking about the old Jones nuclei, one of our men brought in a day or two ago one of such boxes, made in 1878. It took five half Langstroth frames, or, rather, two frames made of such a size as would just fit inside of a regular standard all wood Langstroth frame, top-bar $\frac{3}{4}$ inch thick. When filled, these two half-sections filled were taken out and slipped into another frame just large enough to receive one. Five of these made up the Jones nucleus hive. A year or so later we got so far as to put a thin division in the center of these boxes, taking two nuclei of two frames each in one box. The general principle was practically the same as our twin nuclei of to-day, except that the latter divides the Langstroth frames up into thirds rather than halves.—ED.]

BY ALL MEANS, if we can, Mr. Editor, let's get to the bottom of that matter in last Straw, p. 929. Mr. Wardell says that, when a strange virgin gets into a hive, she almost invariably displaces the old queen. I *know* that the opposite is true here. It is not likely that locality has any thing to do with it. Is it character of bees, condition, or what? At one time I tried on a pretty large scale putting in very young virgins to supersede the laying queens. They were kindly treated while still young, but a day or two later they would turn up missing. If given to a colony about to supersede its queen the result no doubt would be different. Now I should like very much if you will tell me how to succeed as Mr. Wardell does. [In the foregoing, doctor, you have let out a fact that explains why your experience differs from ours. If you will refer back to a part of this discussion you will see that

we were talking about stray virgins just returning from their mating-trips making a mistake and going into the wrong hive. Such a queen will be in the height of her vigor; will be more agile—that is, more active—than a large laying queen in the height of her egg-laying capacity. Taking the case in point, she goes into the hive by mistake. She knows that, as soon as she gets into the hive, there is a laying queen there, and she makes for her. She is more than a match for her antagonist, and in the combat she usually comes out the victor. The colony accepts the situation, adopts its step-mother, and all goes well. In the same way, when we unite two nuclei, each with a laying queen, the stronger queen is the one accepted. Simmering it down into a nutshell, it is simply the survival of the fittest. Apparently you have been talking about a *young* virgin a day or two old that you let into the hive, and of course it is easy to see that such virgins will be no match for a laying queen; result, the interloper is dispatched nine times out of ten—perhaps always. Of course, young queens are usually kindly treated by the bees; but when the reigning queen discovers her rival, she gives her altogether different treatment. Mr. Wardell and myself would not disagree with you regarding treatment of young or caged virgins. But a queen from a mating-flight goes into the hive by mistake. She shows no fear because she goes where she supposes she belongs, and consequently she is treated well, although she may not have the colony odor. A caged virgin when released is a hard proposition, laying queen or not—ED.]



ANOTHER SPECIAL SERIES OF ARTICLES.

WE expect to have a special series of articles this fall on how to construct a beecellar. These will be from men who have made a success of the cellar-wintering problem, and who will be able at the same time to offer some good suggestions as to why some bee-keepers fail. About September there will be an article on how to winter bees successfully, buried in clamps. This will be followed by the special articles on indoor wintering.

NO CAUCASIANS FOR SALE.

WE keep getting calls for Caucasian queens. As before stated, we are not prepared to furnish them as yet. We are testing them quietly, to make sure that they have other desirable qualities than that of mere gentleness. We are rearing queens

from our imported stock in Florida, and expect to make a special yard of them a few miles from Medina, where they can not mix with our yellow strains.

HOW TO MOVE BEES A SHORT DISTANCE WITHOUT LOSS.

WE are often asked how to move bees a short distance, say a rod or two. We generally advise against doing this in the height of a honey-flow. One way is to carry the colony or colonies to an outyard and leave them there for about two weeks, then bring them back and place them at any point desired; and another way—one that we have been using with very good results—is to move the hive in the direction of its new location a foot or more every three or four days until the hive is at the desired point. This summer we rearranged a whole beeyard on this gradual-moving plan, and soon had them where we wanted them, without any loss of bees.

SWEET CLOVER.

SWEET clover seems to be unusually abundant in our locality, and early in the day it keeps our bees fairly busy. Unfortunately, under our Ohio law, road supervisors are ordered to cut down the sweet clover along the sides of the road, in the face of the fact that the plant will not grow on cultivated lands, and is the best thing in the world to preserve embankments on roads where it is so assiduously cut down.

It seems to me I saw a statement somewhere to the effect that a prominent railroad official stated that sweet clover was worth millions of dollars to the railroad companies. Its deep roots, and tendency to grow on banks or side hills, prevent millions of dollars' worth of earth from washing away on railroad embankments.

We bee keepers must get busy at the next session of our legislatures to get them to strike out from the present laws sweet clover as one of the noxious weeds. You can get the help of our experiment stations, and it will be nothing but pure unadulterated ignorance that will prevent the amendment to the laws.

WHAT TO DO IF FOUL OR BLACK BROOD KEEPS CROPPING OUT IN A BEE-YARD.

In any yard where there is foul or black brood, especially if it has a tendency to crop out every now and then in other hives, it would be advisable to recomb every colony whether diseased or not. Combs melted up will about pay for new foundation.

Some years ago we had one yard where it seemed impossible to get foul brood out of it. We pursued the policy of giving foundation to all the colonies during the honey-flow, melting up the old ones, when, presto! the disease stopped instantaneously, and has been stopped ever since. In our home yard where we are raising bees and brood for sale, although we have no foul brood, and have not had any for years, we are pursuing the poli-

cy of recombining and subjecting the hive to hot steam every so often, merely as a precaution.

THE HONEY CROP THIS SEASON, AND PRICES, AGAIN.

THERE is very little to add to what has already been given, except to say that there will be some shrinkage from early estimates as to the amount of honey there would be from the Eastern States. It now begins to look as if the aggregate of comb and extracted honey for table purposes would be light. I see no reason why prices should not be as firm as last year at least.

A KINK WORTH KNOWING ABOUT ROBBING.

IF the apiary has been comparatively quiet, and no robbing, and the bees suddenly get into the honey-house, so that the room is fairly swarming with them, you will probably find it better and cheaper in the end to shut the door and brimstone all the bees in the room. Every one of these bees, if let out, will bring dozens and dozens more. It seems a pity to kill good bees; but the number will not begin to compensate for the demoralization of the whole yard, as these bees would do if let loose. If, however, robbing has been going on day after day, more or less, so that the whole apiary has been in an uproar, there will be no use in killing off bees in this way inside of a building. When robbers first start in the season is the time to kill them before they get away, if possible; and see that no further chance for other bees to get in to sip the stolen sweets is offered.

The principle in this case is a good deal like that of quelling a riot. The officers of the law know that the way to cure a riot is to stop it at the very inception—not to kill off the leaders, but to lock them up before they inflame the general populace.

ROBBING AND ITS CONSEQUENCES; PREVENTION BETTER THAN CURE.

ABOUT this time in most localities bees will be inclined to rob. Look out for exposed combs or sections of honey. They may be stored away in a honey-house provided it is absolutely bee-proof; but because of the fact that some one may leave the honey-house door open, and cheap labor is apt to do it sooner or later, I advise storing all combs of sealed stores, whether for the purpose of giving bees winter feed or for late extracting in hive-bodies or supers. If the bottom-board be removed, and the hive lies flat on the floor or on a flat board, it will be tight at the bottom. Several hives of supers may now be piled on top, each filled with combs. An ordinary cover may surmount the whole, but it would be better to shut it in with a wire screen, such as is used for moving bees. If the combs of honey are thus stored away, and the honey-house door should accidentally be left open, or the bees should perchance find a hole through

the walls of the building, no harm will be done.

In the same way, all open cans of feed or of honey should be protected by a cheese-cloth covering that has an elastic band or rubber cord inserted in its edges so as to fit tight when stretched over the can.

RED CLOVER AS A HONEY-PLANT; A FEW INTERESTING FACTS.

THE article by Mr. Doolittle in his regular department, on this subject, is correct in every detail, from my experience and observation. He is exactly right when he says nearly all Italians will gather more honey from red clover some seasons than others; and he is equally correct, too, when he says the corolla tubes are shorter dry seasons (when the bees can work on them) and longer wet seasons. But our bees here at Medina (it may be the locality), while they will work on the plant better some seasons than others, work on it *every* season more or less.

RED CLOVER YIELDS MORE HONEY IN SOME LOCALITIES THAN IN OTHERS.

Another thing not mentioned by Mr. Doolittle is that red clover will yield more honey in some localities than others. In fact, in some places it doesn't yield at all. This is true of nearly all honey-plants, and especially of buckwheat. The soil in our locality has little or no sand in it. It makes the worst kind of mud and the most abominable roads in winter that can be found anywhere in the United States. While I do not claim that this soil is especially adapted to a rank growth of red clover (for I think the contrary is true), the corolla tubes, as Doolittle explains, are not so rank in growth, and consequently shorter.

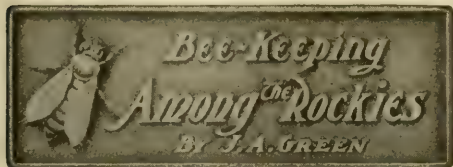
Some years ago, when our bees were doing their best on red clover, I reported that the outer fringe of honey-tubes of these clover heads was shorter than those nearer the center. I was quite nonplused two or three years afterward to find that *all* the tubes were about the same length all over the heads. I had told our readers that the reason why Italians could gather honey from red clover was because there were some short corolla tubes on each head near the outer edges. Along about that time Prof. Gillette, of the Colorado Experiment Station, at Fort Collins, called my attention to the fact that it was not always true. I intended to make my acknowledgments at the time, and now do so with pleasure, since Mr. Doolittle has called the matter up.

A CASE IN POINT.

A little incident right here will serve to emphasize one or two facts that I have given. Our north yard, where we rear most of our red clover queens, has several fields of red clover adjoining it, for we furnished the farmers the seed of both red clover and alsike free of charge. Well, when one of those farmers began to cut his red clover this season we came near having a bad sting-

ing-fracas; for when the cutter-knives of the mower went through the field they stirred up the bees, with the result that they attacked the horses, and the man on the mower. So greedily did the bees work on that field that it looked as though they were not going to let anybody cut off their honey-supply. I have heard since from other farmers in the vicinity that they had considerable trouble in cutting their red clover, because the heads were so covered with bees.

Now, *why* did the bees work on this red clover at our north yard when they did not pay any particular attention to the fields near by at Medina? Doolittle has given the key to the solution. Just two miles north of us there was almost a drouth during the latter part of the season, while at Medina we had plenty of rain, and also at our south yard. Just the other day I went over into a big field of rank clover at our south yard. I could scarcely find a bee on it, when quite the reverse had been true the whole season on the fields at the north yard, where there had been a drouth. The clover at the home and south yard by reason of the plentiful rains had attained a rank growth. The corolla tubes were so long that the bees couldn't get any nectar from them; consequently no bees on the heads.



STOCK AND SWEET CLOVER.

After all that I have said about stock eating sweet clover, I must confess that there are times when they do not relish it, even if they have been accustomed to it earlier and liked it. It appears to become bitter at a certain stage in its growth, and they do not like it green, though it is all right made into hay.

SWEET CLOVER.

At the risk of being tiresome I want to say to you again that the only thing worth considering to plant for honey is sweet clover; and that for Colorado, or any locality where a yield two weeks earlier than that from white sweet clover would be of any importance, the yellow variety seems likely to be very valuable in connection with the white. See to it that you get some of it sown this fall.

THE HONEY CROP.

At this date, July 16, we are having a very good yield of honey from sweet clover. Alfalfa is just coming into bloom again, and the prospects for a honey crop are very good,

with two exceptions. These are, the great number of weak colonies and the grasshoppers. Though the latter have as yet done little damage to the honey-plants, they are here in great numbers and we may hear from them yet.

CONTROL OF BEE-RANGE.

Australia takes the lead in a movement that is very important for bee-men by inaugurating the policy of leasing the exclusive right to a bee-range. While this is apparently only on crown (or government) land, it appears that this land is already leased for agricultural or other purposes, so there is a recognition of the principle that a man may have an exclusive legal right to the nectar on land that he does not occupy, and that the right does not come from the person occupying the land. This, in my opinion, is exceedingly important as a precedent. While the provisions of the act may not be in all respects satisfactory to the beekeepers, it may prove to be the thin end of the wedge that will expand men's ideas on the subject until the government takes possession of all bee territory as something separate from the land, and leases or sells it by itself. Speed the day!

WEEDS AROUND THE ENTRANCE.

I would agree with Dr. Miller in saying that Doolittle put it a little too strong in saying that a growth of grass and weeds in front of the entrance might reduce the amount of honey stored to only two-thirds of what it might be with a free entrance. I think it would have to be pretty badly tangled indeed to reduce the yield very materially, merely as an obstruction to the flight of the bees; nor do I think that there would be a very serious wearing of wings unless the obstruction were very pronounced indeed. I keep the grass and weeds away from the entrances, partly because it looks better and partly because it makes my work with the bees easier. When I shake bees in front of the hive I want nothing to prevent their running right back into it. Otherwise knots of bees, especially the young ones, will gather on the weeds and sometimes do not readily find their way back. There is a much greater chance of losing queens at swarming time or when the bees are shaken from the brood-combs for any purpose. But as far as the bees are concerned, a moderate growth of weeds is very little obstruction, and may be of considerable benefit as a help in marking the entrance, as when a young queen is mated. A more serious objection to grass and weeds around a hive is that they shut off the circulation of air, and make the hive much hotter than where the air is not thus confined.

FOUL BROOD OR BLACK BROOD.

I have frequently felt puzzled at the claims made by the English writers on the subject of foul brood. So little did they

agree with my experience that I felt, as have many others, that they must have a milder form of the disease there. Various forms of cure by medication were heralded as successful, which proved to be utterly without avail here. It is true there was considerable looseness of expression indulged in. One writer, for instance, closed a long dissertation on foul brood by saying, "Of course by foul brood I mean all forms of diseased brood, such as chilled brood, starved brood, pickled brood, etc." I quote from memory, but I think I have his words. Nowhere in the article, except in this closing sentence, was there anything to indicate that he had any thing in mind except the genuine foul brood. But even among those who had the reputation of being careful and conservative, there was a difference between their claims and our experience that was not easily explained. The claims, for instance, that combs that have been thoroughly infected with foul brood may be cleaned out by the bees so that the disease will not reappear, and that Italians are more resistant to foul brood than other races, were not in accordance with the experience of practical men here.

The mystery seems to be in a fair way to be cleared up now. Our ideas in regard to foul brood have been based on Cheshire's theory that it was caused by a bacillus, *Bacillus alvei*, and we have retained this theory, although we have been compelled to discard his ideas in regard to cure. Now in the researches of the bacteriologists of the Department of Agriculture they have utterly failed to find *Bacillus alvei* in any case of foul brood, while they have found it in every case of what we know as black brood. It appears, then, that there are two brood diseases, and it is very probable that the English bee-keepers have either confounded the two or they have had no experience with the real virulent foul brood which has done so much damage here. I have before this called attention to the fact that the Cheshire theories did not correspond with observed facts, and the recent developments make it more than ever necessary for those whose apiaries are infected with foul brood to look with suspicion on all methods of cure by means of drugs or any treatment short of what has come to be known as the McEvoy method. This, which is really only a modification of the D. A. Jones method of cure, is based on the theory that the disease is usually conveyed through the medium of the honey, and that by compelling the bees of a diseased colony to consume all the honey they may carry with them from the diseased hive before any brood is reared they will be freed from the disease. No other cure has ever proven practical and effective.

EMPTYING SUPERS.

It has got now to the time of the year when some of us will be fortunate enough to have some supers to empty. Several have

told us how they go about this, but I do not remember that any one has given my method yet. It is very important that good methods be used, not only that time be not wasted, but that the honey be not damaged. I have seen even old bee-keepers remove the honey from the top of the super just as it came from the hive by prying out one or two the best way they could, then taking each section by the top and pulling it loose from the fastenings below by main strength. Small wonder that the sections pulled apart and that the honey leaked! A section is a frail affair, and it takes but very little to spring the sides of it enough to crack the comb and allow the honey to leak. The crack may not be perceptible to the eye, but the mischief has been done, and the salability and keeping qualities of the honey badly damaged. A section should never be pulled loose from its fastenings, but always carefully pried loose. Lay on the floor a cleated board with a smooth flat upper surface at least as large as the super. A hive-cover or floor-board may be all right for this. Scrape off all burr-combs from both top and bottom of the super, and lay it on this board, bottom up. Now lay on the super another cleated board of such size that it will just pass readily through the super shell, or outside. We will call this the follower. For the ordinary section-holder super or the T super with loose tins, a plain board, strongly cleated on one side, perfectly flat on the other, is all that is needed. For the T super with tins nailed fast, or any similar arrangement, you will have to build a follower that will allow the tins to pass through.

Now having your super upside down on the bearing-board, as I call the first cleated board I mentioned, with the follower on the super, flat side down, put your foot on the follower and push the whole inside of the super down on the bearing-board. If it does not start readily, put both feet on. Your whole weight will not hurt a section-holder super, though if you are a "heavy weight" it might be best not to get on a T super this way. After you get it started, lift off the super-shell, leaving the inside of the super on the bearing-board. Pick this up and put it on a bench at a convenient height to work at. Pry apart the section-holders. Pry off the separators, if they are loose, or pry them loose from the sections if they are nailed to the holders. Pry the bottom of the holder loose from the sections, and you can then remove the sections easily without danger of damaging them. In this work you should use a knife with a thin edge, and always insert it where the corners of the sections come together. It will not take as long to get the honey out of a super in this way as by the plan of tearing each section loose separately; and if you are careful, your honey is in far better condition than it often is by the rough-and-ready methods so often used; and if the honey is not broken in shipment there is none of the leakage that is so discouraging and disgusting to the retailer and consumer.



HONEY FROM RED CLOVER, ETC.

"Hello, there! Is this Mr. Doolittle?"

"Yes, that is what they call me when I am at home."

"My name is Mills, and I want to talk with you a little about honey from red clover. I see by the papers that some claim that red clover is a honey-producer, while some of my neighbors tell me that the honey-bee does not work on this plant at all. Which is right?"

"Well, perhaps both, as they view it from different standpoints."

"How can that be?"

"Red clover is certainly a honey-producer. In fact, I believe that red clover gives more nectar than any other plant or tree that I know of, not excepting that famous honey-producer the basswood, or linden."

"That is saying a good deal, is it not? when I have heard of your saying that you had shaken honey out of the basswood blossoms on certain occasions."

"Yes, it is. But it is not often that you can shake the honey out from the basswood bloom, while I have yet to see the time when I could not find honey in the bloom of the red clover. In fact, I never pulled the blossoms from a head of red clover yet but there was honey or nectar in them in great profusion, no matter at what time of the year it was, nor what the season was; and the result is always the same, year after year; so I think that the question should be settled by this time by the fact that red clover always secretes nectar, or produces honey, if you please."

"Well, what am I to think of my neighbor's statement, then, if this be a fact?"

"This fact does not clash in the least with the statement of your neighbor, who claims that the honey-bee does not work on red clover. A plant may secrete honey profusely, and yet the blossom be so shaped that the honey-bee can not reach this nectar without the aid of something outside of itself to help it obtain the coveted sweet."

"Oh! I begin to see. But what is there to aid the bee in securing honey under such conditions?"

"I have often seen the wasps and hornets bite open the flowers of the comfrey, whose corolla is so shaped that neither they nor the bees can get at the nectar in these flowers, and after the holes were made in the flowers the honey-bees would swarm about these bitten flowers as long as they kept in bloom. And I have seen the same thing with the cup-shaped bloom of the common whitewood. However, the whitewood

would in time open so that both wasps and bees could obtain this nectar; but the wasps will not wait, so they tear open the blossoms at the side before they open, and in this way the season is prolonged to both parties."

"But neither wasps nor hornets work on red clover, do they?"

"Not that I know of."

"Explain, then."

"In certain seasons, and in some sections of our country, the corolla of the red clover grows so short, from drouth or otherwise, that the honey-bee can reach the nectar secreted by the blossoms, to a greater or less extent, in which case large yields of red-clover honey are obtained, as has been the case in this locality two or three times during the past thirty years. One year I obtained fully sixty pounds to the colony, on an average, of section honey from this source. In other seasons the secretion of nectar is fully as good as it was then; but, owing to the weather being favorable for a rank growth, the corolla was so long that the bees could not reach the nectar to any great extent."

"I see."

"Yes, and any person viewing the fields of red clover during one of these years of rank growth, which years greatly predominate, would be apt to decide that honey-bees never work on red clover."

"But does it not yield honey often enough so you can expect to secure good results from it?"

"As a whole we can hardly calculate on much honey from this plant, for there are far more years in which the bees obtain little or nothing from it than there are of those when the hives show a gain while it is in bloom, unless some other honey-producing flora is in bloom at the same time."

"But I see that some claim there is a difference in bees, some having long tongues, or those long enough so that they can reach the nectar in the clover, no matter how long the corollas are. These are styled red-clover bees, I believe. What do you think of these bees?"

"Well, the matter makes good advertising for a great many breeders of queens, although there is not quite the rage along that line that there was three or four years ago."

"Then you think such claims can not be substantiated?"

"I do not say that I think any thing wrong is intended, for it is expected that all know there are years when no honey-bee can secure any nectar to speak of from red clover. It is a fact that the Italian bees will reach this nectar within the red-clover blossoms when the black bees or hybrids do not do so; and from this has come the claim for red-clover bees; but, so far as I know, nearly all Italian bees are red-clover bees."

"Why do you say that?"

"Because I have had many different strains of Italian bees; and when it was a season that the bees could reach the nectar

in the red clover I could not see that any particular strain had the advantage over any other strain when at work on this plant."

"That seems strange."

"Don't misunderstand me. Some strains of Italian bees seem to work with a greater vim and energy at all times than do others, and these energetic bees will secure much better returns in honey from any and all sources than do the less energetic. What I wish to be understood as saying is that these energetic Italians do not show any special increase in yields over the others, while red clover is yielding honey, more than they show while white clover, basswood, or buckwheat is in bloom. They seem to be better bees at all times and under all conditions, often securing quite a little honey when the others are apparently doing nothing."

"I see. Will it not pay to breed from those showing the greatest energy, then?"

"Certainly. And that is just what our best breeders are and have been doing; so that to-day the standard of the Italian bees in this country is very much better during 1900 than it was during any part of 1800."



IF I WERE TO START ANEW, WHAT STYLE OF FRAMES, SUPERS, AND APPLIANCES WOULD I ADOPT?

In Favor of a Self-spacing Reversible Frame and 4x5 Sections.

BY E. W. ALEXANDER.

When Editor Root wrote me that he had chosen twelve honey-producers to discuss this question I at once thought that here will be a wide line of different ideas brought out; and, although I think so still, there is one thing of which I am sure—they will all do the same, and that is this: According to each one's experience they will give the readers of GLEANINGS a fair, unbiased, impartial opinion of this complicated question; and, since learning the names of my associates, I must say that, although I may stand alone on many points, I feel that it is an honor to be in their company.

If I were to start anew I would try hard to adopt some one of the standard hives already in use, mainly for this reason: If I wanted to sell my bees and appliances I could find a buyer easier, and sell at a much better price, than if my hives and appliances were of an odd size.

But, according to my ideas of a practicable all-purpose bee-hive, there are certain

things of paramount importance that would have to be embodied in it before I could indorse any hive to the extent of adoption. First, I should want a loose bottom—one that is not permanently fastened to the hive. Next, a telescope top. These are a great protection to the upper part of a hive from the summer heat and the cool weather of spring and fall; and they never blow off in bad storms, which is another good thing in their favor. Then I should want the frames self-spacing, so no two could ever, through carelessness, be crowded close together; and I would have them reversible, with some simple arrangement so there would be no special top or bottom. The size of the hive I should prefer would be equal to a nine or ten frame Langstroth.

In regard to the clamp for holding sections, and the size and shape of section, I think the Danzenbaker clamp-and-section arrangement for comb honey is far ahead of any other I have ever seen.

There, my friends, when you make a hive with all those requirements you will have, according to my idea, the best hive that has ever been devised.

Since I was invited to partake in this discussion I have spent some time in examining all the catalogs of different hives I could get, and I find that the Danzenbaker hive with its modern improved appliances has fewer faults and more advantages than any other hive I know of.

The hive we use for extracted honey suits us very well; and as we now have about 2100 just alike, it would seem foolish and be quite expensive to make them over into another kind of hive.

FACTORY VS. HOME-MADE HIVES.

In regard to which is the better and cheaper, all things considered, home-made or factory hives, I will say, don't be satisfied and contented with poorly made hives of any kind. I know of nothing more provoking than to have a lot of slam-bang hives. Bee-stings can not commence to make me feel as much provoked as to find some parts of a hive left a little too thick or too thin, too long or too short, to fit the place for which they were intended. If you are a good mechanic, and have a good planing-machine and all the necessary fine sharp saws to do good work, and can buy your lumber at a moderate price, then it is possible you might save a little in making your hives and appliances right through; but unless you are so situated I think it would be much better to buy all those things in the flat from some factory that does nice work. The one thing which is of far more importance than the first cost is to have every piece in a hive an *exact duplicate* of that part in every other hive. This is where factory hives usually have a great advantage over home-made ones. I have been fortunate in getting our hives and appliances without much trouble, always living as I have within a short drive of wood-working factories where I could either buy

the rough lumber or the hives ready to nail together, at a reasonable price.

Please do not infer from the above that I have not had any experience in cutting up lumber and making hives, for I certainly have had. Twice one hand has come in contact with the buzz-saw, to my sorrow. In going over this part of the business, it is not only the matter of hives but there are our sections, queen-excluders, separators, clamps for holding the sections in their place on the hives, crates for our comb honey—yes, even our queen-cages and labels, and, many times, our glass; for all these and many others we have to look to the large manufacturing plants. Now, why not go one step further, and, in sending in our orders, include the necessary hives, and have all come together in a good workmanlike manner, even if it should cost a trifle more, which I have my doubts about, and then for many years enjoy the pleasure of knowing that you have all your bees in good well-made hives? This part is certainly well worth taking into consideration, for it instills in us a certain pride in our business which no man can expect to be successful without. Don't for a moment feel that any old ram-shackle thing is good enough for you and your bees, but make up your mind from the first that you will have every thing connected with your business just as good as any other man's, and then work hard to accomplish it.

Before I leave this subject I wish I could impress upon the minds of all those about to engage in bee keeping the importance—yes, I might almost say the necessity—of adopting some one of the standard hives as soon as possible. You must realize that you will have strong competition in the future in producing either comb or extracted honey, and it will be necessary to have the very best of every thing connected with the business in order to compete successfully with those who have these great improvements.

Delanson, N. Y.

WOMEN AND BEES.

Why they Should and Should Not Keep them.

BY ANNA BOTSFORD COMSTOCK.

[As promised in our last issue, we take special pleasure in placing before you this article by the lady whose portrait we presented on the front cover page of our July 15th issue. We have received a great many articles on bee-keeping for women, but never one that was more racy and readable than this. Like her book, it fairly sparkles with enthusiasm. Our readers, especially those of the feminine persuasion, should not fail to read it.—ED.]

Two questions invariably "pop up" at us when this matter of feminine bee keeping is discussed: One is, "Why shouldn't a woman keep bees?" and the other is, "Why should a woman keep bees?" Like most other questions these may be answered more or less rationally with proper consideration.

Taking the "why shouldn't" question first, we are bound to confess that nowa-

days there is no effective reason why a woman should not do almost anything that she takes into her enterprising little head to do. But quite aside from the consideration of woman's prowess, there are one or two reasons that might deter some of the faint-hearted fair from undertaking bee-keeping. There is no use of trying to gloss over the fact that there is a great deal of hard work and heavy lifting in the care of a profitable apiary. The hard work is really no objection, as most women of whatever class are at it any way. But lifting heavy hives is certainly not particularly good exercise for any woman, although I must confess that I have never lifted half so strenuously when caring for bees as I used to on the farm when we moved the cook-stove into the summer kitchen, accomplishing this feat by our feminine selves, rather than to bring to the surface any of the latent profanity which seems to be engendered in the masculine bosom when taking part in this seasonal hegira.

There are at least two ways of obviating this feminine disability in bee-keeping. One, practiced successfully by several women, is through the use of a Boardman hive-cart, which almost solves the problem if the bees are wintered out of doors, and do not have to be carried up and down cellar stairs; the other method is to get some man to do the lifting and carrying. It may be the husband, the father, the brother, the son, or the hired man; but as this work can be done at a time which can be planned for, it is not so difficult for the men of the establishment to give the help needed. I am sure my husband would say that I am quite enthusiastically in favor of the man solution of this problem; but his opinion does not count for much, because he loves the bees so enthusiastically that I have to beg for a chance to work with them at all, although he virtuously points out the hives to people as "Mrs. Comstock's bees."

Another "shouldn't" reason might be that women are afraid of bee-stings. This falls flat, from the fact that women are not a bit more nervous than men in this respect. This year when I was struggling to live a swarm from a most difficult position, an interested man stood off at a safe distance in a most pained state of mind. He was a courteous gentleman, and he felt that it was outrageous for me to have to do the work alone, but he did not dare to come to my aid, and I think he considered my temerity in dealing with the swarm as almost scandalous.

Thus having disposed of all the reasons I can think of why women shouldn't keep bees, I turn gladly to the more interesting reasons of why she should look upon the apiary as one of her legitimate fields of labor. There are so many reasons for this that I could not enumerate them even if a complete number of "Bee Gleanings" were given me for the purpose. So I shall speak of just a few of the more cogent reasons. I should put first of all, and as embracing all

other reasons, that bee-keeping may be an interesting avocation which may be carried on coincidentally with other employment; it is an interesting study in natural history; it cultivates calmness in spirit; self control and patience; it is "a heap" of fun; incidentally it may supply the home table with a real luxury; and it may add a very considerable amount to the woman's spending money. It also may be carried on as a regular business and be made to support a family.

But it is as an avocation that I am especially interested in the apiary. Any woman who keeps house needs an avocation which shall take her mind and attention completely off her household cares at times. There is something about the daily routine of housekeeping that wears the mind and body full of ruts, even in the case of those who love to do housework better than anything else. Talk about the servant question! It is not the servant question, it is the housework question. If some means could be devised by which housework could be performed with inspiration, zeal, and enthusiasm, the servant problem would solve itself; but this ideal way of doing housework can be carried on only when the spirit is freed from the sense of eternal drudgery. I am not a wizard to bring about this change; but I know one step toward it, and that is the establishment of some permanent interest for woman that will pull her out of the ruts and give her body and mind a complete change and rest. Embroidery, lacemaking, weaving, painting, and several other like occupations, may serve this purpose in a measure, and perhaps if carried on in the right way might achieve more in this line than they do at present. But these are all indoor occupations; and what a woman needs is something to take her out of doors where she can have fresh air. The excess perspiration induced by the cook-stove is weakening; but the honest sweat called forth in the open air by an application of generous sunshine is a source of health and strength.

Bee-keeping is one of the best of these life-saving, nerve-healing avocations; it takes the mind from household cares as completely as would a trip to Europe, for one can not work with bees and think of anything else. Some of the attributes which make bee-keeping an interesting avocation I will mention: First of all, the bees are such wonderful little creatures, and so far beyond our comprehension, that they have for us always the fascination of an unsolved problem. I never pass our hives without mentally asking, "Well, you dear little rascals, what will you do next?" The bees are of particular interest to woman for several reasons: If she likes good house-keeping, then the bee is a model; if she likes a woman of business, again is the bee a shining light; if she is interested in the care of the young, then is the bee nurse an example of perfection; if she believes in the political rights of woman, she will find the highest feminine political wisdom in the

constitution of the bee commune. In fact, it is only as a wife that the bee is a little too casual to pose as an ideal, although as a widow she is certainly remarkable and perhaps even notorious.

Another phase which makes bee-keeping a pleasing avocation for women is that much of the work is interesting and attractive. I never sit down to the "job" of folding sections and putting in starters without experiencing joy at the prettiness of the work. And if there is any higher artistic happiness than comes from cleaning up a section holding a pound of well-capped amber honey and putting the same in a dainty carton for market, then I have never experienced it; and the making of pictures has been one of my regular vocations. By the way, woman has never used her artistic talent rightly in this matter of cartons. Each woman bee-keeper ought to make her own colored design for her carton, thus securing something so individual and attractive as to catch at once the eye of the consumer.

As a means of cultivating calmness, patience, and self-control the bee is a well-recognized factor. Bees can be, and often are, profoundly exasperating, and yet how worse than futile it is to evince that exasperation by word or movement. No creature reacts quicker against irritation than does the bee. She can not be kicked nor spanked; and if we smoke her too much, we ourselves are the losers. There is only one way to manage exasperation with bees, and that is to control it, and this makes the apiary a means of grace.

The money-making side of bee-keeping is a very important phase in arousing and continuing the woman's interest in her work. I think woman is by birth and training a natural gambler, and the uncertainties of the nectar supply and of the honey market add to rather than detract from her interest in her apiary. I know of several women who have made comfortable incomes and supported their families by bee-keeping; but, as yet, I think such instances are few; However, I believe there are a large number of women who have added a goodly sum yearly to their amount of spending money, and have found the work a joy instead of drudgery. Personally, I have had very little experience with the commercial side of bee-keeping. Once when our maddeningly successful apiary grew to forty hives when we did not want more than a dozen at most, and the neighborhood was surfeited with our bounty, we were "just naturally" obliged to sell honey. We enjoyed greatly getting the product ready for market, and were somehow surprised that so much fun could be turned into ready cash. As a matter of fact, both my husband and myself have absorbing vocations and avocations in plenty, so that our sole reason for keeping bees is just because we love the little creatures, and find them so interesting that we would not feel that home was really home without them; the sight of our busy little

co-workers adds daily to our psychic income. We are so very busy that we have very little time to spend with them, and we have finally formulated our ideals for our own bee-keeping, and that is to keep bees for honey and for "fun." We shall have plenty of honey for our own table, and just enough to bestow on the neighbors so they will not get tired of it; and fun enough to season life with an out-of-doors interest and the feeling that no summer day is likely to pass without a surprise.

THE VALUE OF DOUBLE-WALLED HIVES; PROTECTION FOR SUPERS.

Experience Proving that in Some "Localities,"
at Least, Such Protection is Necessary.

BY ADRIAN GETAZ.

In GLEANINGS for Dec. 1, 1905, the editor requests those who have had experience to report on the effects of protection or no protection to the hives—that is, for instance, the difference between double-walled and single-walled hives.

In my locality it makes a considerable difference throughout the whole season. In this latitude wintering is done out of doors. It would be difficult to have either cellar or special repositories in the ground cool enough through the whole winter to winter successfully.

Our winters consist of an alternation of bright warm spells of weather and cold, raw, rainy, or snowy days. During the warm days when the sun shines on the hives the bees are apt to come out in considerable numbers. Sometimes the air is yet too cold, and they are chilled before being able to get back. Others go too far in quest of pollen or nectar, and never return; so a large number are lost, and in some winters the colonies are reduced so much as to become nearly worthless. A doubled-walled packed hive will do away, at least nearly so, with that kind of mischief. The heat of the sun will not reach the bees at once, but be stored up in the packing, and reach them later and only gradually.

Another cause of loss is due to the brood-rearing that invariably takes place during the warm days. In single-walled hives a large portion of it gets chilled during the next cold spell, owing to the inability of the bees to cover all of it. In double-walled hives the loss is at least considerably reduced, though not always entirely. The double walls help the bees to keep the whole interior of the hive sufficiently warm.

After a favorable season the colonies go into winter quarters quite strong; and if the winter is open, quite an amount of brood will be raised. In fact, the colonies are frequently stronger in bees at the opening of fruit-blossoms than they were in the preceding fall. Under such circumstances they are often ready for the sections before the weather is warm enough. Then the protection to the supers is exceedingly valua-

ble. The colony with a protected super will go to work in it, while the one with an unprotected and too cold super will be unable to take possession of it, and then put all the honey possible in the brood-nest, sulk a week or two, and finally swarm. For me the protection of the supers has often made the whole difference between a crop of swarms and a crop of honey.

Perhaps some explanation on the "locality" should be made here. With you Northern people the spring does not come until the snow is all melted—that is, quite late in the season. At that time the days are long, the sun quite high, and the weather gets good and warm at once, and stays warm. In this latitude the case is different. The spring begins early, but drags along through a succession of warm and comparatively cold spells of weather. The maples begin to blossom irregularly in March, and sometimes as early as the middle of February, and the apple-trees about the 1st of April; but quite cold spells and frosts, and occasionally a regular freezing day, may come as late as the 20th of May. Under such circumstances the necessity of ample protection is seen at once.

Even during the summer the nights are often quite cool—in fact, cold enough to compel the bees to abandon the supers during at least the latter part of the night. It must be remembered that the summer nights are longer here than further north.

I began bee-keeping with single-walled hives. My work with the bees was done almost altogether at night, as another occupation was taking all my day time. One day, for some reason that I do not remember now, instead of going to the apiary after supper I waited until near daylight the next morning. When I opened the hives I found the supers empty of bees. Then, to use a rather slangy expression, I "saw a great light," and decided right there and then that henceforth the supers would be protected as well as the brood-nests through the entire season. That was sixteen or eighteen years ago.

Considering the fact that most of the honey-ripening and comb-building are done during the night, the importance of having them sufficiently protected is evident.

A single-walled hive exposed to the hot sun may be so warm during the day that the bees are compelled to quit work to a certain extent, and then when the night comes the radiation may be such that the supers become too cold for the work—a double loss. A proper shading would prevent the first trouble entirely, and the second to some extent. A double wall packed will not let the hive become too hot in the day, because it takes time for the heat to get through it. The packing will retain the heat and then keep the bees warm during the night. All this is, of course, a question of locality, or, rather, climate. Owing to the elevation above the sea, East Tennessee has cooler nights than the countries situated under the same latitude at a lower level.

THE HIVE.

My first attempt in that direction was to make what we might call a chaff-hive brood-nest with the outer walls extending above high enough to protect the supers. This did not work. With that arrangement it is necessary to put in and take the supers out at the top; and when they are propolized and fastened down well it is nearly impossible. Several times I had to take out all the sections in order to be able to pull out the supers. The next was to make the outer case protecting the supers independent of the brood-nest. For packing, there is nothing better than rags or old clothes. They can be put in and taken out rapidly without making a muss. The outer case furnishes a splendid place to put a feeder. It is left in winter with as much packing as is needed for protection. In very warm weather the packing is omitted.

That system works well, and it is very reluctantly that I am now giving it up. One objection to it is that it affords a too convenient place for the ants, roaches, and other "varmints." The other and most important one is the time it takes to take off the outer case and packing and put them back, especially to put them back, because the bees persist in getting in the way, and quite a bit of time has to be spent to get rid of them.

I finally decided on making the brood-nests, supers, and covers all double-walled and packed. I have tried different systems and sizes. For this locality a thickness of two inches of packing for the walls and three for the covers will meet all the requirements. Of course, it would not be enough for winter protection in more northern latitudes, but it is enough here. The lumber used is only half an inch thick. A single-walled hive must be made of lumber thick enough to keep the corners square; but a double-walled one is kept square by the strips at the top and bottom. With a light kind of packing and half-inch lumber walls a super is but little heavier than a single-walled one.

For packing I have used what I happen to have on hand; and when that was not enough I bought a bale of straw. Rags and newspaper crumpled up will do. I prefer straw, however, as it is light and warm. Perhaps excelsior might do as well. The planer shavings are too heavy—at least, those that I could get here. The forest leaves, apparently dry enough, contain too much dampness, and are liable to cause the walls to warp and pull out the nails. When they are really dry they are so brittle that they become unmanageable.

This construction has the advantage that hives, supers, and covers can be handled as easily and rapidly as single-walled ones, the only difference being in the weight; and, as above stated for the supers, it is not considerable. No preparation needs to be made for winter protection, shading, nor any thing. The objection is the cost, but, so far as I am concerned, I prefer to pay a

dollar or two more for a hive that is more suitable. It does not take long to make the extra cost back in increase of surplus and decrease of work. Remember that a hive lasts practically a lifetime.

Now that I have spoken for the best in my "locality," I should like to hear from others differently situated, and learn *why* their hives or management suits their *localities* best.

Knoxville, Tenn.

[Mr. Adrian Getaz is preaching good sound doctrine, not only for his own locality but for many others. We use double-walled or chaff hives in our bee-work at Medina. Our apiarists tell me that in the spring the double hives breed up very much faster; and when it comes hot summer weather they will stand the direct rays of the sun much better than the single-walled. Mr. Vernon Burt, our neighbor, has proved over and over again that an outer wall protecting a super when running for comb honey will give more and better honey than the unprotected supers. I should not be surprised if the day would come when the great majority of honey-producers in the region from the Ohio River northward, at least, will be using protecting-cases set down over the hive.]

Mr. Getaz' observations in regard to the thickness of the lumber, and the general construction of the hive, are quite in line with our own practice. Years ago we made the upper part of the hive double-walled, but now make only the brood-nest double. The super has a telescope cap that rests down over it, which in our climate we find gives sufficient protection.—ED.]

BEE-HUNTING.

How to Get Bees and Honey out of Bee-trees
Without Cutting or Mutilating the Tree;
How to Get Bees out of Dwellings,
etc

BY RALPH P. FISHER.

Comprehending that the following experiences may not be new or undiscovered, the facts in the case are offered concerning the extracting of bees and honey from whatever abode they may have possessed as being surely profitable and very much easier than the many ways and means followed by the majority of the so-called bee and honey hunters. Those interested in the subject have no excuse to fail if the more important details of the system are followed out, and the minor duties fully tried in every particular. The succeeding statements are from actual experiences of a year ago, not to mention the cases successfully operated in seasons before, so it is hardly probable one can get much out of the way.

Bees are found in various places, in swamps or mountains alike, being either high or low as circumstances compel, the conditions causing the amount of trouble forthcoming in their extraction and capture. Then, again,

they may be in rocks, or lodged in a chimney, but invariably they will be found in a tree; and if it is a large swarm, with evidences of a large quantity of honey, the hunter's foremost desire is how to secure them with the least work and loss of time. Therefore, consider the case of five bee-trees having been located the fall before, and in the following spring upon examination each one is found to be worth the taking. Granted the hunter has bees at home in some kind of movable-frame hive, and that he is entirely familiar with every condition surrounding each location, he is ready to prepare the hives.

From a hive previously worked for the purpose, take all the frames and divide the bees and brood in five parts as nearly equal as possible, placing each part in a hive and filling the vacant space with full sheets of foundation or combs ready built, and then after introducing an Italian queen to each nucleus so made you may proceed to the trees. It is best to arrange the work so that it can be done in one day, which is generally possible.

Take with you all the necessary tools, etc., so that progress may not be hindered in substituting articles accidentally left at home. Some necessities are the nucleus, lumber for platforms, Porter bee-escapes for each hole; nails, hatchet, saw, hand-lines, a good smoker—in fact, any little thing the mind of the hunter can imagine. The helper is needed, either sex; and after getting a position near the entrance to the wild-bee hive, adjust the escape so that all bees inside must pass out not to return. Then construct the platform so that, when the nucleus hive is set thereon, the entrance of it will face and be next to the exit of the escape. Now blow a blast or two of smoke in both entrances, and go on to the next tree, the whole operation not taking half an hour.

Having finished up the five trees and returned home, nothing remains to be done but to wait and consider, noting the progress at each tree. Imagine two queens laying for the building-up of one strong colony. Can anybody expect less than a very strong working force? After five or six weeks have elapsed it is time to be up and doing, for the queen in the tree has been through laying for twelve or fifteen days, there being an insufficient number of bees to care for the larvæ, as all the young bees have joined the colony on the outside.

Therefore, fire up the smoker, throw in a small handful of sulphur, pull off the escape, and apply the fumes vigorously through the hole, changing the air inside, leaving a dainty harvest for your swarm on the outside to rob out, which they will surely do in less than ten days. In fumigating, possibly it would be well to puncture the tree a time or two, near the top of the cavity, with an inch auger, and to add a super of sections or extracting-combs if the same hasn't been done previously.

After the robbing has ceased it is time to take them home, which is more or less hard

work. However, every thing is accomplished in a short time; and when fall comes around again one can hardly comprehend the little labor and time these trifling operations cost him.

But circumstances alter cases, and in the beginning one should become assured each colony so found fully warrants the undertaking, as it is known that some bee-trees never are strong in either bees or honey. Therefore consider well; and if it is decided the contents of the trees are worth the gathering, use this method and I'm sure pleasure and profit will crown your efforts.

To conclude, I will state that one swarm so taken and placed on a stand at home on the 10th of last July stored up almost forty Danzenbaker frames of honey, new and old, there being some frames not perfectly filled, although the results as a whole were perfectly satisfactory.

Great Meadows, N. J.

[Mr. Fisher answers a question that is propounded to us annually a good many times. I have always believed that the bees and honey could be taken out of a bee-tree or from between the walls of a house without cutting the tree or mutilating the house, in the manner that Mr. Fisher states. Accordingly two years ago I outlined a plan similar to the one here described. Never having tried it I was not entirely sure it would work out in all its details; but it appears that it does work, or at least Mr. Fisher says so. It will not be necessary hereafter to fell big trees or rip off the siding of a house or tear up the roof of a building to get at stray swarms of bees. The modern bee-escape, in connection with proper manipulation, will render this all unnecessary.]

I expect to incorporate this method of getting bees from bee-trees and buildings in the next edition of our *A B C of Bee Culture*, under the general head of "Bee-hunting," for there are times when the owner of the trees where the bees may be located would not allow his trees to be cut. Common law gives ownership to the man who first discovers the bees in a tree and marks the tree with his initials; but it does not give him the tree, nor permit him to cut the same without the consent of the owner of the tree. In no State, so far as I know, is there any special legislation covering this point; so that common law decides both the ownership of the tree and of the bees.—ED.]

EXTRACTING HONEY BEFORE IT IS CAPPED OVER.

What will this Practice Lead to?

BY ALPINE M'GREGOR.

I just wish to emphasize an editorial comment on Mr. E. W. Alexander's article, p. 153, Feb. 1. Referring to the advisability of allowing the extracting-combs to become fully capped before extracting, you say, "In

all the lake regions I am sure it is imperative." The "lake region," if I am correct, includes nearly all Canada except Manitoba and the Northwest, where, practically, there are no bees, and a part of the United States. I too am sure that it is imperative.

I remember very well when D. A. Jones was "King" in Canada. He practiced and advised extracting before the combs were capped, and ripening the honey in tanks holding about 375 lbs. All the bee-keepers with whom I was acquainted, and I think I may say the majority in Canada, followed this plan. The result was that the honey market for years was such that it was more difficult to sell the honey than to produce it. Many went out of the business; and those who remained, the writer among the number, decreased their stock. I will mention just one case in point.

A man, less than two miles from here, about twenty years ago extracted over 200 lbs. per colony. Being short of ripening-tanks he ran it into cans too soon; and the consequence was that every pound fermented, bulged out the cans, and forced itself out at the top. It was all sold within twelve miles from here, and I need not enlarge on the effect it had on the demand for honey in this "locality."

I will not say that good thick honey can not be produced by artificial ripening provided there is plenty of ripening-tank capacity and the weather is hot and dry; but take any one of the last three summers, last summer especially, when almost every second day there was rain, a damp atmosphere, cloudy and cool day and night—will any one say that honey could be properly ripened in such an atmosphere and at such a temperature?

About twenty years ago the writer was present at a convention in the City Hall, Toronto. The Rev. L. L. Langstroth, Mr. A. I. Root, Prof. Cook, Mr. D. A. Jones, and many other prominent bee-keepers from the United States and Canada were there. In the course of a discussion Prof. Cook arose and asserted, with all the dogmatism of a fifteenth-century Calvinist, that honey extracted before it is sealed and artificially ripened is just as good as that fully ripened in the hive. He had tested it—with some of his students I think he said—and they could not tell any difference. He further stated that we could not afford the time to let the honey ripen inside the hive. Mr. A. I. Root took the opposite view, and maintained that honey which is fully capped before extracting is superior—a position which I believe is endorsed by nine-tenths of the bee-keepers throughout the United States and Canada to-day.

Right here I may say that I do not consider an extracted-honey producer fully prepared for his business unless he has three supers for each colony of drawn combs. Thus equipped we can afford the time to allow our honey to become fully ripened in the hive.

I shall not presume to question the Alex-

ander method of extracting honey in his locality, especially *buckwheat* honey. I rather fancy that exposing it in large tanks for a week or so would improve it, as it might dissipate some of the aroma (?). But I do not want to see that system revived and reintroduced through the medium of GLEANINGS.

Inglewood, Ont., Can.

[As I have before stated, I will say again with further emphasis, that for the average bee-keeper, in the average locality, the combs should be fully capped before extracting. The extraordinary bee-keeper in an extraordinary locality may extract before capping.]

Prof. A. J. Cook is not now in this country or I would refer the paragraph in reference to extracting uncapped honey to him direct; but I may say this much: Since the time of the convention referred to, he has given out a statement that seems to be backed by facts and by scientific men generally, that the bees do something more than merely evaporate the nectar. They "invert" it, according to the chemists—or, as Prof. Cook prefers to put it, "digest" it, making a distinct chemical change between the nectar just as it comes from the flower and the honey from a fully capped comb. It is the opinion of the editor that Prof. Cook would now be among the number who would advise the average bee-keeper to let his combs become fully capped before extracting.—Ed.]

WAX-RENDERING METHODS.

The Opinions of Some of the German Authorities.

BY F. GREINER.

Supplementary to my former article on rendering wax and the different methods employed by others I am to-day in a position to give you the opinion of noted bee-keepers in other lands, and their experience as well as their methods in regard to rendering wax, which may prove of interest to the readers of your journal.

Alfonso, editor of *Bienenvater*, Austria, says: "After many unsuccessful trials to obtain the best and most wax from old combs, bee-keepers generally have returned to the old and tried methods of the heath bee-keepers and their wooden press. Hot-water wax-rendering machines are somewhat used, but not commonly accepted as the best. Steam wax-presses have outlived themselves."

Freudenstein, editor of the *Neue Bienenzeitung*, Germany, says: "According to my extensive experience, the steam wax-extractor is no good. The best thing we have is the Leipzig wax-press [a hot-water machine]. I am very well satisfied with it. The steam wax-extractor has been relegated to the lumber-room."

Prof. Luigi Sartori, one of the most noted bee-keepers in Italy, a man of wide experi-

ence, and a scientist, has nothing better to offer than the following: "Allow the broken-up comb to soak for eight or ten days. Then melt up with rainwater and cut straw, preferably rye. When good and hot, press with a good substantial wooden press. This method will give the best and most wax. Steam wax-extractors impair the quality of the resulting wax very materially."

Naples, N. Y.

[We are, and have been making some quite extended experiments on this wax rendering question, and will soon be able to give a report.—ED.]

machine which opens up so as to carry four passengers.

Instead of paying a big price for this machine, our friend has been watching the markets until he found a bargain in a shopworn Pierce machine which he snapped up.

He finds that the automobile, while not an absolute necessity, is a very great convenience for the out-apiary. At Medina I should hardly know how to get along without one. While our bee-yards are located on a street-car line, yet the cars run only every hour. Sometimes I stay at a yard only ten minutes, and sometimes longer. As time is an important article I can finish up my busi-



DOOLITTLE ARRIVING HOME WITH A PART OF HIS OUT-APIARY COMB-HONEY CROP.

THE AUTOMOBILE FOR OUT-APIARY WORK.

BY E. R. ROOT.

The illustration above from a photograph shows Mr. Doolittle in his automobile, driving home with a load of comb honey from his outyard—or, rather, he has just arrived home with such a load.

In talking with friend D. at the Jenkinstown field-day meeting, he told me he found the automobile to be very convenient; would make quicker trips, and small loads he could handle very comfortably with careful driving. You will note he has a single-seated

ness with the boys, get back in a hurry, and if an emergency arises, as it did in one case where a neighbor's horses were stung slightly, I get down to the scene of action instantly. At one time a farmer at our Canine yard phoned that the bees were bothering his team while plowing. I jumped into my machine, arrived on the spot in a comparatively few minutes, found that the horses were working in the direct flight of the bees; found that the bees were not bad, but that the farmer was afraid *he* would be stung. I gave him a veil, and went home.

Second hand and shopworn automobiles are now being offered at a low price, and good ones too. I see some second-hand

Olds all the way from \$150 to \$250. Some of the latter are very good bargains. It often happens that a man buys a machine, gets tired of it, and offers it for sale at a great sacrifice. A good second-hand automobile will take care of a series of outyards (provided a team be hired to do some heavy hauling in the fall and early spring), and it will be cheaper than a horse and buggy, if one takes into consideration the barn and the keep of the horse at a time when he is "eating his head off" and bringing in no returns.

The day is not far distant when the self-propelled vehicle will be used largely for out-apiary work. It will make trips in a third of the time; it can carry a considerable bulk of stuff, and be driven clear up among the bees, with never a fear of a fracas or a sting. Of course, there are tire expenses and repairs; but nearly every beekeeper, *if he is a successful one*, is a sort of genius any way, who, if he will read up, can make his own repairs, do his own adjusting, and then, when he is not busy with his bees,

get a world of comfort in drives with his wife and children.

Our little Olds, now in its fourth year, has traveled all over the country, has been used for running to outyards, and is still quite a snappy little machine. A machine just like it, and just as good, could probably be bought for \$200, and on our machine there must be several years of wear.

The repairs and tire expense will probably not exceed \$50 a year. After the first year one can keep this item down if he does his own repairing. When it comes to gasoline consumption the cost is far below the cost of oats, hay, and barn. A shed 8×10, and 6 feet in the clear, will house the machine, and at the same time hold gasoline and other supplies. On the other hand, if our bee-man does not love machinery and would never know when it is running wrong, or if he would run his machine over bumps and "thank you mams" at full speed, his repairs will be very large. Such a person had better never invest in an automobile unless he has a big bank account.



A. I. ROOT AT THE FIELD DAY TELLING OF HIS EXPERIENCE WITH CAUCASIANS IN FLORIDA JUST BEFORE HE BEGAN HIS DEMONSTRATION.



THE ROPED-OFF ENCLOSURES WITH THE SIGNS IN THE FOREGROUND AS THEY APPEARED AT THE JENKINTOWN FIELD-DAY MEET BEFORE THE CROWD ASSEMBLED.

NOTE.—The initials "S. M." should be G. M. before Doolittle's name.

THE BIG FIELD DAY AT JENKINTOWN, JUNE 26, 1906.

The Largest Gathering of Bee-keepers ever Assembled in the United States.

BY E. R. ROOT.

As previously announced, the big field day at the A. I. Root Co.'s exhibition apiary at Jenkintown, Pa., was more than a success. Indeed, the attendance was said to be phenomenal and the arrangements superb. As our Mr. Selser had expected, there were something over one thousand bee-keepers who were present at various times during the day and evening. Nearly 900 were actually fed by ticket at the noon hour. So perfect were the arrangements made by Mr. Selser, "field marshal of the day," that the nearly 900 were supplied with picnic rations inside of the small space of 38 minutes. Every thing else moved off in the same way.

The field day of a year ago had been such a complete success, at which something like 400 were present, that Mr. Selser, when the strong call came in for another meeting, was given carte-blanche instructions to go ahead at the expense of the Root Co., to issue the invitations, and make all arrange-

ments for a big crowd who were to be the guests of the company at its exhibition apiary.

When we started out we did not expect that there would be a much larger attendance than we had the year before; but when the responses began to pour in, in answer to the invitations issued, it was apparent that there would be over 1000 bee-keepers present, and the estimates were fully confirmed by the actual attendance.

The field marshal, Mr. Selser, as shown by the front cover page of this issue, was dressed in white, and carried with him much of the time a speaking-trumpet, in order that he might announce to the crowds what demonstrations were to come off and when.

The day was all that could be desired. The day previous—in fact, for a whole week back—it had been raining and bad. But June 26 opened up, not with a bright sky, but with one darkened just enough by clouds to make it comfortable for the crowds out in the open.

The large illustration will show the various roped-off inclosures where the different speakers were to talk to their groups of bee keepers; for it must be explained there were several stunts going on at once. In order that each bee-keeper might hear each



MR. DOOLITTLE AT THE FIELD DAY ABOUT TO BEGIN HIS DEMONSTRATION.

[The Doolittle and Pratt work at the Field Day was performed on an elevated platform about four feet from the ground.—Ed.]



MR. DOOLITTLE AT THE FIELD DAY, DEMONSTRATING HOW HE MAKES HIS CELL CUPS,
AND HOW HE MOUNTS THEM ON CELL-BARS.

speaker, and take in just the class of demonstration work that he desired to see, conspicuous signs were posted up in the roped-off inclosures. Then Mr. Selser would from time to time announce with his speaking-trumpet that Mr. Doolittle would begin his work at his stand; Mr. Pratt at his; A. I. Root at his, and so on.

Prof. H. A. Surface, who was president of the day, presided over the large gathering that assembled in one big crowd under the shade-trees, backed by a sort of amphitheater arrangement of the grounds.

We had the pleasure of hearing several speakers, some of whom had not been previously announced, among them being the veteran bee-keeper, L. C. Root, of Stamford, Ct., a son-in-law of father Quinby. Mr. Root is a natural and easy speaker, and delighted the audience with some interesting reminiscences. Then several of the speakers were introduced before they actually began their work. This was followed by a demonstration by Prof. H. A. Surface, of Harrisburg, Pa., transferring from an old box hive to a modern one. The work was performed on an elevated stand in front of some seven or eight hundred bee-keepers.

There was no demonstration that was more unique or better performed than this.

Prof. Surface has a clear voice, a forcible manner of delivery, and during the whole performance he held his audience with the closest of attention. As a college professor he knows thoroughly the art of teaching by object lesson. Many will wish to see and hear him again.

Unfortunately the editor's camera failed to get this transferring work, through an awkward mistake of leaving the cap over the lens while the exposures were being snapped off by the aforesaid editor, all oblivious to the fact that he was *not getting a single picture*.

You know there are certain times in one's life when he feels like turning around and kicking himself. Your editor had an acute attack of that feeling just about that time, but he refrained from inflicting the penalty.

The other illustrations here given show several of the speakers at work talking to interested groups while the demonstrations were being made. Among the number is A. I. Root, who, bareheaded, was explaining the qualities of some of his pet Caucasians. G. M. Doolittle was caught in several poses, for he illustrated his method of queen-rearing from start to finish, showing each step.

It is a matter of sincere regret that the whole GLEANINGS family was not able to hear Bro. Doolittle. He is a most interesting and forcible speaker, with a voice that can be plainly heard over a vast audience outdoors. His talks are always spiced with interesting anecdotes of the pure and wholesome sort that not only start a roar of laughter, but fasten indelibly on the mind of the hearer the truth that he is teaching. Those who heard him get off some of his good stories at the Buffalo National convention a few years ago will remember that he was the uncrowned king of that convention; for repeatedly did the members try to make him President—an honor which he as often gracefully but firmly refused.

There was one demonstration that we did not make that day, nor did any one volunteer his services; and that was the handling of a colony of Cyprian bees. As it was, we put a big placard in front of the one hive of them, announcing "danger," as will be seen by one of the illustrations herewith given. While the crowds freely assembled around the hive they seemed to have a wholesome respect for the bees.

In our next issue, and perhaps the one following, we will give other snap-shots of this Jenkintown meeting, the like of which was never held before in the United States; and, as Prof. Surface said, it was the largest, as well as the most notable, gathering of bee-keepers that was ever held in the United States in one place. Others asserted it was the largest ever held in the world. While this may be true, the editor has some doubts about it.

Continued in our next.

THE FERRIS SYSTEM OF PRODUCING COMB HONEY, AND SWARM CONTROL.

Conditions that Lead to Swarming; Comb-honey Supers Constructed Wrong.

BY A. K. FERRIS.

When I think over the different makes of supers I do not wonder that people go home scratching their heads and lie awake nights trying to plan something to prevent or control swarming. In the first place, nearly all supers are put up on a wrong principle. We



"HEY, THERE, MR. MAN! WHAT YOU DOING? DON'T ALLOW THAT. COME OFF THE ROOF."

[Dr. Lyon was on the roof of the honey-house poisoning the tripod of his 8x10 camera when Mr. Doolittle caught him in the act. His abrupt interjection at the moment so scared the camerist that he nearly fell "off the roof." But Doolittle didn't know that ye editor, with his camera had elbowed his way through the crowd and snapped it at him, just at the moment he was ordering the other camera fiend off. The smiles of the people opposite show something of Dr. Lyon's surprise, not to say consternation.—ED.]



ONE OF THE ROPED-OFF INCLOSURES (AFTER THE CROWD LEFT) AT OUR JENKINTOWN YARD. THE ONE HERE SHOWN WAS USED BY GRANT STANLEY.

have attempted to get the bees to build comb and store honey where they do not like to. Bees like to store honey by the side of and near their brood.

But right here I hear some one say, "There are difficulties which arise with the use of brood."

Yes, that is all true; *but all these difficulties can be, and are, turned to our favor—*

1. By the use of drone comb in the sections the exclusion of pollen is effected; and, 2, by the use of frames of foundation in securing brood to be used with the comb-honey attachment, you avoid darkened combs in the sections. In this you have eliminated the two great difficulties; viz.: soiling of the comb honey by dark combs of brood, and excluded the pollen from sections, and also gained a point; for when bees are strong they like to build drone comb when honey is coming in. This gives the bees a chance to build just what they like to, and serves to keep them more contented—a factor too often overlooked in control of swarming.

Thus by having all worker comb below the excluder, and drone comb in the sections, you have excluded the pollen, made your bees take to the super more readily, and this goes a long way toward getting more honey, and, consequently, more money.

Mr. L. A. Aspinwall, in the *Bee-keepers' Review* for March, 1906, has truly said that, "In prevention of swarming we must prevent a development of the factors which induce it. These hinge mainly on a crowded condition of the colony. This condition results in the clogging of the brood-apartment with honey, and impeding the queen in her work of laying." Mr. Aspinwall relieves this condition largely by the use of slatted frames and plenty of room. This will in most cases prevent swarming; but I prefer to accomplish this same result in a more

practical way and at less expense. Instead of using slatted frames for the bees to cluster in I induce them to enter the super and spend their time in drawing out comb. In this way I have accomplished a double object as you will notice, by the use of what I call a "comb-honey attachment."

With brood by the side of the sections, the nurse-bees and comb-builders, which are the young and hatching bees, are drawn into the super by the most powerful inducement, and they are kept there busy building comb. This is one way in which the shook-swarm system fails. They have to take bees, that otherwise would be gathering honey, to do the work of comb-building and nursing.

By using two queens until the flow begins, and only one after, we have less brood reared through the flow; still, there is enough hatching all the while to furnish nurse-bees and comb-builders, so that, just as soon as the bees are old enough, they are at liberty to enter the field for honey. On the other hand, comb is constructed so rapidly, where full sheets of foundation are used in the sections, that the same amount of honey is produced as would be if the hive were run exclusively for extracted; yet from 50 to 75 per cent is comb and therefore brings a much higher price.

BEE-KEEPING IN CALIFORNIA.

Some of the Sources of the Light and Dark Honey.

BY FRANCIS J. COLAHAN.

Perhaps it may be of interest to your readers to know something in regard to the conditions here in this section. As all know, the main crop and the best is sage, black and white; but there is as much honey gath-

ered from wild buckwheat and sumac as there is from sage. Usually it is about an equal amount, so that, when the sage is in, it is a safe matter to order an equal number of cases for the wild-buckwheat and sumac honey. The buckwheat and sumac honey is gathered at the same time, the bloom starting at about the time the sage is going out. The bees, however, will usually work on the sage as long as they can get it. That is one of the best tests of the working qualities of different varieties of bees here. Let me explain here what this test is so you will understand clearly.

Almost all apiaries in this section are situated in the mountains, and the flowers bloom first in the valleys; and as the season

the sage and start on the sumac. They are like a great many people—they take that which is the easiest to get, regardless of quality. The others, which bring in the sage the longest, are invariably the best colonies.

The season this year opened better than it has for years; but the promise did not hold good. The early rains of November were followed by severe frosts which killed the bloom of the manzanita and the old-man sage. This was rather bad, as last year the manzanita did not yield honey on account of the severe drouth. In good years the bees bring in and cap quite an amount of surplus, which is a great help in brood-rearing later on. We count on the manzanita bloom to start brood-rearing, and the bloom invariably comes just one month after the first heavy rain of the season.

The "shooting stars" are blooming (pollen); also the oak, the willow, and some varieties of the eucalyptus, while a few early blooms of the alfileria are to be seen out here and there.

Before closing I wish to speak of the dodder. In one of Prof. Cook's articles he says the best way to get rid of the plant is to burn the hills clear of brush. It does not work in practice. A year ago last October we had through here a wild fire that swept the hills clean and bare, not leaving a single bush. While passing through a portion of this burnt district I was surprised to see quite a good deal of the dodder growing at least a mile from the edge of the fire-swept district. I have seen it in half a dozen different places since, all where the fire had burned. The bee-feed will not be as good in the district for three or four years, and fire did not kill the dodder; so Prof. Cook's advice to burn off the hills does not answer its purpose.

Bernardo, Cal., Jan. 30.



THE COLONY WE DIDN'T "DEMONSTRATE" AT THE FIELD DAY AT JENKINTOWN: THE "Z Z" STANDS FOR "ZIP, ZIP, STING—GET OUT!"

advances the blooming belt gradually passes up the mountains and away from the lower ground. The apiaries are usually situated at the base of the hills; and as the season advances the bloom recedes. Now, there is no better judge of fine honey than the bees. They will gather the lightest honey they can find. Here is the point in determining the best bees. While the sage is blooming near the apiary, all the hives will have sage honey; but as the sage bloom gradually recedes, some of the bees will stop bringing in from

A COLONY OF BEES LIVING OUTDOORS 60 FEET FROM THE GROUND.

I have noticed that you wish reports from any one who knew of a swarm of bees located outside on the limb of a tree. I took down one such that was at least 60 feet high, on a limb about six inches through. It had made five combs at least $1\frac{1}{2}$ feet long by the same in depth. We cut the limb off at the outer end past the bees, and let it fall to the ground. Then we sawed the limb off close to the bees next to the tree, and let it to the ground with a rope. This was late in November. Bees were first discovered in July. One noticeable feature showing bee wisdom in this hive was that the two outside combs were made with the outside cells protruding downward to protect them from the rain. I left them on the limb and incased them in a box, and up to date they are all right, and I am sure they have plenty to do until they can make more. If not, I shall feed them.

GEORGE W. RICH.

Trezevant, Tenn.

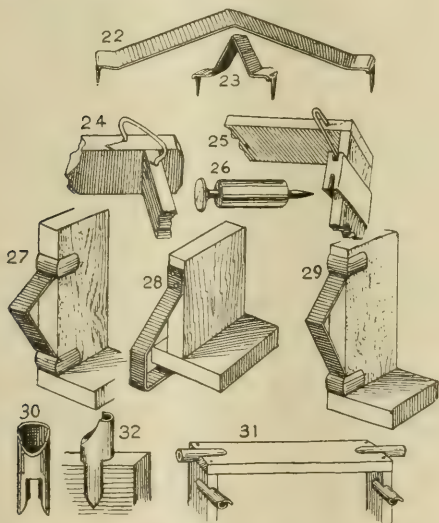
PROJECTIONS ON FRAMES VS. NOTCHES IN RABBETS FOR SPACING COMBS.

A Discussion of the Merits of the Notched Rabbets; Metal Frame-spacers; Views of some Different Foreign Styles.

BY L. STACHELHAUSEN.

[Mr. L. Stachelhausen, a native of Germany, has, ever since he came to this country, been keeping in close touch with all that has been going on in the fatherland. Knowing that he is familiar with the frame-spacer question as it has been tested in his own country, we requested him to write an article on the subject. In doing so he sent along a large number of prints of various frame-spacing devices from the German catalogs and journals. These we have redrawn and reengraved, and place the same before our readers without any attempt at classifying or naming them. Any practical man familiar with the frame-spacer question will at once see how these devices are applied, either at the top or bottom of the frame. Our correspondent's article will be read with unusual interest.—Ed.]

Mr. Root:—Last year we had some correspondence about the merits or demerits of Hoffman frames compared with a spacing-device on the rabbet. As you have devised a very nice metal spacer I see you are trying to overcome some of the difficulties with the Hoffman frame. This means you concede some of them at least. As I still think you are on the wrong track I will again explain my position on this question.

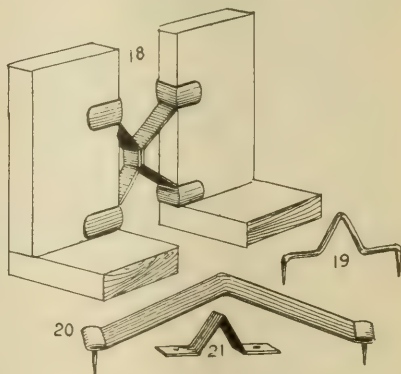


In 1859 I worked in Germany with a bee-hive open on one side and on the top. The frames were of the Berlepsch pattern, spaced in the same way as your Hoffman frames. The top of this hive was open so that any frame could be taken out from between the other frames, but it did not work right. To move a frame in the middle, all the frames from the open side to this frame had to be loosened and moved some distance, at least, to make room for lifting out the desired frame. By and by we found it better to take out all the frames by the open side, and the open top had no use any more.

These Berlepsch frames had many disad-

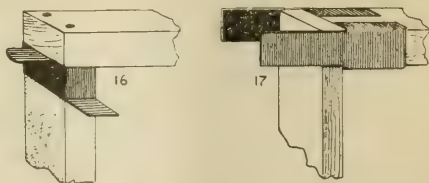
vantages. They were propolized together more or less. In separating them, once in a while the wood split off.

About 1860 G. Dathe used wire nails with large heads for spacers, the same as Dr. Miller does now. Soon these nail-spaced frames were in general use in Germany in all the side-opening hives, and I used them till I went to Texas in 1879. Since this time many different metal spacers have been invented in the fatherland, and I inclose a



few prints from wood cuts of such spacers. Besides, different hives were invented which were operated from the top or from one of the ends, so that any single frame could be taken out between the other ones. All these hives, if spacers on the frames were used, disappeared very soon, and only such as had the spacers fastened to the hive and not to the frames are still in use. These experiences and other reasons taught me the principle that, in a side-opening hive, the spacers are correctly placed on the frames; but in a top-opening hive, or one which is operated from one of the ends, the correct place for the spacer is on the hive. If this is not observed, all the advantages of such hives over the side-opening hives are lost.

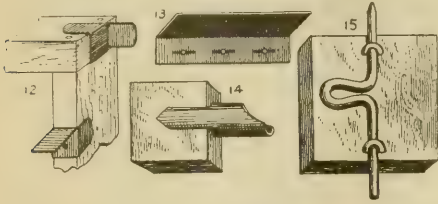
In Texas I commenced bee-keeping with the ten-frame Langstroth hive without any spacer. At that time the opinion of all practical bee-keepers was that a spacer in the Langstroth hive was not necessary, and



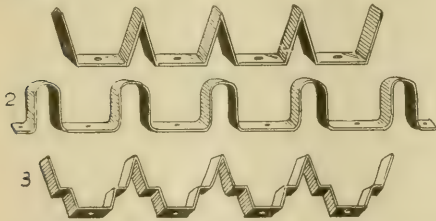
spacers on the frames were called a nuisance, as they made the frames immovable. Nevertheless, since 1880 I have used a spacer on the rabbet of my Langstroth hives, to be sure that the frames were spaced correctly and could not get out of place, and at the same time they could be handled just as easily as the unspaced free hanging frame. I still use this same spacer, and have not as

yet found any thing better. Having made these experiments I was astonished when I found in GLEANINGS that you selected the Hoffman frame to improve (?) your hives—a frame exactly like the Berlepsch frame, which was abandoned in Germany thirty years ago.

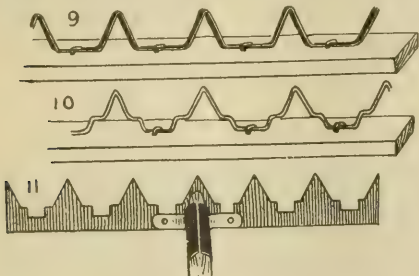
When I for the first time saw a Langstroth hive I observed at once that it was far



ahead of the side-opening hive, because any frame could be taken out without even touching another frame. It is quite impossible to construct a frame or hive which could be easier handled. The hive had only one disadvantage—the frames were not always spaced correctly, and this spacing took some time. Once in a while the frames moved out of place by some unknown cause. For moving the colonies, the frames had to be fastened; consequently the problem was how the frames could be fixed without losing the merits of the old Langstroth



hive. Spacers on the frames were entirely out of the question for me. You tried to solve the problem in another way. At first you were in favor of the closed-end frames (*a la* Heddon), but changed soon to the Hoffman frame because these frames have less contact. Now you recommend a metal-spaced frame with still less contact, and so you are coming nearer to a frame without

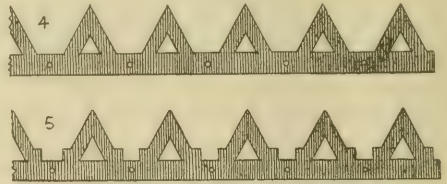


any contact. Hereby you give up all the advantages of the loose hanging frame, gaining the only advantage that the frames

are spaced correctly and can't move during transportation. This is the reason, I say. The principle is all wrong if a spacer on the frame is used in a top-opening hive.

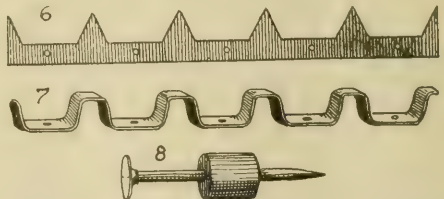
If we have a top-opening hive with the spacer on the rabbet we can take out any frame. If we lift it about $\frac{1}{4}$ inch it is out of the rabbet, and is now exactly as the loose hanging frame. For shallow frames such a spacer is sufficient. For frames as high as the Langstroth I would use a spacer on the bottom-bar too.

Now we take another hive with Hoffman frames. To take out a frame in the middle it must be broken loose from its neighbors; consequently a bunch of frames must be moved sidewise (lateral movement). To make this possible a division-board is used which must be taken out before any frame can be moved; then an instrument like a chisel is used to break loose the several frames. All these operations are not necessary at all with the old free hanging frame and with a frame hanging in a spaced rab-



bet, and these operations take considerable time. In some localities there may be more propolis, and the gluing will be worse; but some propolis is found in every locality, and space must be given for taking out a frame, even with the new metal spacer.

I will consider another objection. Frames with spacers can't be used except with a division-board. In a ten-frame hive the only practical way is to use a strong division-board and nine frames only. This division-board needs as much lumber as a side of the hive, or nearly 28 per cent more lumber is



needed; and by using nine frames in place of ten the capacity of the hive is lowered 10 per cent. These are very high expenses for a doubtful advantage.

The idea of using a spacer on the rabbet has been suggested very often, but you always had a footnote saying such a device was not popular, or that it is objectionable, without giving any reason why it is so. In one of your private letters to me you said you had seen such a device and tried it, but did not like it; but you did not say why you did not like it. You will excuse me if I call this

prejudice. I am of the opinion that the fact that such a device is coming up nearly every year several times and in several forms is proof enough that it would be popular if it could be bought of the leading supply-dealers. Taking only the last few months of the bee-journals, I found that such men as C. W. Dayton, A. Getaz, M. Pettit, and J. Alpaugh are in favor of or have invented such a device.

On the other hand, you claim the Hoffman frame is popular, most bee-keepers use it, etc. Well, Mr. J. Hoffman used such frames for many years, but they were not popular till you recommended them in GLEANINGS. Some of the bee-keepers who use the Hoffman frame now do not know a better one; others can't help it. They are forced to take what the factories offer for sale as standard goods. If I could not make my own frames and hives I would have to use them too, for I could not get any thing better. Then it is an advantage to use standard fixtures if we want to sell some colonies, etc. Nearly every winter, before I commenced to make new hives, I considered whether it would not be better to use the standard goods. I tried them again and again, and have given them up in disgust.

You say some do not like the Hoffman frame, probably because they did not learn how to handle them; they should not be handled singly but in pairs, threes, or fours, — for instance, in forming nuclei. Further you say these spaced frames allow a lateral movement *en masse*, which we can not sacrifice.

It is true that a manipulation of hives or stories in place of single frames saves considerable time in our manipulations. For this reason I prefer a divisible brood-chamber. With this I can make artificial swarms, shaken swarms, etc., without handling frames at all. This was the idea with the Heddon hive, in which the easy handling of the loose frames was sacrificed to get them fixed as much as possible for rough handling of the hive parts. The handling of the Hoffman frames in pairs and fours is no substitute for handling stories, and can hardly be used in *practical* bee-keeping. For instance, if we divide a colony in a ten-frame hive into five nuclei, and take the frames in pairs for each nucleus, we shall hardly succeed. In one nucleus we shall have too much brood and no honey; in another one shall have very little brood. The brood in one nucleus may be all capped; in the other one, all open, etc. Even the bees are not divided correctly. No, sir. If we operate with brood-frames we must know what they contain, and handle them singly. If it should be any advantage we could handle the frames without spacers in pairs just as well, using one of the fingers as a spacer between the two frames.

Now about this lateral movement. I have to say that it is necessary with the Hoffman frame to take out a frame, but it was not necessary in the old Langstroth hive. I consider this a disadvantage, while you claim it

as an advantage which you say we can't sacrifice. For what purpose can we use this lateral movement? In the extracting-supers, I think, nobody will use it at all. It may be used in the brood-chamber for spreading the brood. In my opinion this spreading of the brood does generally more damage than good; but if done at all it must be done carefully. The empty combs must be placed between two combs where the queen is just laying eggs in the center of the combs. To find such a place, several frames must be taken out and examined; and for this reason the movement *en masse* can not be used. The better management is to use large combs in large brood-chambers, and not disturb the brood-nest at all, and not handle the frames. Another reason for a lateral movement of frames I do not know. The large brood-frames we handle in making artificial swarms in forming nuclei, shaking or brushing off bees, etc., and in all these cases we have no use for a lateral movement.

In the shallow extracting-supers, a frame without a spacer is by far the best, because it is quickest handled in uncapping and extracting. In filling the supers with notches on the rabbets, no pressing together of frames and other manipulations are necessary. The extracted frames are simply dropped into the super; and if they do not fall into the notch I strike with the hand across the top of the frames, if all are in the super, and every one falls into its own notch and is spaced correctly and will stay so. It is during the honey crop that the most handling of frames is necessary. I used ten-frame shallow supers with Hoffman frames. If they are full of honey it is no little work to get out the first frame for extracting. Sometimes it was necessary to push out all the frames at once with a device I had on hand for pushing sections out of T supers. This was one of the severest objections to this kind of frames.

I have no doubt you could easily make a practical device which could be nailed on the rabbet of your hive in place of the tin rabbets, and which could be used in combination with your all-wood frames or the thick-top-bar frames, and this would not complicate your business very much. For these high frames, another device, probably of bent wire, and fastened to the bottom-board, would be necessary; for frames 5½ high, the spacers on the rabbets are sufficient. The advantages of such hives are so many that I have no doubt it will be popular in a very few years.

Cibolo, Texas.

[It is not my purpose to make any rejoinder to our correspondent. Indeed, I really enjoy having my views assailed by so able a writer. As I have given my opinions on the question at various times, it will not be necessary to repeat them here, any more than to correct a misapprehension on the part of Mr. Stachelhausen by saying that I am not an advocate of any particular frame, as a good deal depends on locality, the bees,

and the bee-keeper. Different conditions make it necessary to give different advice to different people.

It may be well, perhaps, to state that the Hoffman frame does not, as our correspondent seems to infer, require the use of a division-board. If we were to start anew, making the eight-frame hive, we would not make it wide enough to take in such a board. Personally (and that seems to be the experience of most of our correspondents) I can handle the Hoffman frame easier than a division-board. Since the eight-frame hive was made half an inch wider to accommodate this article, nothing remains but to continue making it so. When we began making the ten-frame hive we did not make it half an inch wider, believing it to be better to dispense with the division-board in that hive.

While the editor still believes in having the spacers on the frame, and that it would be a mistake to put them elsewhere, he is very glad to have so able a correspondent, who holds the opposite view, explain the advantages of the rabbit spacer. —ED.]



COMBS THAT HAVE BEEN IN USE 20 YEARS.

A matter that was up in GLEANINGS a few years ago was, who had a set of combs twenty years old? I have combs that were built in the spring of 1885, and they have been in use continuously ever since. They now occupy the bottom story of a three-story hive which I run for extracted honey. I have had combs built every year since that date, as that is when I commenced keeping bees.

W. W. GRANT.

Marion, Ill.

[I might explain for the benefit of our newer readers that the statement was made some time ago, that, when a comb got to be six or seven years old, it should be discarded because the accumulation of cocoons in the cells would reduce the size of the cells to such an extent that the bees hatching out after the sixth or seventh year, at least, would be smaller than those first reared in the same cells. The editor and some others took the ground that there was no truth in this—that when there was an accumulation of cocoons the excess would be removed by the bees, and that, therefore, the last reared bees would be as large as the first ones.

Since that time we have had numerous reports of combs anywhere from 25 to 30 years old that are doing good service; and the bees reared from them have apparently the same

size as those reared in combs right next to them, from combs just built off from foundation.

Among others who gave substantial testimony to this was the veteran R. Wilkin, of Ventura, Cal., one of the most extensive bee-keepers the country has ever known. Just before he died this contention was up, and through his daughter he sent me word that he had combs 30 years old that were then doing excellent service. It would be very nice for us foundation-makers to give out the statement that all combs should be renewed every seven years. If that were true, every bee-keeper would have to buy large quantities of foundation; but, fortunately for the consumer, if not for the manufacturer, the facts do not bear out the contention. —ED.]

SHOULD QUEEN-EXCLUDING ZINC BE SEPARATED BY A BEE-SPACE FROM THE TOP-BARS?

Would you kindly tell me how to use the queen-excluder? Should there be a space between the zinc and the top of the frames? If so, how much? I notice the English excluders have the perforations running at right angles with the frames. They are placed flat on the top-bars.

R. J. MELVILLE.

Cambridge West, New Zealand.

[While it is not absolutely essential, it is better to have a bee-space between the perforated zinc and the brood-frames, above and below. The wood-bound boards are so made as to provide for this space, providing they are put on the hive right side up, and not wrong side. The unbound zinc boards will probably sag on the brood-frames below. This will do no particular harm, except that the bees wax them down, making it more difficult to remove.

The English excluders have the perforations going crosswise of the frames, probably not because there is any advantage in that arrangement, but because the size of the English hives makes the zinc cut to better advantage when the perforations are so placed. Many of the excluders for English hives are 16 inches square. In that event the perforations might run either way. —ED.]

COMB BUILT OVER WIRES WITHOUT EVEN STARTERS OF FOUNDATION.

In *Stray Straws*, page 343, I see the following: "Natural comb built below the starter will be built over the wires," p. 301. Yes, but the wire will not be in the septum."

I have a piece of comb built on a wired Hoffman frame, *without even a starter*. The bees had to start on the side of the groove in the top-bar. They did not exactly disprove the words of Dr. Miller, because they had no starter to commence with. It happened in this way:

I made a mistake last summer while extracting, in putting on a super of empty wired frames (I had supers with wired

sheets of foundation near) on the hive of a strong colony; and upon examination of the colony a few weeks later I found that the bees had nearly completed the fourth frame, and some on the fifth. None of the frames had starters, and there were the grooves to contend with. If the bees could engage the wire and septum *without* a starter, it looks reasonable, to a beginner, that they would do so *with* a starter. DAVID S. HURST.

Davenport, Ala.

[The wire will be in the septum of the naturally built comb, provided the comb-guide, or narrow strip of foundation, even though only $\frac{1}{2}$ inch wide, is placed directly on the central line on the under side of the top-bar. But when naturally built combs are put on the under side of a double groove wide-top frame, the bees are liable, unless there be a narrow strip of foundation, to build from the central strip of wood between the grooves, thus bringing the septum of the comb out of the center and out of alignment with the wires. It is very poor policy to give bees empty frames without a comb-guide, or, better still, a narrow strip of foundation centrally placed, even though that strip be no wider than $\frac{1}{2}$ inch. No bee-keeper can afford not to use narrow starters of foundation; and a good many think they can not do with less than full sheets because of the difficulty in getting irregular or a lot of drone combs.—ED.]

PERPENDICULAR WIRING PREFERRED.

I have a number of frames wired, some horizontally and some perpendicularly. All of these I had came in hives I *bought*, and, without exception, those wired from top to bottom are filled clear to the bottom, while there is quite a space between the bottom of the comb and the rail in the others.

Boston, Mass.

C. H. HOWARD.

[There can be no question that perpendicular wiring will give better results than horizontal. By the latter method a number of the cells near the top-bar elongate in such a way that the bees use them for storing purposes. However, it should not be understood that the perpendicular wiring alone will result in solid cards of comb without any honey below the top-bar, for much will depend on the queen and kind of season. But I think we may safely say this: That perpendicular wiring will result in more brood being reared in a Langstroth frame than by the horizontal plan.

The only difficulty in the way is, it is not practicable to use the perpendicular plan with the modern thick-top frame as now made. Dr. Miller gets around the difficulty by using splints in place of wires. The question might arise why we never advocated these splints. Chiefly because of the difficulty of making them in a wholesale way; and, secondly, because we doubt if the average bee-keeper will so imbed his splints as to get good results.—ED.]

THE ALEXANDER TREATMENT, AND POLLEN IN THE COMBS.

In thinking over the principles of the Alexander treatment for black brood, one question arises: Will not the bees during the quite long interval in which they are queenless and broodless plug up the brood-combs with pollen? I had this happen late last summer when one of my colonies became queenless, and this spring these same combs were still full of the hard dried-up pollen, and were in a very moldy condition.

West Lafayette, Ind. WILL A. HORST.

[A good deal will depend on the season as to the amount of pollen that might be put in the combs; but a queenless colony will leave the cells in the center of the brood-nest clean and polished. The presence of the pollen in the surrounding cells would do no particular harm unless it might be the means of covering old diseased germs in the comb.

This reminds me that perhaps I ought to state that the foul-brood inspectors of New York do not believe that the Alexander treatment for black brood will prove to be entirely satisfactory. While they admit that the general effect of the treatment is repressive in that it checks or keeps back, and in many cases effects a cure, they do not advise any one to rely on it. They think that nothing short of shaking the bees on foundation, and compelling them to draw it out into comb, will prove effective. When I asked why it was that Mr. Alexander had by his plan been able to clear his yard of the disease, when it was present in other yards in the locality, I was told that black brood in New York has practically run its course; that a repressive treatment might and probably would prove effective under those conditions.

It is well known in science that a disease after it has run its course through a section for a time seems to lose its virulence; or, perhaps, to put it more exactly, the survivors are more able to resist the onslaughts of diseases that are just as poisonous as ever; but when such disease starts in a *new* locality, the foul-brood inspectors of New York believe that nothing short of the McEvoy treatment should be used.—ED.]

A LETTER FROM A TEN YEAR-OLD BEE-KEEPER CONCERNING HIS FIRST COLONY OF BEES.

I am only ten years old, but ever since I can remember I have been very much interested in bees. Last spring I bought a colony of mixed black and Italian bees. I got about one pound of honey from them. They came through the winter all right. I expect to get an Italian queen. My bees are rather cross, but I don't mind a few stings now and then. I hope to get a good swarm this spring.

WENDELL T. CARD.

Kingston, R. I.

[We congratulate our young friend on his success for one so young.—ED.]



CHAPTER X.

TAKING OFF THE HONEY AND STORING IT AT THE OUT-YARD.

From two to four days later, in accord with the weather, I go again, the same making the tenth visit, when the supers are taken off, free from bees. I said, "According to the weather," for the reason that a hot clear day is not suited for the work we must do at this time, when there is no honey coming in from the fields. Robber bees would drive us home long before we could get the work done. The day desired is a cool cloudy one—one so much so that it will keep the bees in their hives. I do not usually go till afternoon, as by noon it can generally be told what the rest of the day will bring forth.



In taking off the supers, those that have no honey in them are piled up top of each other till they are six to ten high, when a cover is put on each pile, and a 25-lb. stone on the cover, where they are left until wanted for use the next year. As many of those having honey in them as I can carry are packed into the auto or wagon, in accord with which I have with me; and if there is more than I can carry they are piled up, as were the empty supers, seeing that each pile is bee-proof, to wait till I can draw them home. The tiered up hives are now piled away (using the wheelbarrow as much as possible in all this work), the same as were the supers, those being heavy with honey being piled by themselves, and the light ones in a separate place. These are our reserve combs for next year.

"SWEETENING" UP THE NEIGHBORS.

I now take off the escape-boards, put the covers on the hives, and store away the escapes for the next year. Some are deterred from starting out-apiaries by what they consider necessary—an outlay for buildings to store things in; for should they continue only a year or two at any place with an out-yard, such buildings would be almost an entire loss. But I do not find it necessary to have any thing more at the out-apiary than a few extra hives and covers, and often all but two or three of these get into the bees' possession before the season's work is ended. Smoker fuel, smoker, bee-veil, tools, etc., are stored in these hives; and with the finish up in the fall all are piled away as I have given, where they stand right in the bee-yard all the fall, winter, and spring, till they are needed again. The hives and supers giving all the protection that I find necessary in this locality, and all that is needed in any locality, in my opinion, unless it should be the "wild and woolly" West, where thieves are liable to carry off every thing not under lock and key. And even there a few pounds or sections of honey handed out to those living near the out-apiary will generally win for miles around. No one knows how a few sections of honey given to the half-dozen families living near the out-apiary will *sweeten* for miles around till they try it. The few receiving these little tokens will be your friends; and as those further away are the friends of these few, the good words they say about you will make friends of the whole, so that all will almost fight for you, and if they want some honey they will come to you to purchase it, never thinking of taking it otherwise. But be *stingy* with the product of your out-apiary, so the few nearest it call you "a louse," then there will be no end to the annoyance you will have, and I guess this will apply in nearly equal terms to the home yard as well.

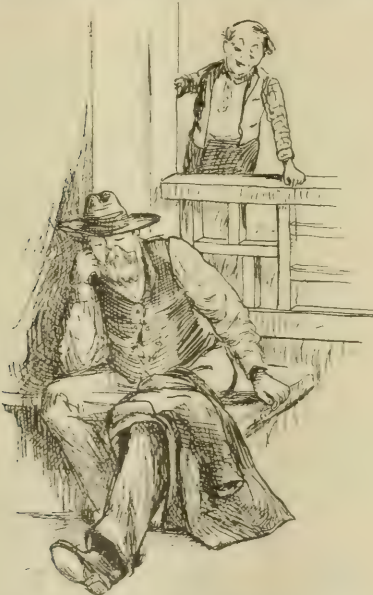
WEIGHING UP THE HIVES.

When I come to the colonies which were tiered, I weigh them, as some are liable to be short of stores, through storing too much in the combs above; and any that are light are supplied with plenty by giving them full combs taken from the "heavy" pile in exchange for their light ones. I do not now look after the stores of those that worked in sections, as it is seldom that there is a lack with any of these, as the plan used, together with the ten-frame hive, nearly always causes the storing of plenty of honey for winter. If, when turning the bottom-boards for winter, at our next visit, any are found to be light, a change of heavy combs for some of their light ones is made, so that all are known to have 25 lbs. or more, which is amply sufficient for all their needs till they can be looked after in the spring, when starting them on their road to prosperity, for both themselves and owner. After again carefully looking over all the piles of hives and supers containing honey, to see that there is no crack or hole about any of them

sufficiently large for the entrance of a bee, and giving a general glance over the whole, to see that all is in good condition for leaving, I am ready for my journey home. And this is what was done on the tenth visit.

A RETROSPECT.

As I am about to leave I can not help taking a last lingering look at things, as they have so changed since I came at noon. Instead of tiered-up hives, and those with supers, which have gradually grown up with me during the summer's work, all have assumed the appearance of what they had in spring, and I am reminded that the work of the bees is over till another year. A sort of sadness steals over me, and I fall to wondering if both bees and myself will be alive to work so happily together another year. The merry hum, and the fragrance from the hives, which greeted me when coming to the yard during the summer, greet me no more. I find myself wishing it were spring again, and that I were just commencing the fun of working the out-apiary for another year. I seem to see the bees at work again as they did on those bright "clover and basswood" morns. It seems like a real living picture again—a picture fairer than thought; a picture fairer than a dream; a picture with ten thousand pearls glistening in earth's rarest sunlight, on one stretch of verdure green, and reaching out beyond the winter's vale to the bright spring again, when the butterfly begins to flutter in the pleasant breeze, and the joyous children are chasing after sunbeams. Thus I dream. As I have been



musings, the clouds have parted in the low west, and the setting sun has dropped down into the clear space between them and the horizon, throwing over hill and vale ten thousand times ten thousand glittering hues

that glow and shine to beautify the landscape and cheer the heart of man. Dawn tiptoes over the mountain-tops, and peeps into the valley far below with eager, tender eyes, while darkness gathers up her sable robes to skulk and hide away into the crevices and mountain caves; but in the evening come the long light sunrises, beautiful to gild the world and gladden it with kisses, lovelier, sweeter far than the rarest, gentlest kiss of dawn. So, too, the evening tide of life may grow more beautiful and blest if life is rightly lived, believing upon Him who was and is the light and life of men. And the bees, now in the evening tide of 1905, are enjoying a rest sweeter by far than their restless sleep during the dawn of their activity, six months ago.

"Hello there! Gone to sleep?" comes in stentorian tones from my farmer landlord, and I am aroused to the fact that it is fully time that I be on my journey home.



WHERE DID THE CLOVER SEED COME FROM?

Some four or five years ago a huge trunk sewer was run through our town from the southern end of Boston to the sea—some fourteen miles. This sewer was an open cut in some places; in others it was tunneled. As it was planned to build a 100-foot boulevard over it, the material excavated was, for the most part, spread over this 100-ft. space as the work was completed. It consisted mostly of fine sand or gravel, and in some places clay or quick sand. Well, everywhere this material was spread a dense growth of white and alsike clover sprang up, and this year there is quite a crop, although it is running back to weeds now. What I should like to know is, where did the seed come from to cover so thoroughly every part of this new ground dug from depths varying from twenty to forty feet? Some say the seed was in the sand, and only needed the sun and air to spring into life. This theory seems foolishness to me.

East Milton, Mass.

ROBT. FORBES.

Friend F., this is indeed a puzzling question; and had I not heard of instances similar to it I should say that somebody sowed the seed of white clover in the alsike, and I think now that it must be this seed was sown by the company that built the sewer, or by somebody else without the knowledge of the residents along the route. Clover can not come up where no clover seed has been sown, any more than corn can come up where no corn has been planted; and various experiments at our experiment stations have pretty well settled the question that clover seed can not germinate after a certain number of years. I can not put my hand on the table just now, but I think the vitality will all be gone in fifteen or twenty years—may be more or may be less. In our own experience in handling seeds we find some clover seeds lose their vitality entirely in less than a dozen years. This has hap-

pened several times when seeds have been overlooked or had gotten among the rubbish.

Where excavations are being made, the seeds of certain weeds are known to germinate after a long period of years; but all the stories about the seeds of grain thousands of years old, etc., are, without question, humbugs. Perhaps some one who is familiar with the recent investigations in regard to how long other seeds may hold their germinating powers can tell us a little more about it. I am well aware that clovers often spring up in unexpected places; but I am quite sure that careful investigation will generally tell where the seed came from.

CAN ANYBODY ON THE FACE OF THE EARTH MAKE IT RAIN OR STOP RAINING?

So many people have asked my opinion in regard to rain-makers, first and last, especially the recent rain-maker of California, I have concluded to submit the following, which I clip from the United States *Monthly Weather Review* of a recent date:

A FAKE RAIN-MAKER.

Mr. Otto J. Klotz, the Chief Astronomer of the Dominion of Canada, and a very active friend of honest meteorology, kindly sends the following extract from *The News*, of Toronto, March 1, 1906. We know of no better way to protect the public than to expose the pernicious activity of the fake rain-makers, the hail-preventers, and the planetary forecasters:

Ottawa, March 3.—In the appropriation ordinance passed last autumn by the Yukon Council appears a vote of \$5000 for the purpose of "encouraging meteorological experiments on the Dome,"—the peak which dominates the vicinity of Dawson—"in the summer of 1906." This innocent item covers one of the quaintest pieces of administration ever perpetrated by a Canadian legislative body.

The rainfall is an important consideration in the Yukon, as the miners need water for their operations, and a wet summer is as advantageous as a dry one is the reverse. So far as observations extending over a very few years can serve as an indication, wet and dry summers roughly alternate. The summer of 1905 was marked by a drought, so that the balance of probabilities is in favor of a rainy summer this year.

Southern California for some time has been the home of a rain-maker, one Hatfield, whose method of operation seems to be the liberation of certain chemicals, which are supposed to induce showers. Mr. Hatfield has advertised his methods and his alleged successes with some enterprise, and the administration of the Yukon has become an admirer of his. The "meteorological experiments" are to be conducted by him, and the \$5000 is for him.

STANDS TO WIN ANYWAY.

Private persons have subscribed \$5000, and the Yukon Council supplies another \$5000. Mr. Hatfield is to spend the summer in the country, and his expenses, estimated at \$2000, are to be defrayed in any event. If it rains, he is to get the other \$3000. Thus Mr. Hatfield occupies an advantageous position in the bargain. He will get \$2000 expense money in any event, and he will get \$3000 more (1) if he "makes" the rain, or (2) if the rain happens to come independently of his liberation of chemicals. Moreover, as already noted, in any event the chances favor rain this summer.

Next, who is Mr. Hatfield? The standing of the United States Weather Bureau at Washington can not be doubted. A request for information, addressed to the Bureau, elicited the following reply:

"Mr. Hatfield attained considerable notoriety in the United States last fall as a pretended rain-maker, operating in Southern California. The judgment of the Weather Bureau as to this pretension may be found in the accompanying extract contained in the closing paragraph of a letter written by the Chief of the Bureau, October 20, 1905, in reply to a request for information relative to Mr. Hatfield:

"It is, therefore, apparent that the rainfall which

was supposed to have been caused by the liberation of a few chemicals of infinitesimal power was simply the result of general atmospheric conditions that prevailed over a large area. It is hoped that the people of Kansas and of other regions in the subarid West will not be misled in this matter, and give undue importance to experiments that doubtless have no value. The processes which operate to produce rain over large areas are of such magnitude that the effects upon them of the puny efforts of man are inappreciable."

In another letter on the subject, to be found in the issue of the *MONTHLY WEATHER REVIEW* for April, 1905, Mr. Willis L. Moore, the Chief of the United States Weather Bureau, corrected some statements put forward on Mr. Hatfield's behalf. "Your dispatch," he wrote, "stated that the heaviest rain fell in the region of the rain-maker, and that the rainfall had not been large in any of the other regions of the subarid West. This statement is erroneous, as during the same period general and excessive rains occurred throughout Arizona and New Mexico. It is known that when barometric pressures for a month are low in the Southwest, the period is one of frequent and heavy rains in that region, and this barometric condition prevailed over New Mexico, Arizona, and Southern California during the three-month period under consideration."

It is rather disagreeable to reflect that at the very time that these warnings were being issued against Mr. Hatfield, the administration of the Yukon was proving so easy a mark for his efforts. What makes this the more striking is that the Yukon Council is not a particularly democratic institution. It is a strongly official body, perhaps a majority of its members being selected from Ottawa—presumably on account of their intelligence, general information, and administrative fitness.

NAVIGATING THE AIR.

On page 832 I spoke about a young man who started to make a balloon ascension on Sunday. Well, I do not know whether he gave up making Sunday flights or not; but the following clipping from the *New Voice*, of Chicago, indicates that he is having better luck in making his ascents on week days:

Members of the present Congress naturally are interested in ways and means of getting off the earth.

Public business was practically suspended last Wednesday for several hours while Lincoln Beachy was giving a wonderful exhibition of aerial navigation in the suburbs above Washington.

The experiments are said to have been the most successful ever performed, particularly in the features of control and dirigibility.

The airship, rude in construction, responded accurately to the will of the boy aeronaut. He compelled it to circle Washington monument and the great dome of the capitol, descended and made a landing when and where he pleased, and demonstrated to the satisfaction of the thousands who witnessed the exhibition that many of the rudiments of aerial navigation have been solved.

Santos-Dumont and others who have become famous because of successful flights in air-ships never accomplished what young Beachy did. In an airship sixty-two feet long and sixteen feet in diameter, suspended from a gas-bag with a capacity of 10,000 cubic feet, made of 750 yards of Japanese silk, with a two-bladed propeller in front and a large rudder, the daring aeronaut made a flight of nearly twenty miles without serious accident.

Employed to make ascensions at a suburban resort, young Beachy, in an airship patterned after that used by Roy Knabenshue, whom he had been assisting, decided to demonstrate its practicability by a flight around Washington, visiting the principal points of interest. From a point five miles down in Virginia, Beachy safely crossed the Potomac and headed for the Washington monument.

The framework of the airship, which looked like bamboo fishing-poles, consists of two parallel rods running lengthwise upon which he stands, and a third placed above upon which he sits.

A couple of small braces broke before he reached the monument, and Beachy decided to make repairs. Without any difficulty he brought the airship to earth by the use of a rope, and easily repaired the broken parts. Again he ascended. When fully 300 feet above the ground he circled the Washington monument, and, go-

ing higher, at 500 feet he repeated the operation. Then deliberately turning the airship in the direction of the White House he proceeded to call on the President. He alighted safely in the inclosure back of the executive mansion.

The President was attending a commencement exercise, and was not at home to welcome Beachy. Mrs. Roosevelt with keen interest watched his daring performances.

With the ease of a bird Beachy and his machine again sought the upper air currents, and safely above the towers of the buildings the first tour of the famous Pennsylvania Avenue by an airship was made.

Beachy circled the capitol dome, showing that he had absolute control of the airship, and made a landing on the east front opposite the rotunda. He was loudly applauded as he stepped from his machine and modestly received congratulations. After a brief rest he again ascended; and, passing over the capitol, returned to the Virginia resort, crossing three miles of housetops and a river one mile wide.

I am sorry, friends, I can not give you a report from the real flying-machine made by the Wright brothers; but one will come very soon if you will be patient. The one given above indicates what can be done by the aid of a balloon, and I am glad to see young Beachy with his home-made machine is making progress, even if he does require a balloon to keep him up in the air.



"Ye are of more value than many sparrows.—LUKE 12: 6.

ALMOST A MAN.

About July 1st I had planned going back to the cabin in the woods; but as Mrs. Root could not at that time go with me I rather decided to go alone; but on my return from the Philadelphia field-meeting my two eldest grandchildren, Leland Root and Howard Calvert, boys of 15 and 14 respectively, put in a plea to go in Mrs. Root's stead.

"But," said I, "boys, I am planning to live up there in the woods on 'uncooked food,' and you two growing chaps wouldn't think, after the way your mothers have been giving you three good 'square meals' a day you could ever put up with that."

"Yes, we can; yes, we can," they both put in; "besides, our mothers have been giving us lessons, and we can cook tiptop. We will cook for you as good as grandma does. You just take us along and see. We won't make you any trouble."

The matter worried me somewhat. I have been telling my friends of late, as an excuse for rushing about so much, that I am trying to be "where God needs me most," and this implies I am trying to do what God wants me to do most, without much regard to selfish feelings. I am more than 50 years older than these two, "almost men" in stature, and almost *young men* in

intellect. A good many of our ideas are in widely different channels. I meditated that they would likely displace, lose, or break my tools, step on my choice plants, litter up the cabin, etc. One reason why I enjoy this home in the woods is because nobody touches any thing there but myself. No dog, chickens, nor *children* (may God forgive me) meddle with or disturb my work, nor interfere in any way with my old-fashioned (and perhaps cranky) notions.

While thinking of this, another and a better spirit suggested, "But, Mr. Root, these boys are not only your own flesh and blood, but they, in God's providence, will soon be the sinews of 'The A. I. Root Co.' Is not God's voice back of their boyish pleading to go with you? and may it not be the opportunity of your life to instruct and guide them at just this crisis in their lives, that they may preserve and hold up whatever the firm that bears your name has honestly earned in years past?" Then I thought of the Savior's words, "Ye are of more value than many sparrows."

When I fell in with their plan they put in another plea, that I must wait until after the Fourth. Now, I was rather planning to get away from the noise and din of this event; but God was leading, and not I.

At Traverse City the liveryman wanted a little more time to get his rig ready, and suggested I surely wanted to take a little while to show the boys around and "buy them some cigars."

"No, sir! my boys don't use cigars."

"But they haf' to learn. All boys learn some time; might as well learn now as later."

Of course, this was pleasantry, more or less, but I invariably thanked God that these two, with the bringing-up they have had, would almost as soon think of jumping into the fire as to touch tobacco in any shape.

Dear parent or grandparent, I have now, as I write, been with these two boys close on to two weeks, and it has been a wonderful revelation to me of God's love, and of something I hardly dreamed of before, that I should, after all these years, *for the first time*, learn to know and love my own flesh and blood. There have been anxious times, and there have been times when I *prayed* as I seldom pray of late years; but there have also been wonderful answers to prayer. It has been a drill for me as well as for the boys; but, thank God, I think it has been a loving drill on both sides. As I give a few of the incidents by way of illustration I feel that some parents will say I have been too easy and indulgent; and then, again, there will be others who insist I have been too strict and puritanical, especially for this present age.

In two things particularly the boys' inclinations were not just in accordance with my "notions," as some might be pleased to call them. First, how much work should boys of fourteen and fifteen be called upon to do, say during vacation time? Secondly, how much liberty should boys of that age

be given on Sunday, say after Sunday-school or other religious service?

Grand Traverse Bay is about half a mile through the woods from our cabin; and as soon after our arrival as the dinner things could be gotten away the boys were off in high glee for the Bay. The great number of springs along the hills, that empty into the Bay, make its waters of crystal clearness, and it was hard work to get the boys to come home, even at mealtime, so attractive was their sport in the water. Strawberries are at their best here in July; and along about the 10th a neighbor invited us to come over and help ourselves. It was nearly two miles, and the boys, with some diffidence, informed me they had a "raft" that would take me there. The materials were logs and other driftwood from the beach, held together with some large spikes they found in our barn. A potato-box formed my seat in the center of the raft, and a canvas awning kept off the July sun, while a couple of barelegged boys in bathing-suits waded on the white sandy bottom and furnished the propelling power. I played I was a "sultan" of olden time "sitting in state" while willing slaves "rushed" my craft to destination. When I reached the neighbor's, however, I looked more like a "shipwrecked mariner" than either sultan or pasha, for not only were my shoes and stockings soaked, but I was pretty well soaked up to the knees. Strawberries? Well, I should say! Mr. Palmer said he lost over fifty bushels because he could not get pickers for either love or money. We saved a part of the fifty bushels when they (Warfields) were just lying in heaps on the ground, and dead ripe.

Well, the boys were having so much fun in the water, and with some newly found neighbors, that, no doubt, they found it hard to stay away from the Bay on Sunday. After Sunday-school (we have preaching only on alternate Sundays), while I was having my after-dinner nap they ventured down to the Bay, and a boy they knew said he had got to take a borrowed boat home, and they could ride as well as not, and finally they managed to do more traveling (and visiting) on Sunday than on the week days, not getting back until it was so late I was really alarmed, for I hadn't the remotest idea as to where I should go to find them. Their boyish excuse for not getting permission was, they didn't want to wake me up. I didn't scold very much (some of you may think not enough); but I had *prayed* over the matter, and the Holy Spirit admonished me that I needed to be careful about holding my "grip" on the boys, and that said grip must—first, last, and always—be a "loving grip."

When Sunday came again I planned to remind them the first thing in the morning that it was my request they should not go at all to the Bay on God's holy day. We had been having hard work all the week to get one of them up to breakfast; and as it was Sunday I thought I would let him have a

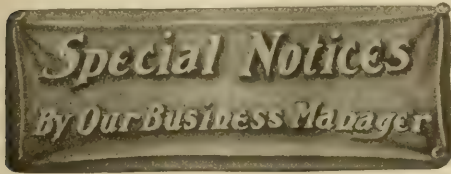
good rest, especially as he had played hard the day before. Imagine my surprise, when I began to call, to be told by the other one he got up and went out very early. If you haven't learned it already, let me inform you that a boy of fifteen *often* shows more judgment and consistency than you might expect; but when you least expect it he shows *boy* sense and nothing else. After breakfast I went down to the Bay to hunt him up. He was coming along unconcerned, dragging a *log-chain*. His explanation was, their raft got grounded so they had to have a team to pull it out. The owner of the team was so busy week days, the only time he could work for the boys, free of charge, was Sunday morning. Now, this boy—this boy *whom I love*, mind you—argued with me all the way home to prove to me that there was nothing inconsistent in his getting up *earlier* Sunday morning to help pull out that raft before he went to Sunday-school. I didn't lose my grip, however, for both boys of their own accord went to Sunday-school in the morning and to preaching again in the afternoon, and the church is more than a mile (over big hills) from our home.

A big circus has just been through here. I felt so sure its influence would not be good over the young members of our little church (or old ones either for that matter) that I spoke of it in prayer-meeting. I did not advise telling the children they *must not go*; but it seems I was enabled to give such counsel that very few *wanted* to go. Our boys did not even care to go to see the "parade," and they tell me that several of their companions who had a chance to go chose to have a holiday at home.

Perhaps you would like to know how the cooking turned out under the management of a boy of 14. Well, he not only learned to get up a good square meal, but by some careful and patient drilling on my part, as well as the instructions his mother had given him, he became able to wash the dishes and put them away, and slick up the kitchen generally, almost as well as grandma herself could do it. Not only that, he washed his dish-cloths, wiping-cloth, napkins, etc., and hung them out to dry, and kept every thing in up-to-date shape. The other boy did not take so kindly to cooking, but he trudged faithfully every day half a mile through the woods and over the hills after bread, butter, milk, etc. For a spell it took a ten-cent loaf of bread for each meal, and a chunk of honey cut out of a frame from one of those Caucasian queen-rearing bee-hives, once a day or oftener. When we went to bed tired out at night, the boys were at first much inclined to drop wearing apparel on the floor, or in "any old place," but with plenty of nails in the rough board walls I finally persuaded them, even in the night time, to keep things "decently and in order."

With a prayer that this Home paper may enable some other parent (or grandparent) to "hold his grip" on these boys in their teens, and still guide them in the "straight

and narrow way," and that it will remind them, also, that *these boys* are of more value "than many sparrows," I still remain your old friend,
A. I. Root.



THIRD PHOTO CONTEST.

We want bright interesting photos to illustrate GLEANINGS. Send in those you think suitable, and you will stand a chance of one of the prizes below:

CLASS A.—Photos of general interest, excluding swarms and apiaries. Prizes: 1st, \$5.00; 2d, \$3.00; 3d, \$2.00; 4th, cloth-bound A B C.

CLASS B.—PHOTO OF SWARMS. Prizes: 1st, \$3.00; 2d, \$2.00; 3d, A B C of Bee Culture; 4th, GLEANINGS one year.

CLASS C.—PHOTO OF APIARY. Prizes: 1st, \$3.00; 2d, \$2.00; 3d, A B C of Bee Culture.

SPECIAL—Photos that do not win prizes but which we can use will be awarded a prize of \$1.00 each.

CONDITIONS.—Contest closes Nov. 1st.

All photos should be marked "For Contest," and have name and address attached. Prize-winning photos become our property. No photo returned unless stamps are sent. We prefer unmounted prints toned to a light-reddish color on solo paper.

WINNERS IN SECOND GLEANINGS CONTEST.

Below is a list of those sending the largest list of subscribers as per conditions in our second contest:

PRIZES.

First prize, \$10.00 queen, A. K. Ferris; 2d prize, \$7.50 queen, L. Riebel; 3d prize, \$5.00 queen, Roy Wood; 4th prize \$3.00 queen, F. D. King; 5th prize, \$2.00 queen, Wm. C. Wilson.

Sixth to fifteenth prizes, one cloth-bound A B C, W. T. Crawford, J. H. McCargo, H. C. Overson, Fred W. Allen, Oliver D. Corman, G. O. Evans, E. L. Blair, Geo. W. Copenhaver, D. T. Gaster, Albert E. Wurster.

Sixteenth to 25th prizes, one Junior Cornell smoker, Rudolph McChesney, E. C. Selley, G. P. Berg, J. A. Yeomans, Wm. F. Elert, B. E. McSwain, Martin Gute, H. Burritt Goodwin, G. A. Kreighbaum, Marion Nine.

Have you entered our fair contest? Our prizes are very liberal, and so many that practically any one who makes an effort to secure a few subscribers wins a prize besides our large commission. We want GLEANINGS agents in every county.

THE PAWLONIA IMPERIALIS.

At this date, July 30, the tree is $7\frac{1}{2}$ feet high, and there are several leaves that are over 30 inches across. Even if it dies down during winter (and I hardly think it will), the tree is worth to me a dollar for one season. See page 954, last issue. —A. I. R.

G. W. PARK, LA PARK, PA.

Quite a number of friends have reminded me that I failed in our last issue to give Mr. Park's address, which is as above. Well, I am sorry for my blunder, but it indicates I had not in mind giving Bro. Park any "free advertising." As his circulation is so large I supposed most of our readers knew where he is located. —A. I. R.

JOSEPH HORNE CO.

Pittsburgh, Penn.

The Hoe Safety Razor.

All beards are alike to the Hoe, the heavy gristly beard that requires to be reduced every morning, and the light, unnoticeable beard that calls for a shave only twice a week.

The Hoe Safety Razor is by all odds the simplest safety razor on the market to-day, as well as the most perfect. It is composed of three parts, the hoe, the guard, the razor itself; and this razor can be honed when necessary just like any other razor.

It costs only \$1.50, and the price includes half a dozen keen-edged blades, which ought to last any beard a couple of years. Then you can buy more blades.

Swarthmore Books!

BABY NUCLEI (2d ed.)—The second edition of this popular treatise is on the press. This book thoroughly covers the field of small mating under management. The experience of twenty years in mating young queens in baby nuclei is given. A delightful little book—good printing, enjoyable reading, and easy understanding. Price 25 cts. postpaid.

SIMPLIFIED QUEEN-REARING.—A revised edition of this book just out. It tells the honey-producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just an effective and economical plan for the bee-keeper who works for profit. Price 25 cts. postpaid.

INCREASE.—Don't depend entirely upon swarming for your increase. It's too slow and uncertain. Swarthmore tells of a way in his delightful little book entitled "Increase"—a natural way, simple and safe, no labor, little trouble. Colonies formed on this plan will work like prime swarms, and store a surplus. Price 25 cts. a copy postpaid.

CELL-GETTING.—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life. Price, postpaid, 50 cts.

SWARTHMORE QUEEN-REARING TOOLS.—Complete outfits or separate parts. Write for price list.

FOR SALE BY

The A. I. Root Company

ALL BRANCHES AND AGENCIES

Fire Sale Bee and Poultry Supplies

Come or send, and save 25 to 50 per cent on slightly damaged goods. NEW LEWIS GOODS at factory prices by return freight. Golden Italian or Red-clover queens by return mail. Untested, 75c; select untested, \$1.00; tested, \$1.25; select tested, \$2.25. Full colonies in up-to-date hives, and nuclei.

H. M. Arnd, Propr. York Honey & Bee Supply Co. (Not Inc.)

Long Distance Telephone, North 1559.

191 and 193 Superior St., Chicago, Ills

"If Goods are wanted quick, send to Pouder."

Established 1889

Bee-Keepers' Supplies

Distributor of Root's Goods from the best shipping-point in the Country. My prices are at all times identical with those of The A. I. Root Company, and I can save you money by way of transportation charges.

**New Metal-spaced
Hoffman Frames
are Here in Stock**



**Headquarters for the
Danzenbaker
Hive**

**Dovetailed Hives, Section Honey-boxes,
Weed-process Comb Foundation,
Honey and Wax Extractors, Bee-smokers,
Bee-veils, Pouder Honey-jars, and,
in fact, Every Thing used by Bee-keepers.**

BEESWAX WANTED!

I pay highest market price for beeswax, delivered here, at any time, cash or trade.

Make small shipments by express; large shipments by freight.

Always be sure to attach name to package.

Catalog Free

Walter S. Pouder
513-5 Massachusetts Av., Indianapolis, Ind.

Bee = keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

Good Goods, Low Prices and Prompt Shipments

are the POINTS in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

Page & Lyon Mfg. Co., New London, Wis.

Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

BEEES AND QUEENS—Orders booked now for spring delivery.

HONEY AND WAX—We handle honey and wax. Write for particulars.

The A. I. Root Co.

Northwestern Branch,
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

DO YOU KNOW

That the sale of Dittmer's Foundation has increased so much that we were forced to double our melting capacity in order to fill orders promptly?

There is a Reason for This

It is because Dittmer's Foundation is tough, clear, and transparent, and has the natural color of beeswax.

AGENTS FOR DITTMER'S FOUNDATION:

W. D. Soper.....Jackson, Mich.
Bee and Honey Co.....Beeville, Texas
E. H. Taylor . . . Welwyn Sta., Herts, Eng.
E. Grainger & Co.....Toronto, Ont., Can.

Our warehouse is well stocked with all kinds of bee-keepers' supplies.

Beeswax always wanted.

Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trester Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.



Michigan Distributors

—FOR—

G. B. Lewis Co.'s Beeware, Dadant's Foundation.

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service.

ADVANCED BEE-VEIL. Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

A. G. Woodman Co., Grand Rapids, Mich.

Dear Sirs:—Your advanced bee-veil just arrived, and is, as advertised, the best on the market. Find enclosure for ten more veils
Platteville, Wis., April 14, 1906. N. E. FRANCE.

A. G. Woodman Co., Grand Rapids, Mich.

Beeswax Wanted.

We Manufacture

the finest, whitest, no-drip basswood **SHIPPING CASE** on the market to-day. Covers and bottoms are of **ONE PIECE**. Everything is **POLISHED** on both sides, and a better case can not be had at any price. We can furnish them in single or carload lots to fit any number or style of section. Large quantities of all the standard sizes on hand. . . . As a special offer we will sell you 25 cases to hold 24 sections, complete with **NAILS, PAPER, and GLASS** at \$4 00. Write for prices on larger quantities. Furnish corrugated paper if desired. We can furnish you with any thing you need in the apiary. Our catalog is free. . . . **PROMPT SHIPMENT and SATISFACTION GUARANTEED.**

Minnesota Bee-supply Company

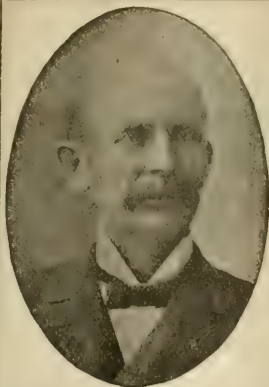
Nicollet Island, No. 20, Minneapolis, Minnesota

Bee Supplies. Lewis' Goods at Factory Prices.

Best of everything the bee-keeper needs. Large and complete stock. Fine Italian and Caucasian queens. Prompt service. Catalog free. Get our prices before ordering.

C. M. Scott & Co., Indianapolis, Indiana

1004 East Washington Street



Established 1881

YES!

Same Place 1906

THIS IS THE MAN

WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year.

Geo. E. Hilton, - Fremont, Mich.

BINGHAM
Original
Direct Draft
CLEAN
BeeSmokers



Pat'd 1878, '82, '92 & 1903

Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

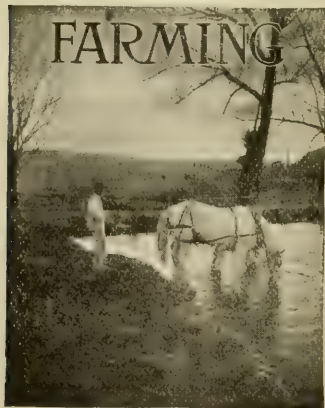
We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and last; don't spit fire; don't go out; don't daub themselves all over. We are the most extensive exclusively bee-smoker makers in the world.

T. F. Bingham - Farwell, Mich.

Chico, California, October 28th, 1905.

Dear Mr. Bingham:- Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.

J. M. RANKIN.



A Delightful Combination

GLEANINGS IN BEE CULTURE, \$1.00 per year.
FARMING MAGAZINE, \$1.00 per year.

PRICE FOR THE TWO, \$1.50.

*Nothing need be said about GLEANINGS. It is the best publication of its class in the world; semi-monthly, 72 to 80 pages, fully illustrated.

†FARMING is a new publication—a beautiful journal for the man who produces from the soil. It is edited and published by the Doubleday-Page Co., the people who edit *Country Life*, *World's Work*, and the *Garden Magazine*, a sufficient guarantee of its merit. Larger than GLEANINGS—fully illustrated. Published monthly.

THIS OFFER IS GOOD, EITHER FOR NEW GLEANINGS SUBSCRIPTIONS OR RENEWALS, BUT MUST BE TAKEN ADVANTAGE OF WITHOUT DELAY.

WE CAN ACCEPT SUBSCRIPTIONS FOR THIS COMBINATION AT THIS SPECIAL RATE ONLY WHEN SENT DIRECT TO THE PUBLISHERS OF GLEANINGS,

The A. I. Root Company, Medina, Ohio.

*Sample copies of either publication will be sent upon request.

†Publications will be sent to two different addresses if desired.

TO SOUTH DAKOTA

The Land of Bread and Butter.

South Dakota is long on wealth and short on people.

Today it presents the best opportunities in America for those who want to get ahead on the Highway to Independence. More than 47,000,000 bushels of corn, more than 47,000,000 bushels of wheat, live stock to the value of \$41,000,000, hay to the value of \$12,000,000, and products of the mines above \$12,000,000, were some of the returns from South Dakota for 1905. With a population of only 450,000, and the annual production of new wealth above \$166,000,000, it can be readily understood why South Dakota people are prosperous and happy. The outlook for 1906 crops is the best South Dakota has ever known.

Why don't you go there and investigate the openings along the new lines of this railway for yourself?

From Chicago, and from many other points in Illinois, Minnesota, Iowa, and Missouri, direct service to South Dakota is offered via the

Chicago, Milwaukee & St. Paul Railway

Its main lines and branch lines fairly gridiron the rich agricultural and stock country of South Dakota. Its mileage in South Dakota is more than 1,200 miles, and by the building of extensions is being rapidly increased.

A NEW LINE IS NOW BEING BUILT from Chamberlain, S. D., to Rapid City, S. D., through Lyman, Stanley, and Pennington Counties. Some of the best opportunities for success are along these new lines. The railway company has no farm lands for sale or rent. If you are interested, it is worth while to write today for a new book on South Dakota. It will be sent free by return mail.

F. A. MILLER, General Passenger Agent,
CHICAGO.

FAIRS

Why not make the fairs you attend profitable as well as instructive? Make a good honey exhibit and secure awards. Then use your time to advantage soliciting subscriptions to **Gleanings in Bee Culture**.

Gleanings makes very liberal inducements in regular commissions besides large cash prizes. This matter is worth looking into.

County and State Fair Contest

Prizes, \$10, \$5, \$3, \$2.

To induce bee-keepers generally to enter our Fair Contest we make the following very liberal prizes over and above the regular commissions earned. For the party sending the largest list of subscribers, \$10; for the second largest, \$5; for third largest list, \$3; for the fourth largest list, \$2; fifth to tenth, a cloth-bound copy of the A B C of Bee Culture. Subject to the following

CONDITIONS

First.—That subscriptions entered in contest are obtained at the fair on dates named in application below, or obtained as results of work during fair.

Second.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, 6 mos.) are equivalent to one year's subscription.

Third.—That contest closes Nov. 15th, and announcement will be made in Dec. 1st GLEANINGS.

Fourth.—That only one agent will be appointed for any one fair.

Fifth.—That advertising matter sent is to be carefully distributed to best advantage.

CUT HERE

Date.....

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Fair Contest Department.

Please send agents' terms and enter my name as contestant in Fair Contest. Send to my address, at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions, and agree to them.

Date of Fair..... Name.....

Name of Fair..... P. O.....

I can use.....sample copies of Gleanings.

State.....

BANKING BY MAIL

Depositors in all parts of the country find our method of sending deposits by mail satisfactory in every way, for the reason that they not only receive

4 PER CENT INTEREST

but they obtain the greatest safety by having their money in the care of a responsible and safe banking institution.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system. Write for the booklet to-day.

THE SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

BEE-KEEPERS OF NORTHERN NEW YORK

Buy your shipping-cases, etc., of

A. H. Reeves, Perch River, Jefferson Co., N. Y.

and save freight charges, and time. A complete stock on hand ready for shipment. Comb honey wanted in no-drip cases; also beeswax. . . .

PENNSYLVANIA

Ours is the largest bee-supply house in the western half of the State. Every thing which the bee-keeper will need is in stock awaiting your order.

ROOT'S GOODS

AT ROOT'S PRICES

You can save time and expense by ordering from us.

Best shipping facilities. . .

Complete stock.

Do not put off ordering to-day what you will urgently need a little later on in the season.

Frank W. Prothero

Successor to Prothero & Arnold

Dubois, Clearfield Co., Pennsylvania

Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

CARNIOLANS our SPECIALTY

WE HAVE been breeding this wonderful race of bees for over twenty years, and during all this time we have been making very careful selections, and we now claim to have one of the best and purest races of Carniolan bees in this country.

They are very gentle, hardy, and prolific; the best of workers; they come out of winter quarters healthier and stronger in bees; they build up very rapidly in the spring, are great comb-builders, and their sealed combs are of snowy whiteness.

Also Breeders of Golden and Leather Italians

No foul brood or other bee-diseases here. Bees and queens guaranteed to arrive in good condition at your postoffice in the United States or Canada. Descriptive price list free.

PRICES.—Untested queen, 75c; six, \$3.90; doz., \$7.00. Tested, \$1.25. Best breeding, \$2.50. Best imported,

F. A. Lockhart & Co.,

\$4.00. One L.-frame nucleus, 75c; two-L.-frame nucleus, \$1.50; three-L.-frame nucleus, \$2.00. Add price of queen wanted to nucleus. Special prices quoted on large orders to dealers.

Banater Bees from Hungary

This wonderful new race of bees takes the lead over all other races, all points considered, that we have seen. The three colonies we are testing are strong in bees; do not offer to swarm; are great honey-gatherers; build snowy white combs, and are very gentle; in fact, no smoke is needed to handle them. They resemble the Carniolans in color, though somewhat darker. We have never seen a race of bees with so many desirable qualities. We shall breed a limited number of queens for sale, and have started a queen-rearing apiary five miles from other bees, and expect to have laying bees ready to mail by July 15. Price \$5.00 each. Pure mating and safe arrival guaranteed.

Lake George, New York

QUEENS

By Return Mail at the Following Prices for the Balance of this Season. Golden or Leather-colored Italian.

Our folks say that your queens are extra fine.

The A. I. Root Co., Medina, Ohio

We have good reports from your stock from time to time.

George W. York & Co., Chicago, Ill.

On every hand I hear good words of Quirin's queens.

B. S. K. Bennett, Los Angeles, Cal.

Your queens did finely. It was one I purchased last year that gave me over 600 pounds of honey.

J. L. Gandy, Humboldt, Neb.

The breeder is surely a very fine one; her daughters do grandly.

Campbell & West, Hartstown, Pa.

I had a queen of your last year which produced bees that beat anything ever seen in this part of the country.

E. L. Messenger, New Haven, Conn.

The nuclei you sent J. A. Adams did just splendidly. Each colony stored at least 75 pounds of honey.

F. P. Merritt, 13 Breckenridge St., Lexington, Ky.

A few years ago I bought a queen from you which proved to be the best I had for years.

H. C. Shirley, Cashier of Liberty Bank, Liberty, S. C.

I have had the pleasure of seeing the results of your queens at Mr. George W. Stanley's apiary, at Scuffletown, Ky., and that is why I am ordering this half-dozen.

C. W. Brenner, Newburg, Ind.

I bought a queen from a neighbor last year who said he got her from you. She made me 193 sections of honey after July 4th—the best my other queens did was 64 sections.

C. E. Woodington, St. Anne, Ill.

With great respect I write to you in regard to your dealing and queens. If you want any references you can refer to me, as I can't recommend you too highly. Your queens are the best I ever saw. I have one hive of bees among my 45 colonies containing a queen from you that \$50.00 will not buy.

Morris Coon, Route 2, Locke, N. Y.

The two-frame nucleus you sent me was put in a hive May 25th. In July I brushed a swarm; had a swarm in August, and took off 75 boxes of honey. I consider this a wonderful record. I had four nuclei from different parts of the country, and yours was far superior to any of them. They are very gentle, easy to handle, hustlers to work. All bees and queens needed by me will hereafter come from Quirin-the-queen-breeder, Bellevue, O.

S. A. Peck, Box 124, Northumberland, Pa.

	1	6	12
Select queens	75	\$4 00	\$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	
Straight five-band breeders ..	5 00		

Safe delivery and satisfaction guaranteed of all queens. Any queen not satisfactory may be returned any time inside of sixty days and another will be sent gratis.

Address all Orders to

Quirin-the-Queen-Breeder
Bellevue, Ohio.

Banat Bees!

The best and gentlest bees known. Bred them four years. Imported queens, \$4.00 each, or \$36.00 per dozen. I will go over there for the queens in August. Send for circular.

L. A. Lawmaster & Sons,

Route 5, Upper Sandusky, Ohio.

H. C. Simpson, Catawba, S. C.

Dealer in

BEE-KEEPERS' SUPPLIES!

Breeder of Italian bees and queens.
Root's Goods a specialty.

Did you Ever

figure the difference in value between a good queen and a poor one?—one colony which brings in a large surplus, and another which, although you spend much more time on it, does not give you any?

Extra Honey Queens

give the best results for the least labor, and are therefore a good investment.

Prices

One.....\$1.00 Six\$5.00 Twelve ..\$9.00

Francis J. Colahan

Bernardo, San Diego Co., Calif.

When a Thing Needs Doing

NOW is the time to do it. How about those worthless queens? Will you tolerate them for another season, when the best of stock can be obtained so readily? Laws' bees and queens are bringing the best of reports. I could fill many pages of testimonials, but give you only one. Mr. T. P. Robinson, of Bartlett, Texas, says:

"Dear Sir.—The car of bees shipped June 20th are now all safely landed, and I have overhauled the entire lot. The bees are from 25 to 40 per cent better than contract, and you ought to hear my wife's exclamations of delight at seeing those fine yellow bees so quietly nestle between the combs at the very approach of smoke. I can certainly recommend you."

Leather and Golden Italians, Holy Lands, and Carniolands—single queen, \$1.00; six for \$5.00. Quantity lots, prices on application.

I also manufacture the Hoffman frames, both new and old style, at \$16.00 per M; single-story eight frame hive complete, 75c; 1½-story for extractor, \$1.00. Price list on application.

W. H. Laws, Beeville, Bee Co., Tex.

Caucasian - and - Italian Bees and Queens

Mr. Walter S. Pouder, Indianapolis, Ind., June 30, 1906, writes: "Friend T., queen arrived to day in good condition. I consider her a very choice specimen of the Caucasian."

Mr. Frank G. Odell, Lincoln, Neb., writes: "The yellow Caucasian queen you sent us is an unusually fine queen and very prolific. We are very much pleased with her."

I can send such queens for \$3.00 each by return mail. Send for circular and price list.

A. E. Titoff, Ioamosa, Calif.

Quality Queens

Are the Best Italians yet.

Send for circular. ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀

H. H. JEPSON,

182 Friend St., - Boston, Mass.

Italian and Caucasian QUEENS

A special discount is now offered on all queens and bees to be delivered before the close of the season of 1906. Pure stock, pure mating, and excellence of grade guaranteed. Address

Robert B. McCain, R. F. D., Yorkville, Ills.

COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.

Superior Queens!!!!

(Before June 15) (After June 15)

Italian and Carniolan

Untested.....	75c; \$8.00 per doz.	60c; \$6.50 per doz.
Tested.....	\$1.00; 11.00 per doz.	75c; 8 00 per doz.
Select Tested...	1.25; 12.00 per doz.	1.00; 11.00 per doz.

Caucasian

Untested.....	\$1.00; \$11.00 per doz.	75c; \$8.00 per doz.
Tested.....	1.50; 16.00 per doz.	1.00; 11.00 per doz.
Select Tested...	2.00; 20.00 per doz.	1.25; 12.00 per doz.

Write me a postal card for my circular.

Chas. Koeppen, Fredericksburg, Virginia

MOORE'S - STRAIN - OF - ITALIANS

as Red-clover Workers.

L. C. Medkiff, Salem, N. J., says: "I bought an untested queen of you last year, and her bees have filled three comb-honey supers, and did not swarm, while thirteen out of the fifteen other colonies did not get more than half that amount.

"I have queens from six different breeders, and I class yours 100 per cent above them all. Your bees worked very strong on the first crop of red clover. I know they were yours, because I floured them with a dredge-box and watched the hive. They also worked strong on the second crop of red-clover and lima-bean blossoms."

Untested queens, 75c each; six, \$4.00; dozen, \$7.50.

Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00.

Safe arrival and satisfaction guaranteed. Descriptive circular free.

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Ky.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them."

MALAN BROTHERS, Luserna, San Giovanni, Italy.

Queens - Italian - Queens

and bees from Root's Red-clover stock and Golden Italian queens. Better than ever.

Untested.....60c each; six, \$3.50

Select untested.....75c " " 4.00

Tested.....\$1.00 " " 5.00

Select tested.....1.25 " " 6.00

Two-frame nuclei with untested queen..2.00

Orders filled in rotation. . Send orders to

E. A. Simmons, Greenville, Ala.

ITALIAN QUEENS

bred from best of honey-gatherers, either three or five banded or Golden races. Untested, 65c each, 3 for \$2.00, 6 for \$3.75, 12 for 7.25; tested, \$1.00 each, 6 for \$5.00, 12 for \$9.00; select tested, \$1.50 each; breeders, \$300 each.

J. W. Taylor, Beeville, Bee Co., Texas

Orders Filled Promptly by Return Mail

Queens from our fine strain of three-band Italians will not disappoint you. Bees are gentle, and the best of honey-gatherers. Queens are large and prolific, and every one guaranteed. Untested, 50c; \$6.00 per dozen. Tested, \$1.00.

J. W. H. SHAW & CO.

Loreauville, Iberia Par., Louisiana

Rose Lawn Queens.

Italians - Carniolans - Caucasians.

We thank our friends for the liberal patronage extended to us, and beg to announce that we are prepared to fill orders promptly after July 1.

Our prize offer on honey production still stands, and will be extended to October 1 for those who wish our "Pure Gold" queens.

We call special attention to our Red Clover Italians and Yellow Caucasians, which are worthy the attention of any progressive bee-keeper.

Prices after July 1:

Italians and Carniolans, select, untested, 75c; six, \$4.00

Caucasians, select, untested, \$1.00, six, \$5.00.

Special prices on larger orders and breeding stock on application. Write for catalog.

Rose Lawn Apiaries, Station C, Lincoln, Nebr.

The Best Stock

Nice three-banded Italians that are guaranteed to please, or money refunded. The Robey queens now go to nearly all parts of the globe. They are being used by many of the largest honey-producers of this and other countries, who pronounce them to be very superior strain of bees. I have spent 21 years in building up this strain of bees. Warranted purely mated, in any quantity, 60 cts. each; selected warranted, 75 cts. each.

L. H. Robey, Worthington, W. Va.

Untested Queens!

Golden Italian

75 cts. each; six for \$4.00; an extra fine one for \$1.00. Warranted purely mated and good queens. . . .

J. B. Case, Port Orange, Fla.

Red-clover Queens from Westwood Apiary

will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.

Henry Shaffer Westwood, Ohio

From Long-tongued Imported Italians.

Untested, 75c; \$7.50 per dozen. Tested, \$1.25;

\$12.00 per dozen. Breeders, \$2.00 to \$3.00.

Postal orders drawn on Decatur, Michigan.

E. E. MOTT, Glenwood, Mich.

MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, 75c; six, \$4.00; twelve,

\$7.50. Tested, \$1.25; six, \$6.00. Twelve, \$11.00.

Best breeders, \$2.50. Safe arrival guaranteed.

W. H. Rails, - - - Orange, Calif.

Red Clover and Italian Queens.



Untested, 65 cents; tested, \$1.00. Select tested, \$1.25; 4-frame nuclei in a nice painted hive, and tested queen, all for \$3.75. "Your bees are swarming on my red clover fields," says G. W. Slaybaugh, York Springs, Pa.

G. ROUTZAHN, Biglerville, Pa.

1906 Italian and Caucasian Queens. Price list now ready. Write E. E. LAWRENCE, Doniphan, Mo.

BEES and QUEENS

BY RETURN MAIL.

**The Three-banded
Long-tongued Strain
of Italians.**

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

Superior Qualities.

Honey-gathering, size of bees, non-swarmling, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price

Quality Our Motto.

1300 colonies to select from.

Untested queens.....	75c; 6,	\$4.25; 12,	8.00
Select untested queens.....	1.00; 6,	5.00; 12,	9.90
Tested queens.....	1.00; 6,	6.00; 12,	11.50
Select tested queens.....	1.50.		
Breeding queens,	\$3.00 to \$5.00.		

Yours for best service,

**The Victor-Knolle Apiary Co.,
Hondo, Texas.**

Golden Queens.

My goldens are yellow from tip to tip. Every queen is worth a dollar, but I have a large number of them and offer them cheap. One, 65 cts.; 3 for \$1.95; 6 for \$3.75; 12 for \$7.50. No finer or better queens can be had at any price. They are reared right. Have had 35 years' experience in rearing queens. I insure satisfaction in every particular. Try at least one of my all-golden queens, and see how promptly I can serve you. Send for circular. It's free.

Daniel Wurth, 1111 North Smith St., San Antonio, Texas

Boston Headquarters

— FOR —

Bees-Queens-Supplies

H. H. Jepson - 182 Friend St.

Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:

Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

H. M. PARKER, Jr.

James Island, South Carolina

Same Old Place

is where you get the best of queens; untested. \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

Golden-All-Over

ITALIAN - QUEENS

I have a few choice untested Golden-all-over Italian queens, reared from Pratt stock, by Pratt's methods, and will be able to supply a limited demand for balance of the season at \$1.25 each.

Wm. A. Shuff, Philadelphia, Pa.
4426 Osage Ave.

Queens-Italian-Queens

Bred from the old reliable 3-band stock. Great honey-gatherers, gentle to handle, and not inclined to swarm. Prices for the balance of season, 60c each; \$6.00 per doz. Selected untested, 75c each; \$7.00 per doz. Tested, \$1.00 each; one-half dozen, \$5.00. Address all orders to

W. J. FOREHAND, - Ft. Deposit, Ala.

SUPERIOR STOCK.

I make a specialty of long-tongued Italian red-clover honey-queens. Untested queen, 75 cts. each; ½ doz., \$3.00; tested, \$1.00; ½ doz., \$5.00. Bees for business is my motto.

FRED. LEININGER, Ft. Jennings, O.

Yellow from Tip to Tip!!!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce golden queens and beautiful bees; non-swarmlers, very gentle, and hustlers for honey. Each queen, \$1. Catalog ready.

H. ALLEY, - - Wenham, Mass.

MINNESOTA-BRED QUEENS.



Try our Northern-bred queens—nothing finer; three-banded and golden Italian queens, untested, 75 cts.; tested, \$1.50. Hardy and prolific. We want your orders, and will fill them by return mail, and guarantee safe arrival and satisfaction. Write for circular to

MENNIE & FENTON,
Pine Island - Minnesota.

I. J. STRINGHAM

OF 105 PARK PLACE

New York

furnishes every thing a bee-keeper uses. Strong colony of bees, with tested Italian queen, in Dov'd hive complete, \$8.00; in a chaff hive, \$9.50. Three-frame nucleus, with Italian queen, \$4.00. Silk-faced bee-veil, 40 cts. postpaid. Italian queens, 85 cts. Catalog of bee-supplies free.

Apiaries, Glen Cove, Long Island.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Bee supplies in exchange for 300 colonies of bees. See ad. elsewhere. Manufacturers write me if interested. LEO F. HANEGAN, Glenwood, Wis.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—Ten bushels alsike clover-seed or a good mixture of alsike and timothy. No mustard or other noxious seeds wanted. Give price and quality.
HENRY STEWART, Prophetstown, Ill.

WANTED.—To exchange a paid-up scholarship in the electrical department of Scranton Correspondence School (I. S. C.) with drafting outfit, for bees, supplies, hives, etc.
W. D. K. DEUEL,
323 Adam St., Tonawanda, N. Y.

WANTED.—Utah, Nevada, and California honey. We are now contracting with bee-keepers for our year's supply, small lots as well as carload lots. We pay cash, or, to all who prefer bee-supplies in payment, we give extremely low figures. We have the agency for The A. I. Root Co.'s goods in Utah, and buy by the carload.
SUPERIOR HONEY CO.,
F. W. Redfield, Mgr. Ogden, Utah.

Help Wanted.

WANTED.—A cook in a private family of three. Good home for respectable woman. Good wages paid. Address JOHN RICK,
434 Oley St., Reading, Pa.

For Sale.

FOR SALE.—400 cols. pure Italian bees in lots to suit. Write for prices. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Bees and bee-supplies.
J. GOBELI, Glenwood, St. Croix Co., Wis.

FOR SALE.—Untested Italian queens at 60c; two for \$1.00; tested, \$1.00 each.
MRS. J. W. BACON,
Waterloo, Seneca Co., N. Y.

FOR SALE.—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog. F. R. DANIELS,
117 Florence St., Springfield, Mass.

FOR SALE.—My apiary complete in the great irrigated alfalfa belt; no failure yet. See GLEANINGS of Dec. 15, 1903, page 1051.
C. K. C., Lovelock, Nev.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE. 275 colonies of bees in good condition. Also can locate you on first-class homestead claim under Gunnison tunnel, one of Uncle Sam's biggest reclamation projects. Address Box 782, Montrose, Col.

FOR SALE.—170 colonies of bees in eight and ten frame hives; four-house on wagon, uncapping-tank, honey-tank, four-frame extractor; mare, colt, horse, cow, 200 chickens, 10 acres of land with improvements.
Rt. 3. Mrs. T. HARRIS Visalia, Cal.

FOR SALE.—First-class second-hand 5-gallon honey-cans, two in the case OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—One dollar pays for three queens, red-clover strain, balance season.
J. F. MICHAEL, Winchester, Ind.

FOR SALE.—400 acres choice citrus fruit land.
ALBERT GUNN, Céspedes, Camaguey Prov., Cuba.

FOR SALE.—Red-clover—J. P. Moore strain—mated to choice drones. Select untested, \$1.00 each, six for \$5.00.
WALTER M. PARRISH, Lawrence, Kan.

FOR SALE.—\$200 will buy 100 full colonies and 10 nuclei, strong; Italians and hybrids.
G. P. HOWELL 6101 Dauphine St., New Orleans, La.

FOR SALE.—Queens. I breed a superior strain of fine golden-all-over Italians. Ask for prices.
T. L. McMURRAY, Ravenswood, W. Va.

FOR SALE.—Special sale of sections—Wisconsin basswood—equal to the best, No. 1, \$4.20; No. 2, \$3.70. Root Dovetailed and Danz. comb-honey hives, and all kinds of supplies on hand. Italian queens and bees.
H. S. DUBY, St. Anne, Ills.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season.
W. N. CANNON, Greenville, Ala.

FOR SALE. Or trade, a power blacksmith-shop, five-room dwelling, and other out-buildings, in a good locality for a good smith; all shop-tools and stock included.
I. S. SONAFRANK, McGrawsville, Ind.

FOR SALE.—One No. 15 two frame Cowan honey-extractor for \$9.00; one Dadant uncapping-can, \$7.50—used very little and good as new; 50 full colonies of Italian bees in ten-frame Root hives at \$4.00 each.
EARL BAKER, 2467 Auburn Av., Sta. B, Toledo, O.

FOR SALE.—600 stands of bees in first-class shape for comb honey, in four yards, two to four miles from town; good house at each yard; in sweet-clover and alfalfa belt; no failure in seven years, and under big Gunnison Tunnel project. Reason for selling, poor health.
Address Box 772, Montrose, Colo.

FOR SALE.—A 15-acre fruit-farm close to a county-seat town of 4000 inhabitants; one acre each of strawberries, raspberries, blackberries, and grapes; 130 cherry, 200 plum, 400 peach trees in bearing; good improvements and good schools. An ideal place for a fruit-grower and bee-keeper. Plenty of white clover. For further particulars address
L. C. CLARK, Hiawatha, Brown Co., Kan.

Poultry Offers.

FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free.
A. H. DUFF, Larned, Kansas.

FOR SALE.—Alger's rose-comb Brown Leghorns hold the world's record; first at Chicago International, St. Louis World's Fair, exposition at Portland, Oregon. Italian bees—Root strain direct Flemish Giant hares, very large. Red Belgians from 16-lb. buck. Get circulars.
FRED ALGER, Waukau, Wis.

KEEP YOUR EGGS

all summer while prices are low, and sell next winter at a good profit. Write for our plan; it will interest you.
T. T. POULTRY CO., Springfield, Ohio.

GET RID OF LICE.

For 25 cts. we send formula that never fails to exterminate lice. Costs less than 8c per lb. to make. Guaranteed. Used by many leading poultrymen.
T. T. POULTRY CO., Springfield, Ohio.

HONEY - JARS!

A neat package is a great help to the sale of your extracted honey. A glass jar is the favorite for many markets. Some retail trade demands one style and some another. We can supply you with what you want.

Simplex Honey-jars

This is a new jar with glass screw-top and rubber gasket fitted to the taper screw on jar, which seals absolutely airtight. We consider it the handsomest jar we sell for one pound of honey. Your honey in these jars is sure to attract attention and have a ready sale in any grocery.

We are now prepared to offer Simplex jars in partitioned cases of two dozen each, ready to reship, when filled, at \$1.00 per case; ten-case lots or over, at 95 cts.; fifty-case lots at 90 cts. We can ship either from Medina, Chicago, New York, Philadelphia, and, after Sept. 1, from Mechanic Falls, Me.

No. 25 Jars

This is our standard jar—holding one pound of honey. We have sold this jar for years, and in larger quantities than any other honey-package we ever handled. It has opal cap with rubber ring and tin screw rim. Put up in re shipping-cases of two dozen. Prices same as Simplex jars quoted above.

Tip-top Honey-jars

This is a new-style jar sealed with a rubber ring under rim of a glass top held securely with spring-top fastener. This fastener is applied to a great variety of bottles and jars used for different purposes. We have selected two styles among them all as being most suitable for honey. The one and two pound square jars may be had with spring top fastening instead of cork at 75c per gross extra. We furnish in two sizes. Half-pound, 45c per dozen; gross, \$4.50. One-pound, 50c per dozen; gross, \$5.00.

Tumblers

There seems to be an increasing demand for a cheap tumbler to put up a

half-pound of honey to retail at 10 cts. We have secured a stock of such tumblers at a price which enables us to offer them at \$4.00 per barrel of 24 dozen. This is less than 1½ cts. apiece. For less than barrel lots we can not repack them for less than 25 cts. a dozen; or we will put them up 4 dozen to the case with partitions ready to reship when filled, at \$1.00 a case; 10-case lots at 95c.

Mason Fruit-jars

These are very largely used for canning fruit, and are often used for honey as well. As we buy them by the carload, we can make the following prices at Medina, all put up complete with porcelain-lined caps and rubbers, in cases of one dozen:

SIZE	Doz.	6 doz	12 doz.
Pint	\$ 52	\$3 00	\$5 75
Quart	55	3 10	6 00
½-gallon	75	4 10	8 00

Triumph wrench for Mason caps, 15c each; by mail, 25 cts.

Ball's waxed rings, better than rubbers, 5c dozen; postage 3c.

Sample Mailing-blocks

Price each, 6c; by mail, 8c.

These are small wide-mouthed glass bottles, which hold ½ oz., with cork, put up in a mailing-block, with top which screws on and is easily removed.

Honey-labels

We print them in large and small lots; over fifty styles. Write for sample-book and prices.

Prompt Shipment

All of our branches and agents are well supplied. Write the one nearest you.

The A. I. Root Company

Medina, Ohio, U. S. A.

Chicago, Ill.

Philadelphia, Pa.

New York City

Syracuse, N. Y.

Mechanic Fs., Me.

St. Paul, Minn.

Washington, D. C.

Havana, Cuba

Kingston, Jamaica

PATENTS.

Twenty-five Years' Practice.

PRINDLE & WILLIAMSON,

Patent practice in Patent Office and Courts.
Second National Bank Bldg., Washington, D. C.
Patent counsel of The A. I. Root Co.

Mexican Palm-leaf Hat, 50 c.



Hand-woven by Mexicans in Mexico, from palm fiber; double weave, durable, and light weight, with colored design in brim. It retails at \$1.00; sent postpaid for 50 c. to introduce our Mexican hats and drawn-work. Same hat plain, 40 c.; both for 75 c. Large, medium, and small sizes. Fine for fishing, camping, seashore, and gardening. Hat booklet free.
The Francis E. Lester Co., Dept. A A, Mesilla Park, N. M.



Fruit Driers, Evaporators.

Prices from \$3.50 up.
You can save all your fruit, berries, sweet corn, etc., and are a first-class kitchen safe for keeping pies, cakes, etc. Address D. STUTZMAN, Ligonier, Ind.

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.,
Ashland, Ohio.



ASHLAND
PUMP AND
HAY TOOL
WORKS

No. 602 Bee-keepers' Pocket-Knife Tool Kit.

Made in America

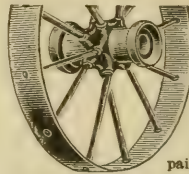
Every one has use for a Knife, Reamer, File, Saw, Chisel, or Screwdriver. This outfit is practical, yet so small, being contained in a Leather Pocket-Book 4 1/4 x 3 1/4 inches, is, by carrying it in your pocket, always at hand for immediate use, whether Camping, Boating, Teaming, Driving, in the Shop, Factory, Office Store Warehouse, Automobile, on the Farm, Bicycle, or around the Home.

Any Tool firmly attached or detached to the Pocket-Knife in a second.

Sent postpaid on receipt of price, \$2.25.

Use it five days and if not satisfactory return it and I will refund your money.

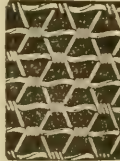
U. J. ULERY CO., No. 7 Warren St., New York, N. Y.



STEEL WHEELS

with wide tires double the usefulness of the farm wagon. We furnish them any size to fit any axle. Cheaper than repairing old wheels. Catalogue free.

EMPIRE MFG. CO., Box 91A Quincy, Ill.



FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today.

COILED SPRING FENCE CO.
Box 101 WINCHESTER, INDIANA.



THE "BEST" LIGHT

Portable 100-Candle Power light. Every lamp warranted. The most brilliant, economical light made. No grease, dirt, odor or smoke.

AGENTS WANTED EVERYWHERE.

THE BEST LIGHT COMPANY,
306 E. 5th St., Canton, O.

You Need It.

- If you have only a few chickens;
- If you are at all interested in poultry;
- If you are breeding for fancy points;
- If you cater to the market trade;
- If you are in the business on large scale, you need

Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. a **AT HALF PRICE** year, but we offer it to readers of Gleanings. Send only 25 cts. and get it a year; or, if you send us \$1 for a year's subscription to Gleanings in Bee Culture, we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.

\$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size 8x11 1/4 inches) of valuable poultry, pigeon, and pet-stock reading, costing us thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

Poultry Item, Sellersville, Bucks Co., Pennsylvania

DO YOU RAISE CHICKENS?

If so, you will find The Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cts. a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

TO THE BEE-KEEPERS OF CANADA

WE ARE pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we are not able to offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers. Moreover, what we do list we propose to keep in large quantities, and will be able to ship promptly.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY

Deer Park

Toronto - Ontario - Canada

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

BEE-KEEPERS!

Have you secured your hives, sections, foundation, honey-cans, and extractors yet? If not, you should not put it off any longer. Be prepared when the flow comes on. Let us assist you. We carry the largest stock of goods in the Middle West. The low freight rates from

Toledo

will save you money. We will buy your honey and beeswax, and pay highest market price. It will pay you to correspond with us when your crop is ready to market. No shipment is too large for us. Carloads a specialty.

Queens! Queens!

We have a yard at Toledo with 100 colonies and over, which we use for queen-rearing only; besides several out-yards which we run for honey, also for extra bees and brood, and queens are mailed same day order is received.

Our 70-page Catalog

is sent free to any one asking for it. No matter whether you keep one colony or five hundred. We also handle a large line of poultry supplies, and sell eggs for hatching. Our 1906 mailing list is sent with every catalog. Don't buy until you have seen it.

Griggs Brothers

523 Monroe St. : Toledo, Ohio

CENTRAL AND NORTHERN PENNSYLVANIA

Distributor of Root's Goods from the
Best Shipping - point in this State.
WHOLESALE - AND - RETAIL

I sell at catalog prices, and, with the low low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also rear Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

E. E. PRESSLER, WILLIAMSPORT, PENN.

The Best ^{is} Always The Cheapest

We have been furnishing bee-keepers all over the World with Supplies for over 25 YEARS, and no complaints.

Our PRICES are as low as any, while the QUALITY of our goods is HIGHEST. Catalog and price list free. We have for 16 years published THE AMERICAN BEE KEEPER, an illustrated 32-page monthly, edited by two of the most experienced bee-keepers in America. Fifty cents a year. Sample copy free.

The W. T. Falconer Mfg. Co., Jamestown, N. Y.

NORTHEASTERN & NEW ENGLAND BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

NOW is the TIME!

to improve your stock by purchasing some of our Red Clover and Leather-color Italian queens. All of our queens are bred for their honey-gathering qualities, and you'll find them prolific and gentle.

Prices for July			
	1	6	12
Untested	\$.65	\$3.75	\$7.00
Select Untested	.90	4.75	9.00
Warranted Purely Mated.....	.75	4.25	8.00
Select Warranted.....	1.00	5.25	10.00
Tested 1906 Queens.....	1.25	7.00	
Select Tested	1.50	8.50	
Extra Select Tested.....	2.00	11.00	

All orders accompanied with cash are booked and filled in rotation. Safe arrival by mail guaranteed. Send for price list of bees and supplies.

W. W. Cary & Son, Lyonsville, Mass.

Dadant's Foundation It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!
No sagging; no loss.
Twenty-eighth Year.
We Guarantee Satisfaction.
Wax Worked into Foundation.

Bee-supplies of All Kinds

Beeswax wanted at all times.
Send for Our 1906 Catalog.

Dadant & Sons, Hamilton, Ill.

New Goods-Big Stock

New Warehouse, Root's Goods,
Prompt Shipment, Low Freight.

Everything for the Bee-keeper at Savannah, Ga.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. . . .

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog sent free. Correspondence solicited. .

HOWKINS & RUSH

124 West Liberty Street

SAVANNAH - - GEORGIA

GLEANINGS IN BEE CULTURE

VOL. 34

AUGUST 15, 1906

NO. 16



A. I. Root, Demonstrating Caucasians at the Jenkintown Field Day, June 26th.

THE A.I. ROOT CO.,
MEDINA — OHIO

Washington, D. C.

A convenient place to get your supplies. Lowest rate by rail and water to all parts of Virginia and South Atlantic States.

We carry a full line of our goods at this branch, and give you prompt and satisfactory service. Give us a trial.

Write for catalog.

The A. I. Root Company

H. G. La Rue. . . Manager
1100 Maryland Av., S. W.
Washington, D. C.

Bee-Supplies

For Southern

Bee-Keepers

I have been over 20 years in the bee-supply business, manufacturing hives and fixtures, and raising bees and queens. With all this experience and the excellent facilities I have, I am able to fill your orders promptly, and give absolute satisfaction. Though I make my own hives I carry a complete stock of The A. I. Root Company's manufacture. Just specify "Root's Goods" and you will get them.

Bees and Queens

I breed with scientific, intelligent methods, from the best imported and Long-tongued stock. Cheap queens may be had elsewhere. My stock is worth every cent of the price. You will be pleased with it. I GUARANTEE IT.

64-page Catalog

of Supplies and Bees sent free. Tell me you saw my ad. in GLEANINGS.

J. M. JENKINS

WETUMPKA : ALABAMA

FAIR CONTEST!

CONDITIONS

FIRST.—That subscriptions entered in contest are obtained at the fair on dates named in application below, or obtained as results of work during fair.

SECOND.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, 6 mos.) are equivalent to one year's subscription.

THIRD.—Contest closes Nov. 15th, and announcements will be made in Dec. 1st GLEANINGS.

FOURTH.—That only one agent will be appointed for any one fair.

FIFTH.—That advertising matter sent is to be carefully distributed to best advantage.

OUR agents made money at fairs last year. The work was easy, our commission liberal, and the prizes large. We supply you with sample copies and printed matter. Better make arrangements with us to represent Gleanings at your State or County Fair. Do it now before some one else gets ahead of you.

PRIZES: First \$10.00; second, \$5.00; third, \$3.00; fourth, \$2.00; fifth to tenth, a copy of A B C.

Write us, asking that your name be entered, and Fair rights be reserved for you.

Gleanings in Bee Culture, Medina, Ohio, U. S. A.

Fair Contest Department

C. H. W. Weber,

Headquarters for

Bee - Supplies.

"Root's Goods at Root's Factory Prices."

Honey Wanted.

White clover, extracted and comb. Mail sample, and state lowest price expected, delivered at Cincinnati. We pay cash on delivery.

Queens Now Ready to Supply by Return Mail.

Stock which can not be excelled. Each variety bred in separate apiaries, from separate mothers; have proved their qualities as great honey-gatherers.

Golden Italians.

Have no superior, and few equals. Untested, 75c; six, \$4.00.

Red-clover Queens.

Which left all records behind in honey-gathering. Untested, 75c; six for \$4.00.

Carniolans.

They are so highly recommended, being more gentle than all others. Untested, 75c; six for \$4.00.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Markets.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain, or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CINCINNATI.—We are receiving numerous shipments of comb honey at the present time, and find ready sale here for fancy and No. 1 at 14 to 15, in a jobbing way. This is a poor market for grades lower than No. 1. The receipts of extracted honey are normal, although the demand is not so good as it was sixty days ago. Nevertheless, there is no material change in prices. We are selling amber in barrels and cans at 5 to 6%. Fancy white at 6% to 8%. For choice beeswax, free from dirt, we are paying 30 cts. per lb. delivered here.

THE FRED W. MUTH CO.,
51 Walnut St., Cincinnati, O.

Aug. 3.

BUFFALO.—Demand for new honey is very slow; selling in a slow way to grocers who buy one case at a time. The price is higher than buyers want to pay, and are waiting, thinking it will be lower. As soon as the fall price for this year's crop is established I look for quite a good demand for white comb. Our market is not much for extracted except to the baker trade and peddlers. We quote fancy white comb 14 to 15; No. 1, 13 to 14; No. 2, 11 to 12; No. 1 dark, 11 to 12; No. 2 dark, 9 to 10. Extracted, white, 6% to 7; dark, 5% to 6. Beeswax, 28 to 30.

Aug. 8.

W. C. TOWNSEND, Buffalo, N. Y.

PHILADELPHIA.—Advices from different points are rather conflicting in regard to the honey crop this season, and consequently there is no market price established. Some new arrivals of comb honey sell at 13 to 15, according to quality, and extracted honey at 6 to 7. Beeswax, firm at 28. We are producers of honey, and do not handle on commission.

Aug. 9.

WM. A. SELSER,
10 Vine St., Phila., Pa.

BOSTON.—As usual, the demand for honey is very light; but some inquiry is being made for new crop. Prospects are looking good, and our market ranges with light supplies from 15 to 16 for strictly new fancy white, and from 5 to 8 for extracted, according to quality.

Aug. 8.

BLAKE, SCOTT & LEE,
31-33 Commercial St., Boston, Mass.

TOLEDO.—The market on comb honey remains about the same as last quotations. Very little comb honey is being received, and no stated price has yet been fixed. Bee-keepers seem to be holding their crops to find out what the price will be. We are getting in a retail way 15 and 16 for fancy white comb honey and 14 to 15 for No. 1, with not much of a demand at present. Extracted white clover in barrels is worth from 6 to 6%, cans the same. Beeswax, 26 and 28.

Aug. 7.

GRIGGS BROS.,
Toledo, Ohio.

CHICAGO.—There are now offered some good lots of comb honey; and while the trade in it is not active it is taken at 15 to 16 for fancy; 14 to 15 for No. 1; 12 to 13 for fancy amber, and 8 to 10 for fancy dark. Extracted is slow of sale, with prices according to quantity and quality. White extracted is 6% to 7%; amber, 5% to 6%; dark, 5 to 5%. Beeswax wanted at 30.

Aug. 6.

R. A. BURNETT & Co.,
199 So. Water St., Chicago, Ill.

SCHENECTADY.—The exceedingly hot weather of the past week has checked the sale of honey considerably. At present indications are that prices will range about the same as last season, possibly a little lower if buckwheat should be a large crop.

Aug. 8.

C. MACCULLOCH, Schenectady, N. Y.

KANSAS CITY.—On account of the heavy receipts of all kinds of fruit, the demand for honey, both comb and extracted, is very limited. We are quoting No. 1 fancy white in 24-section cases at \$3.00; No. 2 at \$2.75 per case. There is no new extracted in market, old selling at 5% to 6. Beeswax, 25.

Aug. 9.

C. C. CLEMONS & Co., Kansas City, Mo.

FOR SALE.—Choice extracted clover honey. Extra choice, selected from all new combs, in round-jacketed five-gallon cans, for family use; \$5.00 per can. Prices on larger quantities in 60-lb. square cans, two cans in case, on application. Sample, 5 cts.

G. A. BLEECH, Jerome, Mich.

FOR SALE.—Light extracted honey, good quality; two 60-lb. cans, 8½¢ per lb., barrel at 7½¢; amber, 60-lb. cans at 7½¢, barrel at 6¢; sample, 10¢. We pay 29¢ for beeswax. I. J. STRINGHAM, 105 Park Pl., N. Y.

FOR SALE.—Well-ripened fancy extracted clover and basswood honey in 60-lb. tin cans, two in a case, at \$10.00 a case f. o. b. here. Sample on request.

ERNEST W. FOX, Hillsboro, Wis.

FOR SALE.—100 cases extracted honey, white and light amber, at 5½¢ per pound, f. o. b. Kansas City. Will mail sample upon request.

C. C. CLEMONS & Co., Kansas City, Mo.

FOR SALE.—3000 or 4000 pounds white comb honey. R. J. SMITH, State Road, Essex Co., N. Y.

WANTED.—Comb and extracted honey. State quality, quantity, and price.

JUDSON HEARD & Co., Atlanta, Ga.

STANDARD BRED QUEENS.

BUCKEYE STRAIN RED CLOVER, GOLDEN ITALIANS

By Return Mail. Safe Arrival Guaranteed.

PRICES

	ONE	SIX	TWELVE
Untested	\$0.75	\$4.00	\$7.50
Select Untested	1.00	5.00	9.00
Tested	1.50	8.00	15.00
Select Tested	2.00	10.00	18.00

Select Breeders, each \$3.00
Two-frame Nucleus and Red Clover Queen 3.00

THE FRED W. MUTH CO.,

No. 51 WALNUT ST.,

CINCINNATI, OHIO.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.
O. L. Hershiser, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—Choice white comb and extracted honey; clover preferred.
B. WALKER, Clyde, Ills.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Well-ripened extracted basswood and clover honey, light in color; prompt payment on receipt; 7½c per lb., f. o. b. West Bend.
H. C. AHLERS, West Bend, Wis.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—To buy for cash, fancy comb and extracted honey.
ROBT. A. HOLEKAMP,
4263 Virginia Ave., St. Louis, Mo.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.
GRIGGS BROS., Toledo, O.

WANTED.—Fancy white comb and extracted honey. I pay cash—no commission.
WALTER S. POWDER, Indianapolis, Ind.

WANTED.—Beeswax. We are paying at this date for pure average beeswax delivered at Medina or any branch office named below, 27 cts. in cash or 30 cts. per lb. in exchange for bee-supplies, less transportation charges. We can not use old combs. Pack securely and address plainly. Be sure to send bill of lading when you make shipment, and advise us how much you send, net and gross weights. Ship to home office or nearest branch named below.

THE A. I. ROOT CO., Medina, Ohio.
Chicago, 144 East Erie St.; New York, 44 Vesey St.; Philadelphia, 10 Vine St.; Washington, 1100 Maryland Ave., S. W.

WANTED.—A case of two 60-lb. cans of extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure about sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.
THE A. I. ROOT CO., Medina, O.

POULTRY DOLLARS COME EASY.

Our large 52 to 112 page beautifully illustrated magazine, best printed and edited poultry journal, makes it easy to add dollars to your income by keeping a few hens on a town lot or make a success on a large scale, covers every thing. Contains information that will put you in comfortable circumstances if followed. **POULTRY SUCCESS** one year, 50 cts. Large illustrated poultry book free to annual subscribers. Three months' trial, 10 cts.
POULTRY SUCCESS CO., Springfield, Ohio.

GET RID OF LICE.

For 25 cts. we send formula that never fails to exterminate lice. Costs less than 8c per lb. to make. Guaranteed. Used by many leading poultrymen.
T. T. POULTRY CO., Springfield, Ohio.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

A GOLD MEDAL

at the World's Fair,
St. Louis, 1904.



**UP-TO-DATE,
STRONGEST,
COOLEST,
CLEANEST.**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

N. E. FRANCE, Platteville, Wis.

SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker." GRANT STANLEY, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

F. DANZENBAKER, MIAMI, FLORIDA

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it six months on trial. Sample free.

The Southern Fruit Grower, Box 1, Chattanooga, Tenn

EVANS & TURNER, Columbus, Ohio,

will be in the market for white comb honey, and especially want some fine stock from Wisconsin, Michigan, Indiana, and New York. They would also like to hear from Iowa producers. Write fully what you expect to have; and if you care to name price, do so, stating about what time your crop will be ready to move.

Chas. Israel & Brothers 486-490 Canal St., New York.

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments Solicited. Established 1875.

H. C. Simpson, Catawba, S. C.

Dealer in

BEE - KEEPERS' SUPPLIES!

Breeder of Italian bees and queens.
Root's Goods a specialty.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

E. R. ROOT
Editor

A. I. ROOT
Editor Home Departments

H. H. ROOT
Asst. Editor

Department Editors:
DR. C. C. MILLER, **J. A. GREEN,** **PROF. A. J. COOK,** **J. E. CRANE,**
LOUIS H. SCHOLL, **G. M. DOOLITTLE,** **W. P. ROOT.**

J. T. CALVERT, Business Manager

A. L. BOYDEN, Advertising Manager

Circulation 30,000. Reaches every State and 60 foreign countries.
 Established in 1873. Sixty-four pages. Semi-monthly.
 Published by The A. I. Root Company, Medina, Ohio, U. S. A.

Terms---\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.

Postage is Prepaid by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS., 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 6/.*

Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publisher.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
 Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY.....STATE.....

DATE.....

If you want Gleanings discontinued at expiration, check here ()

RASPBERRY HONEY!

I have produced a crop of extracted honey from the wild red raspberry of Northern Michigan. It would be an easy matter to send this entire crop in a lump to some dealer, but I prefer to give each of my friends an opportunity of supplying his table with this truly delicious honey—a honey with a flavor all its own—a flavor that smacks of the wild raspberry of the forest.

The honey is put up in 60-pound cans, two in a case, and a single case (120 pounds) will be sold at 8½ cents a pound (\$10.20 for a case) and larger orders will be

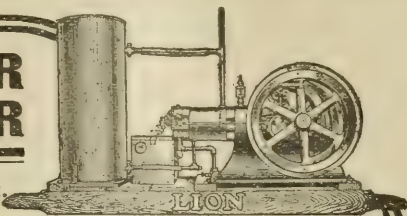
filled at 8 cents a pound (\$9.60 a case) but not less than that, even though the whole crop should be taken.

If you prefer to taste the honey before ordering, drop me a postal, and I'll mail you a generous sample—enough so that the neighbors, too, can have a taste, and perhaps will wish to join you in ordering a case, if you should not care to take that much yourself.

W. Z. HUTCHINSON, Flint, Michigan.

A READY POWER AT ANY HOUR

That's the kind of a power you want. You do not have to wait for steam, or until the wind blows, before you can pump water, grind feed, saw wood or the hundred and one other jobs about the farm, if you have a **Lion Gas or Gasoline Engine**. Have you ever thought just what a saving of time, labor and money it would be to have such a practical power always ready to operate your various machines on the farm, in the shop, printing-office, or—anywhere?



The LION Engine



is such a power. It is simple in construction, practical in operation, and economical in the use of fuel. You do not require the services of an engineer, as anyone can operate it. We send the **Lion engine**

Direct From The Factory

on a ten days test trial and give explicit instructions and directions for setting up and operating it. Write now, stating your power needs, for our easy payment plan. Remember, we send the engine, not the agent.

LYONS ENGINE CO., Lyons, Mich.

GOLDEN Opportunities!

EXIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

J. W. WHITE

Gen. Indus. Agt., Portsmouth, Va.

Seaboard Air Line Railway

Let Us Send You Our Book.

about good wheels and good wagons that will save you a lot of work and make you a lot of money—the

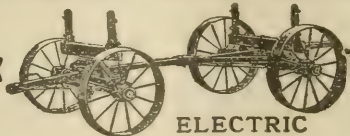
ELECTRIC STEEL WHEELS

—and the—

ELECTRIC HANDY WAGON.

By every test, they are the best. More than one and a quarter millions sold. Spokes united to the hub. Can't work loose. A set of our wheels will make your old wagon new. Catalogue free.

ELECTRIC WHEEL CO., Box 95 Quincy, Ills.



ELECTRIC



LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address **COILED SPRING FENCE CO., Box 448 Winchester, Ind.**

CONTENTS OF THIS NUMBER.

STRAWS	1047	Chamber's Cell-starting Device	1039
PICKINGS	1049	Field Day of Bee-keepers at Jenkintown	1061
EDITORIALS	1050	Foul Brood	1067
Ferris Hive-lifting Device	1050	Moving Bees	1068
Problem of Hired Help in Apiary	1050	YEAR'S WORK IN AN OUT-APIARY	1069
An Editor in the Field	1050	HEADS OF GRAIN	1070
Queen-cage Candy	1050	Nursery and Introducing-cage Combined	1070
Value of Robber-trap	1050	Alexander Plan of Building-up Weak Colonies	1070
Bee and Honey Exhibits at County Fairs	1051	Ohio Foul brood Bill	1071
National Pure-food Law	1051	Bee's Sense of Hearing	1072
Another use for Bee-stings	1052	Value of Sweet Clover and Oats for Hay	1072
CONVERSATIONS WITH DOOLITTLE	1053	If I were to Start Anew	1072
GENERAL CORRESPONDENCE	1054	New Queens for Shaken Swarms	1072
Ants the Greatest Enemy of Bees	1054	NOTES OF TRAVEL	1073
Ants in Pennsylvania	1056	OUR HOMES	1075
West Spiral Queen-cell Protector	1056	HIGH-PRESSURE GARDENING	1078
Caring for Our Bees	1058	SPECIAL NOTICES	1078

INDEX TO ADVERTISEMENTS.

Banking by Mail.	Blocher, D. J.	1087	Honey-buyers.	
Savings Dep Bank Co	Doolittle & Clark	1088	See page	1039
Bee-books.	Collins, Ph. D., Dele	1087	Household Specialties.	
Swarthmore	Fajen, J. S.	1087	Best Light Co.	1092
Bee Smokers.	Jepson, H. H.	1087	Horne Co., Joseph	1079
Bingham, F. H.	Koeppen, Chas.	1088	Ulery Co., U. J.	1092
Danzenbaker, F.	Laws, W. H.	1089	Machinery.	
Bee Supplies.	Leininger, Fred	1089	Electric Wheel Co.	1041
Cook, J. H. M.	Lockhart & Co., F. A.	1084	Empire Mfg Co.	1092
Falconer Mfg. Co., W. T., Back Cover	McCain, Robert B.	1088	Lyons Engine Co.	1041
Hershiser, Orel I.	Mennie & Fenton	1088	Myers & Bros., F. E.	1092
Hilton, Geo. E.	Moore, J. P.	1088	Miscellaneous.	
Hunt & Son, W. H.	Parker, Jr., H. M.	1089	Lester Co., F. E.	1092
Jepson, H. H.	Quirin the Queen-breeder	1087	Prindle & Williamson	1092
Kretschmer Mfg Co.	Rails, W. H.	1088	Seaboard Air Line R. R.	1041
Lewis Co., G. B.	Rambo, J. R.	1088	T. T. Poultry Co.	1039, 1092
Minnesota Bee Supply Co.	Robey, L. H.	1088	Publishers, Agricultural-paper.	
Muth Co., Fred W.	Roselawn Apiary	1087	Southern Fruit Grower	1039
Page & Lyon	Routzahn, G.	1088	Publishers, Bee-journal	
Pouder, Walter S.	Shaffer, Henry	1089	Falconer Mfg. Co., W. T., Back Cover	
Prothero, Frank W.	Shaw & Co., J. W. K.	1088	Root Co., A. I.	1040
Reeves, A. H.	Shuff, W. A.	1089	York & Co., Geo. W.	1045
Root Co., The, Syracuse, N. Y.	Simmons, E. A.	1088	Publishers, Poultry-paper.	
Root Co., The, St. Paul, Minn.	Simpson, H. C.	1039	Ohio Poultry Journal	1092
Scott & Co., C. M.	Taylor, J. W.	1089	Poultry Gazette, The	1092
Stringham, L. J.	Titoff, A. E.	1089	Poultry Item	1092
Weber, C. H. W.	Victor-Knolle Apiary Co.	1089	Poultry Success	1039
Woodman Co., A. G.	Wurth, Daniel	1089	Wants and Exchanges.	
York Honey & Bee Supply Co.	Comb Foundation		See page	1090
Bees and Queens.	DaJant & Son	Back Cover		
Alley, H.	Dittmer, Gus	1081		
Atchley Co., The Jennie	Fences.			
Case, J. B.	Coiled Spring Fence Co.	1041, 1092		
	Honey for Sale.			
	Hutchinson, W. Z.	1041		

ADVERTISING TALKS

BY THE AD. MAN.

CLASSIFIED ADVERTISEMENTS.

Many of the popular magazines are adding classified columns to their advertising pages, and spending much money in exploiting them. They particularly call attention to the remarkable results obtained by some advertisers. GLEANINGS has carried a similar department for over twenty years. This department has always proved popular, and during a part of the year it occupies from three to four pages. We occasionally receive reports of great results from a small reader, with but one insertion; but the average runs high enough so that we can freely recommend these columns to practically every one wanting small advertising where a display ad. would not do.

Turn to page 1090 and look at these ad's. Do you need any thing listed there? Have you any thing you wish to dispose of?

Our rates are 15 cts. a line to *bona-fide* exchange deals, and 20 cts. a line to those involving cash, either directly or indirectly. Those offering honey or advertising honey are placed under "Honey Markets" on page 1038. This department is for the personal use of our 30,000 subscribers. Read and try. It pays.

CChange that copy! A dead ad. has about as much pulling power as a dead horse.

Below is a letter from Mr. Alexander regarding his ad. appearing in GLEANINGS for July 15, under the heading "Help Wanted," in classified columns. You will note the date is so soon after that issue of GLEANINGS that hardly every paper had reached its destination, and impossible for every reply to have reached Delanson.

Mr. Root:—Please discontinue our ad. in GLEANINGS for help, as we have been almost flooded with applications since the last issue. This certainly is a fine way to get good competent help.

Delanson, N. Y., July 24. E. W. ALEXANDER.

CTalk plain sense! An ad. is the worst place to get wordy or funny.

THIRD PHOTO CONTEST.

A good photo is a splendid advertisement for you, Mr. Beeman. Perhaps it's a view of your apiary; a mammoth swarm; some fancy honey, or a hundred and one views found around any apiary. It will pay you to have a number of them. You can work them with your letter-head, on postal cards, and in any advertising matter. And there's our photo contest. If you have a first-class photo you stand an excellent chance of winning one of our cash prizes. If your photo appears in GLEANINGS you get a lot of free advertising. See condition of contest on page 1083.



ADVERTISE YOUR HONEY.

After you have spent almost a year in planning and working for your crop, why stop and allow it to sell at low prices, or move very slow? Honey markets are the best when rightly worked.

Your grocer likes to handle goods that sell fast. He is willing to sell on smaller margins, thus the producer gets better prices. Help your retailer by supplying him with display cards. He will appreciate it and sell more honey.

The above is a reduction of our new honey-display card. It is printed on 7×9-inch cardboards, and with a beautiful blue ink. Price 10 for 10 cts., postpaid; any additional, one cent each. In ordering be sure to specify style No. 2, or you are apt to receive another card.

CBe brief! Your ad. in Gleanings, costs you, on the average, word for word, about as much as the common telegram.

We receive very frequently letters from our readers who desire to say, as has Mr. Struck, "a few things for GLEANINGS." Surely a journal which has the utmost confidence and respect of its readers is a good medium in which to advertise.

Mr. Root:—I will now say a few things for GLEANINGS. I would not lose one copy of the journal for a dozen times the subscription price. GLEANINGS has helped me in the past; is helping me at the present, and I hope it will continue to do so in the future. I appreciate every thing that appears in its columns. GLEANINGS, in my mind, is the bee-keeper's safeguard.

ALFRED STRUCK.

Webster, N. Y., July 9.

Your paper is indeed a treasure; every leaf is well worth reading. I would not like to be without it now. Shall do my best to get you other readers.

Your strain seems to do very well here. I have them crossed with queens from Italy, and the frames of brood are a treat to see, as level as a board, and brood right up to top-bar.

HERBERT POTTS.

Dutton, Preston Brook, England.

Seasonable Goods!

Non-drip Cases

The kind we call "Root Quality"—none as good.

Glass and Tin Packages

for extracted honey. A neat package means a fancy price.

Honey-extractors

The Cowan No. 15 will give you years of honest service. You need one.

We will have an exhibit of Root's goods at the Michigan State Fair, August 30 to September 7. We will be pleased to have you call on us, and make yourselves known. Bee and Honey Department is under south end of Grand-stand. Bee-keepers' day is Tuesday, September 4.

We Have the
Largest Stock of Bee-supplies in Michigan
and all **ROOT QUALITY**

M. H. Hunt & Son, Bell Branch, Michigan
Wayne County

CAUSE

Reading
Gleanings
and
practicing
the plans
given
for the
last
four
months
has
caused an
effect by
increasing
the amount
of honey
produced
by each
colony.

The
A. I. ROOT
Company

EFFECT

Orders
for
shipping-
cases
are
pouring
in,
which
we are
shipping
promptly.
A large
stock
on
hand
at
Syracuse,
New
York.



200 Standard-bred Italian Honey Queens

by Return Mail

We can mail AT ONCE 200 of our Fine Standard-bred Untested Italian Honey-queens at these special prices: 1 for 70c, 3 for \$2.00, 6 for \$3.75, 12 for \$7.00; or, one queen with the Weekly AMERICAN BEE JOURNAL for one year—both for \$1.40.

Here is an unsolicited testimonial taken from many similar ones:

George W. York & Co.: The queen received of you a few days ago came through o. k., and I want to say that she is a beauty. I immediately introduced her into a colony which had been queenless for twenty days. She was accepted by them, and has gone to work nicely. I am highly pleased with her and your promptness in filling my order. My father, who is an old bee-keeper, pronounced her very fine. You will hear from me again when I am in need of something in the bee line.

Marion Co., Ill., July 13, 1905

E. E. McCOLM.

Better order at once if you want some of our fine queens.

☞ A sample copy of the \$1.00 Weekly American Bee Journal FREE, or a trial trip of three months (13 copies) for 20 cents.

GEORGE W. YORK & CO.,

334 Dearborn St.,

CHICAGO, ILLS.



A Delightful Combination

GLEANINGS IN BEE CULTURE, \$1.00 per year.
FARMING MAGAZINE, \$1.00 per year.

PRICE FOR THE TWO, \$1.50.

*Nothing need be said about GLEANINGS. It is the best publication of its class in the world; semi-monthly, 72 to 80 pages, fully illustrated.

†FARMING is a new publication—a beautiful journal for the man who produces from the soil. It is edited and published by the Doubleday Page Co., the people who edit *Country Life*, *World's Work*, and the *Garden Magazine*, a sufficient guarantee of its merit. Larger than GLEANINGS—fully illustrated. Published monthly.

THIS OFFER IS GOOD, EITHER FOR NEW GLEANINGS SUBSCRIPTIONS OR RENEWALS, BUT MUST BE TAKEN ADVANTAGE OF WITHOUT DELAY.

WE CAN ACCEPT SUBSCRIPTIONS FOR THIS COMBINATION AT THIS SPECIAL RATE ONLY WHEN SENT DIRECT TO THE PUBLISHERS OF GLEANINGS,

The A. I. Root Company, Medina, Ohio.

*Sample copy of either publication will be sent upon request.

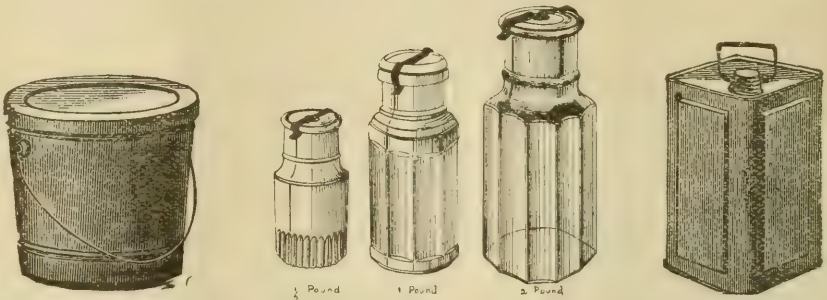
†Publications will be sent to two different addresses if desired.

BE CAREFUL OF YOUR HONEY

Now that you have got to the shipping-point, be sure to see that your honey is properly packed in nice, white, smooth basswood cases accurately fitted, which adds dollars and cents to market price of your product.

Lewis Shipping-cases are the Finest in the World

Thousands of Lewis shipping-cases and millions of Lewis sections, as well as all kinds of honey-packages, now ready for you in the warehouses of ourselves and our agents as given below. . .



Beware where You Buy Your Beeware

ENGLAND—E. H. Taylor, Welwyn, Herts.
FRANCE—Raymond Gariel, 2 ter Quai de la
Megisserie, Paris.
CUBA—C. B. Stevens & Co., Havana.
C. B. Steven & Co., Manzanillo
CALIFORNIA—Chas. H. Lilly Co., San Francisco.
SOUTHERN CALIFORNIA.—
Fletcher-Doyle Co., San Diego.
Fallbrook Co-operative Association, Fallbrook.
Paul Bachert, Lancaster.
COLORADO—R. C. Aikin, Loveland.
Arkansas Valley Honey-producers' Ass'n, Rocky
Ford.
Colorado Honey-producers' Association, Denver.
Fruit Growers' Association, Grand Junction.
Robert Halley, Montrose.

IOWA—Adam A. Clark, LeMars.
Louis Hanssen's Son, Davenport.
ILLINOIS—York Honey & Bee Supply Co., 191-193
Superior St., Chicago.
Dadant & Son, Hamilton.
INDIANA—C. M. Scott & Co., Indianapolis.
MICHIGAN—A. G. Woodman Co., Grand Rapids.
MINNESOTA—Wisconsin Lumber Co., 432 Lumber
Exchange, Minneapolis.
MISSOURI—E. T. Abbott, St. Joseph.
OHIO—Norris & Anspach, Kenton.
OREGON—The Chas. H. Lilly Co., Portland.
PENNSYLVANIA—Cleaver & Green, Troy.
TEXAS—Southwestern Bee Co., San Antonio.
UTAH—Fred Foulger & Sons, Ogden.
WASHINGTON—The Chas. H. Lilly Co., Seattle.

G. B. LEWIS CO.

Manufacturers Bee-keepers' Supplies

WATERTOWN, WIS., U. S. A.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio
Entered at the Postoffice, Medina, Ohio, as Second-class Matter.

Vol. XXXIV

AUG. 15 1906.

No 15

STRAY STRAWS

By DR. J. C. MILLER

ON THE ROADSIDE on the way to town I cut a stock of sweet clover that measured 8 feet lacking an inch.

EDITOR HUTCHINSON took his bees out of the cellar in the night, and had a bad case of mixing. He thinks there is less mixing with very small entrances.

ANOTHER REASON, not given by Mrs. Comstock, why women should keep bees is that some of them may write such delightful articles as that one on women and bees, p. 995.

"A HEAVY FLOW from any source will always check and sometimes cure either black or foul brood," page 988. You are entirely right in that, Mr. Editor—a point not generally understood in this country as it is in Europe.

WHILE ALL may be true that J. A. Green says, page 992, it should not be forgotten that a difference might be expected between this and the older countries in the fact that they have had foul brood longer, and so their bees are more nearly immune.

"THE UNBOUND zinc boards will probably sag on the brood-frames below," page 1012. True; but some lay a $\frac{1}{4}$ -inch strip across the frames at the middle, and that takes away the sag. [Thanks for the suggestion. I knew this was being done, but never thought to speak of it.—Ed.]

SOME GOOD TALK by J. A. Green, p. 992, about emptying supers. But isn't it a little hard on the back to put his super on the

floor? We seldom have a case that needs the weight of the feet; but when a specially hard case comes we sit (sometimes stand) upon it while on the table.

J. A. GREEN, give me your hand. You have struck it exactly, page 991. "Let government take possession of all bee-territory as something separate from the land, and lease or sell it by itself." If a bee-keeper is willing to pay for it, why should he not be as secure in his right as a cattle-raiser?

PROF. H. A. SURFACE, who is closely watching the alfalfa-in-the-East matter, writes, "It is my opinion that it yields honey only when the season is dry, and when it is permitted to grow until the proper time . . . I note that one of our railroads has sowed it extensively along the banks of the road, apparently to cover the soil and hold it . . . I must admit that it has not been an important honey-producing plant in this State, although the present outlook may be good for it."

C. H. HOWARD bought hives with perpendicular wiring, and found comb built clear down to the bottom-bar, but not with horizontal wiring. If he will inquire closely he may find that some special means was used, other than the wiring, to have the comb built down. I had some 3000 frames with perpendicular wiring, and the bees built to the bottom-bar no better than with the horizontal wiring. [I do not know to what you refer by "special means;" but I know this: That perpendicular wiring will permit of the foundation reaching from the top down to the bottom-bar; while with the horizontal this would not be possible without danger of buckling.—Ed.]

A WATERING-PLACE for bees that I like very much has been used this season. Take a tub (I have used half of a barrel sawed in two); pour in water, and then all the cork chips or cork dust you can without having it dry on top. The bees alight on any part of

it, and work over it just as they would on damp ground, and never a bee is drowned. So far as I have tried it, it works for feeding sugar syrup. [I believe your plan of watering bees would be excellent; but I should hesitate to recommend it for outdoor feeding of syrup unless that syrup were made very weak, say four parts of water to one of sugar. In that condition it would be liable to sour before it could all be taken up. Indeed, we have been caught that way this season already—not with this form of feeder, but with another form. The idea of using the weak syrup was to reduce the scramble of bees against each other—that is, make it so weak that bees do not like to fight for it.—ED.]

"THE WIRE will be in the septum of the naturally built comb, provided the comb-guide, or narrow strip of foundation, is placed directly on the central line on the under side of the top-bar," p. 1013. Yes, the wire will be in the septum at the top; but whether it follows the wire down, depends. I think bees build natural comb always vertically. They will build upon foundation lying horizontally; but wires have nothing to do with deciding the place of the septum. Mr. Hurst's bees had the septum where the wire was, not because they followed the wire, but because the wire happened to be where they wanted to build the septum. Let him give them a perpendicular wire loose enough to be waving, or in any way out of the perpendicular, and see if the septum follows the wire. [In your remarks here you seem to have in mind *perpendicular* wiring, some of which may be of a wavy, irregular line. I had in mind *horizontal* wiring—drawn, not as taut as a fiddle-string, but tight enough to be in a perfectly straight line. Under such conditions my statement will be borne out, I think, by actual tests, except that the septum may vary a little at times, especially if the hive be not plumb, or if the frame hang a little out of the perpendicular.—ED.]

"THE FACT that the plant (sweet clover) will not grow on cultivated lands" is an expression used on p. 989. I wish you would tell us just what you mean by that, Mr. Editor. I think sweet clover will grow on any cultivated land here, the only thing in the direction of your statement being that when grown on soft ground it is likely to be killed by heaving in the winter. [Perhaps the language is not as clear as it might be; yet take it literally and I stand by the statement. You seem to have gotten the impression that sweet clover would not grow on soft or tillable land. I simply meant to say that cultivation (i. e., cutting off the weeds), would keep sweet clover off from any good soil, therefore the plant would not grow on *cultivated* land; but as this brings up several interesting questions, A. I. R. desires to add a little at this point:

Sweet clover with us will grow on any kind of ground; but it is not often seen here in our cultivated fields, and I do not exactly know why; but it certainly seems to grow

better along the roadsides—yes, clear up to where the wagon-wheels pound it down and drag it in the dirt; and it grows luxuriantly on ground so poor that no other plant will grow—not even our hardiest and most pernicious weeds. I have had it sometimes get into our rich ground among the strawberries; and single plants sometimes grow there with wonderful luxuriance—so much so that in a little time it would take a strong man to pull them up by the roots. Then there is another thing: When we undertake to sow sweet-clover seed as we sow other clover seeds on good clover land, it seems to be a hard matter to get a stand. It grows spontaneously where one would least expect it; but when you try to grow it in a field like other clovers it does not seem to take to cultivation. If I am not mistaken, doctor, you have had some disappointment yourself in getting a field of sweet clover with a nice stand.—A. I. R.]

"IF YOU WILL refer back to a part of this discussion you will see that we were talking about stray virgins just returning from their mating-trips," etc., footnote, page 988. Scanning pages 825, 868, and 929, I find first mention of returning from mating-trips, p. 929, and you will pardon me for saying that I think you had no warrant for introducing it there. What we were talking about was your saying, page 825, "It is my impression that a young queen, when she enters the other hive for the purpose of getting out into the open air to mate, would in many cases supplant the old mother." No returning from a mating-trip in the case, you see. Now let's get the two separate cases plainly before us. First, what will happen if a virgin, either by design or accident, enters another hive with a laying queen? My opinion is that she will *always* be killed unless the laying queen be one which the bees desire to supersede. You seem to hold the same opinion, page 989, but give as a reason "that such virgins will be no match for a laying queen." There we are at outs again. When a virgin is old enough to be recognized as a rival, I think she is more than a match for a laying queen with her burden of eggs. Indeed, is not the virgin at this time at the height of her activity and strength? fresher, too, than a virgin just returning from the exertion of a mating-trip? I don't know, but I have a suspicion that the workers, not the laying queen, put the virgin out of commission.

Second, what happens when a virgin returning from her mating-trip enters the wrong hive? As a witness in the case my testimony is of little value beside yours, as you have had so much more to do with queen-rearing. If you say you *know* that a virgin entering the wrong hive on returning from her mating-trip almost always supplants the laying queen, I accept your testimony. But if you base your belief upon the reasoning you give, then I demur. You say, "She knows that, as soon as she gets into the hive, there's a laying queen there, and she makes for her, and usually comes off victorious." You are probably giving that as your sup-

position in the case. Allow me to give *my* supposition. If such a virgin should go courting through one of my hives in search of the laying queen I should consider the workers very derelict if they did not promptly seize and imprison her without allowing her the chance of touching the old laying queen. Is it not true that a virgin returning from her mating-trip is sometimes roughly handled by her own bees, as testified by her lacerated wings? Would foreign bees be likely to treat her with greater respect? [The first reference which you give above, you see, relates to a case somewhat similar to that of a mating-queen returning from a flight—that is to say, conditions in both cases are practically the same. The interloper gets into the hive, not as an introduced virgin, but as a virgin ready for flight, accidentally, as it were, going into a hive with a laying queen. You must not take too literally the construction of the language. As to the other points, although I may be mistaken, I think you would have occasion to modify your opinions if you were to take a hand in rearing two or three thousand queens. I referred all of these points to our various queen-breeders, and got back practically the same answer; so I feel sure I am right in my premises, except that no one knows exactly what the young virgin *thinks*, or exactly what she does, when the hive is closed. I offered the theory to explain *why* an introduced virgin is rejected when an interloper is accepted; and let me say right here that a virgin a day old is a weak and feeble affair; and a laying queen is quite sure to recognize such an "affair" as a rival—dangerous, not for what she is *then*, but for what she *may* be.—ED.]

A wave of warm humanity
Lifts, with its sweet fraternity,
Godward, and all is well.

FREDERICK D. WEBLEY, M. D.

Santa Rosa, Cal.

The above lines were sent me by the author, together with a photo representing the total destruction of Santa Rosa at the time San Francisco was destroyed. Dr. Webley suffered the loss of all he had, and yet seems to be in no way depressed by the terrible ordeal to which he has been subjected. Another friend in California says of that State, "With all thy faults I love thee still;" but he adds laconically, "She won't keep still."



I make the following extract from the *Agricultural Gazette*, of New South Wales, Australia, concerning honey in England. It is so comprehensive in its nature that it can not fail to be of interest to the honey-producers of this country:

The Acting Agent General for New South Wales, in London, reports that the principal sources of supply for imported honey into the British market are Jamaica, California, and Chili. The average importations annually amount to about 1000 tons, of which about 530 tons come from Chili, and the rest in small lots from various sources. A few years back Chili contributed a very much greater proportion of the trade; and in 1901, which was marked by the greatest importation of honey for many years, Chili supplied 586 tons of the total of 1535 tons. Jamaica being next with 450 tons. London is the principal distributing center for Great Britain, the bulk of imports being consumed at home, though shipments are also made to all parts of the Continent. The chief characteristics necessary to render honey suitable for the British market are flavor, color, and clearness, flavor being the most important. The best honey should be sweet and clean in flavor, and "pale set clear" in appearance.

Amber honey is the next in grade, and brown honey is regarded as inferior. Honey is used in England both for manufacturing purposes and as a table delicacy. California is the chief source of supply (outside Great Britain itself) for table honey, and it comes packed in cases, which are considered more suitable for this class of trade. Jamaica honey is chiefly used for manufacturing purposes, and for this branch the most suitable packages are kegs and barrels containing 2 to 3 cwt. each. A certain proportion of Jamaica honey also comes packed in cases for table use. Australian is used, generally speaking, only for certain manufacturing purposes, on account of the peculiarity of flavor.

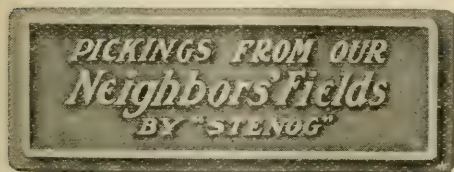
The present prices of honey (Jan. 1, 1906) are: Finest, 20s. to 25s. (\$4.85 to \$6.00) per cwt.; ordinary, 14s. to 18s. The higher range of prices would be for the finest table honey, and the lower range would represent the price of the ordinary commercial article. These prices are considered moderate, and somewhat below the average. Much of the Jamaica honey is sold at 17s. to 18s. per cwt. Australian is regarded by the principal dealers here as being worth 5s. less per cwt. than Jamaica; and under these circumstances there does not appear to be much scope for our honey in Great Britain unless it can be sent over at a cost of not more than 12s. (\$2.90) per cwt., including all charges.

Regarding the prejudice against Australian honey, this feeling is apparently a deep-rooted one, and it is quite possible that it is based on the experience of mixed or inferior samples which have reached England. If some of the excellent "box" honey produced in many parts of New South Wales could be sent here, the bad impression might be removed.



HONEY LEMONADE.

For those who appreciate the taste of honey, and who enjoy cool drinks in hot weather, the following may be of interest. Prepare lemonade in the usual way, but use



AFTER THE EARTHQUAKE A FIRE.—II. KINGS 19: 12.

It is worth all we have suffered to have such a spirit called out. May we never go back to the old.—*San Francisco Examiner*.

What of the night, brave captain—
What of the night? Oh tell,

If thou dost know,

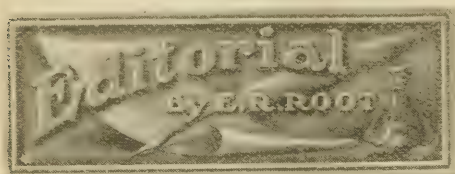
By the tides that flow,
That the morn with its ruin dire,
And the night with its doom of fire,
Have passed, and all is well.

This of the night, brave comrade,
This of the night: The spell
Of greed, of gold,

And of self-love old,
Dies, and a spirit fraternal—
Draws with a love eternal—
God lives, and all is well.

The hours are pregnant, comrade,
When high noon strikes. The swell
Of the coming tide,
As the ocean wide

good thick extracted honey instead of sugar. A delightful new flavor is obtained that is quite different from the taste of honey or of ordinary lemonade.



THE *American Bee Journal* has put in some new department headings. The "Old Reliable" seems to be able more than to hold its own.

THE FERRIS HIVE-LIFTING DEVICE.

OWING to a large number of engravings to go with it, we were compelled to leave out of this issue the article by A. K. Ferris detailing his system of producing honey. It will show a set of machines, or lifting-derricks, not only for handling the hives but for lifting heavy supers off from the brood-nest temporarily while the latter is being examined. In short, the frailest kind of woman can use this apparatus, handling hundreds of pounds weight with very little effort. Two other lifting-devices will be illustrated and described as well.

THE PROBLEM OF HIRED HELP IN THE APIARY.

THE editor of the *Review*, in commenting on the difficulty of getting help, stated that at the last meeting of the Michigan Association some one criticised the methods of Mr. E. D. Townsend. The latter admitted that other methods might be better for the man who is doing his own work, but that he, Mr. Townsend, was developing a system that *could be turned over to ordinary hired help.*

There is a whole lot of truth in this. Some people are skillful workers, but have no ability to instruct others to do what they can do successfully. The great difference between success and failure lies in the ability to handle help and make that help do your work, or at least parts of it, as well as you can do it yourself.

AN EDITOR IN THE FIELD.

It will be remembered that Editor Hutchinson, in connection with his brother Elmer, is operating several out-yards in the raspberry regions of Northern Michigan. Some of the editorials of late in the *Review*, I imagine, are written outdoors on a hive-cover, the fingers, perhaps, daubed up with propolis. Somehow there is a crispness about editorial buzzings from the field. At all events, the *Review* is redolent nowadays with some interesting experiences of the editor. His ar-

ticles telling of his experience in wintering bees and moving them by train and by wagon up in Northern Michigan make very interesting reading.

Mr. Hutchinson was forced to go outdoors on account of his health. Perhaps the misfortune of ill health is, after all, a blessing in disguise. GLEANINGS sincerely hopes that Bro. H. will not only get a good reserve of health, but lots of honey; and last, but not least, some practical suggestions for his brother bee-keepers who are struggling with the same problem of "long-range" bee-keeping.

QUEEN-CAGE CANDY; IMPORTANT FOR EVERY QUEEN-BREEDER.

IN selecting an extracted honey to use for making a queen-cage candy, it is *very* important that the source of that honey be known. If unknown it should be thoroughly boiled to disinfect it from any *possible* germs of black or foul brood. One boiling may not be sufficient. Boil it one hour and let it stand two or three days, and then boil again another hour. This is better than boiling three hours all at one time.

One can readily see, if he will reflect a moment, how foul brood *might* be spread through the agency of bee-candy. Most of the mailing-cages now are self-introducing by the bees eating out the candy and finally releasing the queen. Suppose this candy is contaminated with germs of black or foul brood. The chances are that the colony to which this queen was introduced would soon show symptoms of disease, even though the colony or bee-yard whence this queen came might be perfectly healthy.

This matter is so important that I would respectfully suggest that our apicultural exchanges bring the matter before their readers. In the mean time the purchaser of the queens, if he wishes to be on the safe side, taking no risk, may recape the queen received in the mails, introducing her by means of bee-candy made of honey out of his own yard.

THE VALUE OF A ROBBER-TRAP.

ABOUT the best way to stop robbing, when it first gets started, is to catch them all in a robber-trap. We will say here is a colony or nucleus that is being robbed. Take the hive away and put it down cellar or in a building temporarily. Put in place of this hive another empty one containing a comb of honey. Over the entrance on the inside there should be two or three bee-escapes that will let bees enter but not escape back into the open air. Keep this robber-trap on the stand until all flying robbers have disappeared in the "trap;" then take trap and all into the cellar and keep them there for a week, or, better still, move the trouble-makers to an out-yard two miles away from the home bees where the pilfering took place. The trap catches all the robbers, and prevents them from being an annoyance for days afterward. Not only that, it prevents them also from stirring up other bees and

getting them into the fracas. When a bad case of robbing is started, it involves only a comparatively small number of bees. If these are allowed to go back to their homes they will bring back a horde of others, and will thus keep the apiary in an uproar for days and weeks. Whenever there happens to be the least bit of sweet exposed these chronic thieves will rush out and start a furore inside of a very few minutes. But trap them, or, as suggested in our last issue, kill them all together, and then you will get at the very source of the trouble.

Robbing is like a case of smallpox, diphtheria, or, if you please, foul or black brood. It should be stopped at the very beginning. There is nothing in the world that will play worse mischief with a queen-rearing yard than pilfering bees prying into every entrance.

One might suppose that it would be simply impossible to trap out all the robbers. You will be surprised to find how few of them, compared with the whole number of bees in the yard, are actually engaged in the business of stealing. Even if we had to kill them all after trapping, the loss would not be very great; but, happily, they can be saved, and used in an out-yard; or, may be, let out in the home yard after they have been confined a week in a cool dark place, where they will have a chance to repent of their sins, or to be more exact, perhaps, forget all about their past escapade.

BEE AND HONEY EXHIBITS AT OUR COUNTY FAIRS: HOW TO DEVELOP A HOME MARKET BY MEANS OF LIVE-BEE SHOWS.

I PROMISED last fall that I would remind our readers of the importance of preparing bee and honey exhibits at the coming county fairs. Arrange right now for space. Instead of going inside of the fairhouse I would advise putting up a temporary booth outdoors, or rent a tent from some camper who has just returned from his vacation. Prepare a nice honey exhibit, showing honey in its different forms.

To draw a crowd, get inside a wire-cloth cage, one big enough to hold yourself and a hive of bees. While an attendant is prepared to make sales, you or some one else should get into the cage, barearmed, bareheaded, without coat or vest, and shake the bees into a big dishpan. Now shake the pan until the bees are thoroughly demoralized, rolling them over and over. In this condition you can do almost any thing with them, providing you do not pinch them. Gently pass the two hands under the ball of bees, moving them very slowly until you have your hands full, then hold them before the astonished crowd. Crowds? oh, yes! the people will fairly swarm around your exhibit. When you get the crowd, *then* is the time to give a nice little talk about bees and honey. While you are talking your attendant should show an extractor as well as other appliances. Tell the people who you are, where your bee-yards are located, and hand out honey-leaflets and

blank postal cards with your name and address; explain that honey is a wholesome sweet, much safer and better than ordinary cane sugar, and far better than most candy. Answer all the questions the crowd may put; and if you do not sell honey, and lots of it, *it will be your own fault.*

Your sales for two or three days, while the fair is in progress, will more than pay expenses, and will give you a permanent advertisement that may enable you to dispose of your own crop right in your own locality at twice or possibly three times the price you would get by shipping it to the city. If the experience of others is duplicated, you may sell a great deal more than you produce.

In connection with your exhibit of bees you ought to have a couple of observatory hives. A one-frame nucleus with glass sides is better than a whole hive with glass sides, although we advise the use of both.

There should be a large placard out in front of the demonstrating-cage, stating that that hive of bees will be handled at such and such hours. Arrange the periods for bee demonstrations so as not to conflict with other things on the ground that may pull away your own crowd. Then remember to make your main demonstration just about the time people are going home, for *then* is the time they will buy.

THE NATIONAL PURE-FOOD LAW: WHAT IT WILL DO FOR THE BEE-KEEPER.

As our readers probably know by this time, we now have a national pure-food law which, in conjunction with the pure-food laws in over two-thirds of the States, is going to put the business of producing pure honey on a much better basis. The States that have such laws, especially where there are energetic and honest food commissioners, have stopped the practice of adulterating and misbranding to a very great extent; but so long as there was no *national* law the spurious food products were imported into Territories under the direct jurisdiction of Uncle Sam, and into States that had no laws. But now that we have a national pure-food law, the practice of mixing an inferior with a better article of food, or misbranding, will be very largely curtailed if not stopped altogether.

Our readers will remember that there was a concern in Kansas City that used to put out glass packages purporting to contain a pure article of liquid honey, but which, in fact, was almost pure glucose. The label bore the specious wording, "Kellogg's Pure White-clover Honey, Medina, Ohio." By this, you see the vender endeavored to borrow, or I had better say *steal*, the reputation of The A. I. Root Co. As a matter of fact there was no one putting up honey in glass or any other form at Medina but The A. I. Root Co. We threatened prosecution, but found it would be difficult to make out a case, as the concern had not actually used our name. But it came as near it as possible, and succeeded in sending out its products until well-meaning bee-keepers every

now and then would write us, asking if we were connected with the men or concern bearing the name Kellogg of Medina; and if so, why we allowed such a miserable concoction as Kellogg's honey to issue from this town.

But now under the pure-food law the so-called "Kellogg" will not be allowed to do an interstate business, selling any form of adulterated or misbranded article, no matter whether it be honey or something else.

There were various other concerns putting up what purported to be honey, even in States that had rigid pure-food laws. Now they will have to quit the business unless they reside in a State where there is no pure-food law, in which case they will have to confine their sales entirely within the borders of their State. If any of their product goes into some other State, however, trouble is likely to arise.

Unfortunately, some States have pure-food laws that are not in harmony with the national law; and the legislatures of the various States will be urged to make the necessary amendments so that it will be possible to sell nothing but the strictly pure article, or adulterated brand, for exactly what it is.

The Association of Retail Grocers is very much pleased over the new law. Their president has already expressed himself as believing that the law "will result in much purer food products than we have been accustomed to have for many years."

The effect of the law can not fail of doing great good ultimately to the general business of bee-keeping. Consumers have been so often disgusted with the nauseating products masquerading under the name of "honey" that it will be some time before they will be willing to buy freely even a pure article. Unfortunately a large percentage of the consumers at least will not know that a national pure-food law is in force; and they will be equally ignorant of the enactment of any statute within their own State affecting the manufacture and sale of various foods.

Every bee-keeper should make it his business to ascertain if his State has a pure-food law, and, if so, whether it is enforced. If he finds he has protection, both from his own State as well as from the national government, let him make a strong handle of the fact that the consumer may now buy his honey without fear of adulteration.

The new national pure-food law will now put us in a position where we can say there is no manufactured comb honey. Even if it were possible to make it, Uncle Sam would put a stop to its manufacture because he would prohibit the maker from doing an interstate business.

ANOTHER USE FOR BEE-STINGS.

A FEW days ago a Mr. Jones who keeps bees near Penfield, Lorain Co., Ohio, was telling a little crowd of a queer customer he had for bees a short time ago. The man wanted a colony of bees. He said he wanted the worst stingers they had in the yard.

Now, Mr. Jones had a hive of vicious hybrids that he wanted to get rid of, and they soon made a bargain. When it was completed, his singular customer proceeded to take off his hat, coat, roll up his sleeves, unbutton his collar, turn it back, then jerked the cover off the hive, gave it a kick, and let the bees sting him. In explanation he told a story that so impressed me that Mr. Jones and I called on the person in question—an old gentleman named W. S. Langdon, of the same place, Penfield. Mr. Langdon, who is a steady old farmer, said something as follows:

"For several years I had been trying first one doctor and then another to see if they could cure me of a troublesome form of eczema; but doctor after doctor seemed to have no success in getting rid of the disease. Finally one day a swarm of bees lit on an apple-tree near my home, and in hiving it I got severely stung on the arms, face, and neck. There were so many of the stings that I turned spotted all over, and came near fainting; but in about half an hour I began to get over the effect, and the eczema left me right off from that moment, and I did not have any more of it for over a year. At the end of the year it came back again, and began to be so troublesome I went to Mr. Jones and bought a swarm of bees as he has told you."

I then asked him if he had mentioned the matter to any of the doctors, and he replied:

"Yes, I did, and our family physician said right away that one of their medical journals contained an account of a woman who was cured of eczema in much the same way."

"But, Mr. Langdon, have the bee-stings proved to be a remedy since you bought that stinging colony of Mr. Jones?"

"Yes, in a measure; but the cure has not been as complete as in the first case, because I can not manage to get the bees to sting me as they did then."

It would look a little, friends, as if the bees had tired of the fun as soon as they found out what our good friend bought them and kept them for. I have given you the facts as I could gather them.

While on this subject I might mention that, at the Philadelphia field day, Dr. Frank McGlinn came on the stand before the audience, and Mr. Selser explained that Mr. M. had been for years obliged to go about on crutches on account of rheumatism. Through the use of bee-stings he had discarded crutches, and was able to get around pretty well without them. Mr. Selser said he would now come before the audience and show them how he "took his medicine." He bared his arm nearly to the elbow, then picked bees off from a comb held by an attendant, and made them sting his bare arm fifty times. Mr. Selser said if any one doubted about taking fifty stings he could come forward and see the stings still remaining in the arm. When somebody asked if it was not a pretty tough remedy he replied that it was not as tough, and did not last as long as the rheumatism did.—A. I. R.



WHERE KEEP HONEY: WHAT MAKES COMB
HONEY SWEAT OR LEAK?

"This is S. E. Brown: and I believe this is Mr. Doolittle, is it not?"

"Yes, this is Doolittle. Well named."

"Well, by your size, and what I read of you, I have my doubts in the matter of being well named."

"Yes, well named. Big man—do-little. But what can I do for you this hot day, Mr. Brown?"

"It is hot, surely."

"Yes, our August days are often very hot, and this is one of them. Let us sit down here in the shade of this basswood-tree. Father set out this tree when I was a boy, and nothing has pleased me in the tree line better than this. It is the very first of all the basswood-trees to bloom, so that I know to a day when the basswood bloom opens; and right over there is one he set later, after I was married, and, strange to say, that is the very latest to bloom, so that I have right here, within a stone's throw, the knowledge of the limit of the basswood bloom."

"That is quite an item, surely. But how much is the difference in the time of blooming?"

"The earliest, or the tree we are sitting under, opens from the first day of July to the 15th, according to the season. This year it was the 8th; and it is generally from the 5th to the 10th. The 1st and the 15th are the extremes—the first for a very early season, and the last for a very backward one. Then the late-blooming tree commences to blossom about ten days after the first bloom opens on this early tree."

"I see. So you have ten days of basswood bloom."

"Not just that way. It is ten days from the time the first opens to the time of the opening of the latest. Then each tree is in bloom from six to ten days, just in accord with the amount of hot or cool weather while they are in bloom, so that we have from 16 to 20 days of basswood bloom here on the lowlands; and this, with a continuation up to and on the high hills to the south, has given me in certain best years as high as 28 days of continuous flow from basswood."

"My! that almost takes my breath away."

"And so it did *Do-little's*, that year when each colony gave an average of 166 pounds of section honey. But no breath was taken away this year, for our almost continuous rains, together with mostly east air, which is against the secretion of nectar, allowed the basswood season to come to an end with almost no honey in sight from that source.

But I judge you did not come to talk about basswood honey."

"That is right. I want to know where you keep your honey after it is off the hives. My clover honey is looking quite badly. Why does honey ooze out of the comb after it is taken from the hive and stored away?"

"This is a question which is often asked, and one that confronts every comb-honey producer sooner or later."

"I think it is because the bees did not thoroughly ripen this honey before I took it from the hives. Am I right?"

"Let us talk the matter over a little and see. Whether ripened or not, the honey can ooze from the cells only after being capped, on account of a larger bulk of liquid being in the cell afterward than there was at the time the bees sealed the cell. Do you agree?"

"I guess I shall have to."

"This can come from only one source, which is always brought about by either cool, damp weather, or a non-circulation of air, or both. Honey swells only as it becomes damp, and the first that will be seen of that dampness will be in the unsealed cells which have honey in them where the honey will become so thin that it will stand out beyond the cells, or, in other words, the cells will be heaping full."

"I guess you are getting at the matter rightly, for that was just what I first noticed."

"Yes; and if the dampness remains, the cappings of the sealed honey will soon become transparent, while the honey from those unsealed cells will commence to run out, daubing every thing below it, and, eventually, if the cause is not removed, the cappings to the cells will burst, and the whole will become a sickening, souring mass."

"Well, I guess you are nearly right; for quite a little of mine has begun to ooze from the unsealed cells, while the combs where they are sealed is taking on a watery appearance."

"Where do you keep your honey?"

"In an unused room on the north side of the house, where it would be kept as cool as possible."

"About as I expected. When I first commenced to keep bees I stored my honey in just such a room, thinking that was just the place for it, so you need not think that you have been making a mistake others have not."

"How did you find out what the trouble was?"

"Mrs. D. wished to use that room for household purposes, so I had to abandon it and take a room upstairs for the honey. As this upstairs room was fearfully hot I feared the result: but when I came to crate the honey for market, lo and behold! I found that all this sweating and souring had not taken effect that year, for the honey was so thick, even in the unsealed cells about the edges of the sections, that it would not run out—no, not even when the sections were laid down flat on their faces. I took the hint, and ever

since then my honey has been stored in the hottest room possible."

"But you do not lug all your honey upstairs, do you?"

"No. But I know of several bee-keepers who do, and of some who have elevators for the purpose, which saves this lugging."

"How do you manage yours?"

"Soon after finding out that honey must be kept in a warm room to keep perfect, I built me a shop and honey-house combined, locating the room for comb honey in the southwest corner, and painting the outside, or the south and west sides to this room (on the outside) a dark color, so that the rays of the sun would be absorbed; and when I had one or more tons of honey in this room the heat absorbed by the honey during the day would carry or hold over night, so that I had a continuous temperature of from 75 to 95 degrees, day and night for weeks, or till the honey was crated and marketed."

"Do you keep your honey there now?"

"No. When I sold out I had to build a honey-room again, so I put a lean-to on the south side of the barn. Want to see it?"

"Yes, please."

"Well, here we are."

"Whew! but this is awfully hot."

"Somewhat warmer than the shade of the old basswood, I admit."

"How hot is it?"

"A glance at the thermometer there will tell you."

"Just an even 100, as I live."

"Yes, this room often goes up to 100 degrees, as the whole outside, roof and all, is painted with red paint, which makes it fully as hot as if black were used."

"But don't the honey ever melt down here?"

"Never, so far."

"And does the honey keep good here?"

"Never had any thing equal it."

"How much did such a lean-to cost?"

"The material cost about \$55.00; but as half of it is for my automobile-room, as you will notice, \$30 to \$35 should cover the expense of the material for a honey-room large enough for the honey from 50 to 100 colonies."

"Surely, there is your auto. And that picture in the August 1st GLEANINGS is perfect too. And you can run it, with its load of honey, right in here, with the honey right in the honey-room, just where you want it. My! but that's handy!"

"Yes; and when it is so muddy that I can not use the auto I drive the horse and wagon right in here on the barn floor, when it comes through this door almost as easily as it unloads from the auto."

"That's so. And in no case do you have to carry the supers of honey more than from five to eight feet. But, say! the temperature in this barn almost feels cold after coming out of that honey-room. I had never thought of a lean-to for a honey-room; and I have got a barn situated similar to this, and I can fix things all right. A lean-to I must have, and I will have one for my honey."

No more leaky, watery, sour honey on my plate."

"All right. But let me just whisper that you put your sleepers and abutments under your floor thick enough and strong enough to sustain the weight of honey you may chance to have should a good year come when you pile the room full."



ANTS THE GREATEST ENEMY OF BEES.

Especially those in the Tropics; How to Combat Them.

BY W. K. MORRISON.

Your correspondent in South Africa who wants to know how to protect his bees against the attacks of ants asks for the solution of a very important question to nearly all tropical bee-masters. Those who have never lived or traveled much in the tropics can have no adequate conception of the extraordinary numbers of tropical ants and their wonderful abilities. When I tell my friends that some species of ants will tunnel under a river as wide as the Thames at London Bridge they think I am guilty of telling a traveler's tale; but there is the best ground for so stating. It is pretty hard to put a limit to their abilities and extraordinary energy and industry.

Ants are said to be the masters of South America, and with truth. Some are relentless enemies of bees—I mean those with carnivorous instincts chiefly, while some like honey as a food. There may be 2000 different species of ants in South America, and it is almost needless to add that practically nothing is known about them, the subject being so vast that few or none care to attack the problem. South America is immensely rich in ants, bees, and wasps, next to man himself the most highly organized of all animals. Down there the ants are everywhere. They have their nests in the loftiest trees, and in tunnels far underneath the surface of the earth; and they tackle any thing and every thing day and night.

I do not think that any other part of the world can compare with South America in this respect; but South Africa has a goodly share. Years ago I read such authorities as Huber, Forel, Moggridge, and McCook; but their observations apply principally to European and North American species; and what the natives say can not always be relied on. So it is, if any one is very much bothered with these enemies he will have to depend

very much on his own observations excepting what few hints he may get here and there.

I read up the tropical authorities on ants such as Bates, Wallace, and Bell; and, with the exception of the latter, I could glean nothing from them in regard to the habits of ants; and if we have to fight ants we must understand their ways.

Mr. O. O. Poppleton, of Florida, has recently graphically described the actions of an ant common to his State, which makes desperate assaults on hive bees. Strange to relate, the same species is common to South America, and is there a relentless and undying enemy of bees. The worst of it is, it does most of its ravaging at night. It is also nomadic in its habits—a sort of Arab among the ants. It is, therefore, what entomologists term an *Eciton* or driver ant. If it had an abidingplace as other ants have we could destroy its home; but it has a nasty habit of encamping handy for the struggle. It is no coward or sluggard. It will just as readily attack a strong colony as a weak one; and I do not hesitate to say that in some parts they are numerous enough to destroy all the colonies at the Home of the Honey-bees within three days. It doesn't make any difference how many the bees may kill, more ants jump to the attack till superior numbers gain the day. The Russians could get a good deal of knowledge from them preparatory to the next war. Before I understood them very

frogs (crapeaus) came and played with the water till it all splashed out—this in the night too. An mals, too, thought I placed it there for their benefit.

Gradually I discovered the only way to keep bees in hot countries was to construct an ant-proof shed. I give an illustration of a shed the result of my observations.

The ant I refer to is not the only one by any means which bee-keepers have to dread.

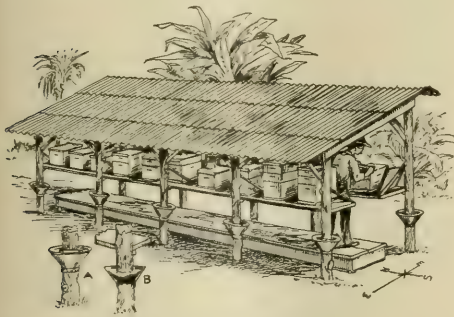
Some of these may be circumvented by destroying their nests—and there are nests 100 feet around or so, and perhaps 6 feet deep in the earth. In Trinidad and Eastern Venezuela the “parasol” ant is very destructive to plantations, particularly to cacao (chocolate). The planters resort to various devices to destroy the nests. Some puddle the whole nest, but that is expensive, costing something like ten dollars a nest. Bisulphide of carbon and gasoline are very effectively used, but are disguised under fanciful names and sold at a large profit.

Picric acid, nitroglycerine, and gunpowder can also be used, and crude petroleum is one of the best remedies where one can get it cheaply.

The “parasol” is a leaf-cutting ant, and bears a great resemblance to the ant just described; in fact, I can't see the difference; but in habits it is entirely different. The parasol ant builds an immense nest, works in daytime, eats vegetation, and is not a nomad. There are many ants which may be combated by the same means as the parasol ant—that is, by using bisulphide of carbon or gasoline. The A B C says use a crowbar to make a hole, and then put in the bisulphide; but that is a poor way. Do nothing to clog up the passages in the nest; drop some carbon into each hole, and then cover up the nest with a piece of canvas. The gas which is generated is heavier than air, and will sink to the remotest corners of the nest, killing all life in its course.

Where ants' nests are near the home, something may be done by digging out the nest a little at a time, allowing the chickens to eat the larvæ (ant eggs). But there is nothing like a shed properly constructed.

Construct a good big tin cup around each post, and fill the same half full with tar. Water may be used, but it is not a tenth as effective as tar; besides, the tar preserves the post. The illustrations will show just how to do this. Water may be allowed to accumulate in the cups on top of the tar. It is safe to say no insect or other animal will touch the same. Ants hate tar for two reasons—its smell is vile, and it sticks their feet. The stingless bees plaster a sort of bird-lime around their entrance-hole so sticky no ant cares to negotiate. The hives should be very simple—no gable roofs, no porticoes, no quilts, nothing that will form a refuge for ants. Closed-end frames with a space at the end will not answer, and don't pay good money for division-boards or followers, for some species of ants will actually make their home inside the hive and keep robbing and teasing the bees all the while. And there is nothing



MORRISON'S ANT-PROOF BEE-SHED FOR THE TROPICS.

well I used to nail up my hives every evening and open them in the morning; but sometimes they managed to gain an entrance somehow, and then a battle would ensue. The bees would *holler* something like this—“Help! help! help! blue murder! bee-keeper, wake up!” and I got so used to it that at the first onslaught the shouts of the bees would wake me right up. Then I would get a light and discover the “leak,” nail up the hive, and retire to rest. In daytime they would encamp in swarms underneath the hives, patiently awaiting their opportunity. This kind of thing gives a man an eerie feeling of insecurity, especially when he is the only owner of bees for many leagues around. Why didn't I put the legs of the hives in cans of water? I did, but to little purpose. The

like a shed for bees in hot countries, both for the comfort of the apiarist and the bees.

To prevent the loss of queens, clipping should be resorted to, and perforated zinc honey-boards should be used if extracted honey is being run for. It is a mistake to project the eaves of the shed far over the hives. This causes too much shade, and the bees can not see the entrance at eventide.

If the climate is damp I prefer the morning sun to strike one row of hives and the setting sun the other row. The bees work better—far better; and the apiarist himself can do more work than if out in the open. In the little matter of stings there will be about three-fourths less. To prevent fire the roof should be of iron or tin.

ANTS IN PENNSYLVANIA.

How to Destroy them; their Habits.

BY D. E. BEST.

Mr. McCready's ant-fight with bees, page 148, is nothing new to me. Mr. Poppleton's reply is very correct, only I use coal oil instead of hot water to kill them, as the remaining odor of the oil is very efficacious in keeping away those that are not killed. In your footnote, Mr. Editor, I see you call the above a very interesting contribution, hence I will give you some of my trials.

I have to fight with those big half-inch ants and some smaller ones, say about one-fourth inch long, almost every summer, and they are very troublesome wherever they once take hold. They kill a bee almost as quick as a watch-tick—that is, if they get it the right way. Sometimes the dead bees have the same appearance they do when drowned in fat. Mr. Poppleton says a great many of the ants will also be killed; but how the bees do this is a mystery to me. Why can he not see the bees sting the ant? I think I have seen that. He also says chickens are fond of ants and their eggs. I know they are; and whenever you can not laugh, but would like to, simply take six or more young chicks and put them in the middle of an ant-nest; then I am sure you can laugh, and heartily too, as the youngsters will learn their dancing right there. They put in three and four and all kinds of steps.

I have one hive where the ants took possession three or four years ago, and I tell you I have to keep a close watch every summer else they will kill that colony of bees very soon. I once thought I had killed or driven away every ant and egg, and hence neglected to watch. Then one day I noticed the bees flew no more. I then went close to the hive to see the cause. I finally saw quite a lot of those big ants in the entrance, and they simply kept away the field bees. Whenever one or more bees came near, ants stood ready on their hind legs, and they almost jumped up to catch the bee. Bees inside had to stay inside else they had to enter a big fire, which would have resulted in sure death. Then I went for my "gun," which

meant coal oil, and gave the outside ants a dose. I then opened the hive and took out every frame and comb, and by so doing I found that ants had filled about half way up three or four of the outside combs with chaff from the outside body. Now, how many eggs, about the same size as the ants, they had in that chaff I can not say; but it was terrible. So again I gave that hive a good overhauling, and thought I had surely won the battle; but later on I found still more of the pests. Let me tell you that the same nuisance will also kill trees; and whenever you plant vegetable seeds or plants in such ant-nests, that means an entire failure, for they are sure to ruin or kill. I remember that, some ten or twelve years ago, I had cabbage in the same field for several years, and there was a certain spot where the plants always suffered more or less. On examination I found a big ant-nest in the same spot, and, if I mistake not, the same nest is there still, although the field is now in clover.

Best's, Pa.

THE LITTLE RED ANTS: HOW TO PREVENT THEM FROM BOTHERING BEES.

In regard to those red ants you spoke of on page 148, Feb. 1, we have them here. They live in trees, stumps, etc. They are a nuisance around a hive. We also have a little ant that only tantalizes the bees. The remedy I use is this: I have all my hives on stands, ten or twelve on a stand, supported by four posts, or legs. I get some very coarse flannel, or old horse-blankets, tear in strips about six inches wide, wrap them tightly around the posts, but leaving the bottom edge of the strip loose so that it flares out somewhat from the post. This hairy woolen goods makes their headway impossible, for they will not go up inside the cloth and then down the cloth and up again on the outside. Pour a little kerosene on this, and the ants will never bother the bees. We use something similar on the fruit-trees, etc.

ED. J. COLE.

St. Louis, Mo.

THE WEST SPIRAL QUEEN-CELL PROTECTOR.

Some of the Different Uses to which they Can be Put; Queen-nursery.

BY N. D. WEST.

In forming a queen-nursery with the West spiral wire cage, make a cell-bar, saw out some slats $\frac{1}{2}$ inch thick by $1\frac{1}{2}$ wide, and $\frac{1}{2}$ inch longer than the inside measure of the length of your brood-frame. In these slats bore $\frac{1}{4}$ -inch holes, or a little larger if the larger cages are used. Bore the holes as close to each other as you can and not split the slat, for a cell or a cage bar (see Fig. 1).

Now go and get as many queen-cells as you have holes in the cell-bar. Place the queen-cells in the spiral queen-cell protector;

then put the tin covers over the cells (Fig. 2), and put the cell-protector into the large end of the long spiral cage as you would put a cork into a bottle for a stopper. Turn the cell-protector around two or three times and screw it fast to the cage; then put a cage thus prepared in each hole in the cell-bar.

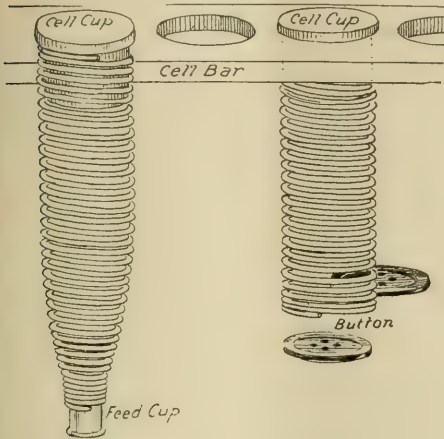


FIG. 1.

This cell-bar may then be fitted into an empty brood-frame about two inches below the top-bar of the frame. I like it better to have the top-bar of the frame removed all but the ends to hang in the rabbets of the hive. Prepare the brood-frame with notches made in the frame ends to receive the cell-bar.

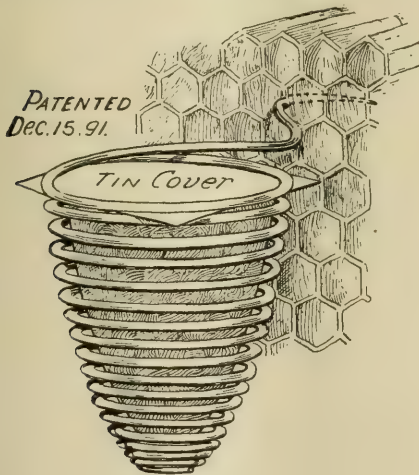


FIG. 2.

When wooden cell cups are used, having the cells made on them and all nicely capped over, you can use the cage in the same way in the cell-bar. Make a cell-bar if you choose, the same length as the top-bar of your brood-frame; and by taking out one brood-frame lay the cell-bar containing the

caged cells loosely in the place of the frame, and put a quilt over all until the queens hatch. The flange on the cell cup will keep the cages from falling through the holes of the cell-bar. However, I hatch the most of my queen-cells by hanging the united cell-protector and cage by their spurs on one side of a brood-comb. I prefer to hatch them in hives that have no loose queens. The bees will then feed and care for the young queens, when they are hatched, through the coils of the cage.

HARD STORE CANDY VALUABLE FOR INTRODUCING QUEENS.

For an introducing-cage I know of nothing so convenient as the spiral cage. I introduce nearly all of my queens with it, and a piece of hard store candy for a cage-stopper. Queens that have not been sent through the mail I introduce at one operation—that is, I remove the condemned queen, and at once put in a new caged queen before closing the hive if I have the queen to put in. I use a piece of hard store candy, $1\frac{1}{2}$ inches long or less (according to the length of time I want the queen confined in the cage). The candy is put in the large end of the cage, and then I place a nail or toothpick through the spiral below the candy (see Fig. 3), to keep the candy from falling down on the queen. The bees will eat the candy from all sides through the cage, and make the candy smaller in diameter. In an ordinary swarm a piece of candy $1\frac{1}{2}$ inches long will keep the queen confined 48 hours. If you raise the same length of piece of candy so that it will protrude $\frac{1}{4}$ inch or more above the cage, the bees will liberate the queen in less time, for they will eat away the candy much faster above the cage.

I introduce queens more frequently by hanging the cage by its spur on the side of a comb in some out-of-the-way place where there is room for it. When it is necessary, spread the combs apart a little to make room for the cage. I do sometimes lay the caged queen on top of the frames under the quilt or under the frames on the hive bottom. In all cases, place the cage so the candy will not fall out of the cage. Let the bees eat the candy. Do not open the hive for a week after the queen is liberated.

Many queens get killed by opening the hive too soon after the queen is liberated from the cage, which often frightens the new queen and causes her to scramble through and among the stranger bees excitedly, and for this cause many queens get balled and finally killed.

To use the spiral cage in the baby nuclei, the holes in the cover to receive the cage should be large enough for the cage to go in very loosely.

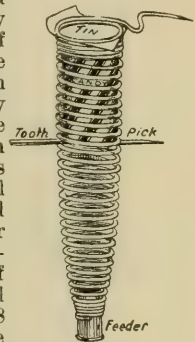


FIG. 3.

BEE-ESCAPES.

These long spiral cages are good bee-escapes. Many who are using them prefer them to all others, especially in handling comb honey. I use them altogether, and can

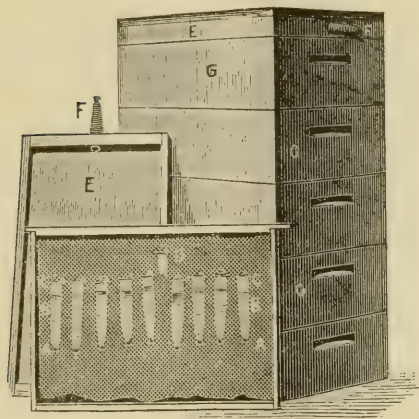


FIG. 4.

rid clumps of comb honey of their bees in less than half the time that I can with any other device that I know of. It is necessary to know how to use them (see Fig. 4).

CARING FOR OUR BEES.

A Practical Way to do it After they Have Swarmed; How to Work in Harmony with Nature.

BY E. W. ALEXANDER.

While many are trying to invent some unnatural complicated hive, with the erroneous belief that it will prevent bees from desiring to swarm, and still others are recommending equally unnatural methods in spending valuable time in changing their brood from hive to hive all over the apiary, in hopes that they can overcome one of the strongest natural laws that the Creator has stamped indelibly on our bees, I for one will try to use the intelligence God has given me to work in harmony with his law, and see if, by so doing, we can not accomplish far more, and at the same time do it much easier, than to work continually in discord.

If, in the past, man had only let reason harmonize a little more with natural law the world would have been the better for it. There is one thing that I have noticed recently that I was sorry to see; that is, some go so far as to say that swarming is a *curse* to bee-keeping, and that it is a bane to our welfare.

Let us consider which of all the many theories and methods that are now before us is the practical one to care for a colony that has just swarmed, in order that they can all

be united again, and at the same time do away with any desire to swarm again that season. From a long and extensive experience along this line we find the following method far better than any other that has ever been made public. It is this:

HOW TO MAKE THE SWARM CONTENTED.

We will suppose the colony is swarming, and we give them a hive which has its frames filled with foundation. This will give them a chance to use up the material for wax that is fast accumulating in their bodies; and after they are all in the new hive we will bring it back to the parent colony and set it on top, facing an opposite direction. This gives them a new location to work from, and is of much importance. Now leave them undisturbed until about night of the fourth day, then just before dark set the new swarm to one side out of the way and remove every comb from the old colony and shake the bees in the grass two or three feet from their hive, and be sure you remove every queen-cell from their combs and return them to the old hive; then shake the combs of the new swarm on top of the other bees in the grass; look up their queen and let her run into the old hive with some of her own bees. Now put on an excluder; and if you are running your bees for extracted honey set the hive of new drawn combs on top of the excluder, and the colony will all work in harmony together. If you are running your bees for comb honey, put on supers of sections filled with foundation. This will enable them to continue building comb, which has much to do with their becoming satisfied. Now as to why this method is a success: I will say it is all natural. First, the bees have been gratified in their desire to swarm; their queen has returned, during the four days she was in the new hive, to her normal condition of egg-laying; the bees have and are working off the accumulated wax that nature had given them, and they become satisfied with a new location; the old colony that had a lot of young queens maturing has lost them all, they hardly know how, and gladly welcome their mother home again, while the bees that constituted the swarm are so demoralized by losing their location that they soon form a line down one side of the hive to the old entrance. This gives us again a strong full colony ready to settle down to work; and, if properly cared for, they will gather more honey than under any other conditions. With us, not five per cent when treated as above show any desire to swarm again during the season. I will admit that he who is competent to care for only a few colonies may prevent swarming, and secure a fair surplus by this endless amount of tinkering with his brood; but it is unnatural, discouraging, and demoralizing to the bees, and, if practiced by our extensive honey-producers, would require so much help that, from a money point of view, it could not be otherwise than a flat failure.

I do not like to tear down the theories of any man without substituting something

better in their place, which I am sure I have given in the above. Since we practiced this method we are pleased to see a colony swarm, and often wish that more of our bees would swarm than do, for we are sure to get our largest surplus from colonies that are treated as above described.

I don't think that there is any other condition a colony of bees can be in where they will work with such perseverance as when their desire to swarm has been gratified. Some of the nearest apiaries to us have swarmed a great deal this season, while we have had only 31 swarms all told up to Aug. 1, and this from an apiary of 750 colonies, and about 20 of these were caused by a blunder we made in June.

I speak of this small per cent of swarms during a decidedly swarming year to show that, while we allow our bees to carry out their natural instinct, we also apply natural methods to work in harmony with their desires, thus bringing two or more elements to work together, which has much to do with success.

This article was mostly written last March, so it could appear in GLEANINGS in time for you to try this method during the summer; but sickness prevented me from finishing it until now. I am sorry it is so far behind what it should have been; but I could not help it; and as this is my first attempt at writing for nearly four months I wish to thank many friends for their kind, sympathizing, and encouraging letters during my illness; and especially do I thank those who sent me boxes of beautiful fragrant flowers. When these tokens of respect were brought to my bed I could only say, "Oh! why do my friends do so?" It is my sincere hope and prayer that you will all live to a good old age, and that the greatest of all blessings, good health, will be yours to the end.

Delanson, N. Y., Aug. 1.

CHAMBERS' CELL-STARTING DEVICE.

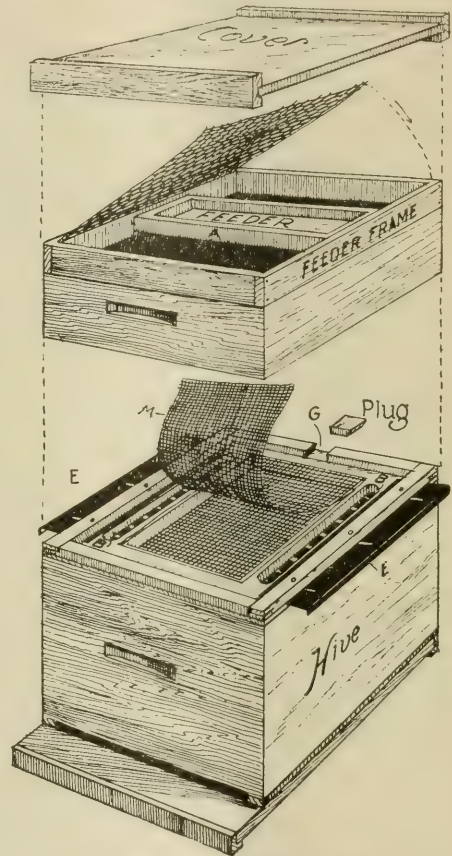
Further Particulars Concerning the Method Described on Page 293; the Use of a Camel's-hair Brush for Transferring Larvæ.

BY J. E. CHAMBERS.

[For the convenience of the reader we reproduce the cut that appeared on page 294.—ED.]

Since the publication of my article in the March 1st issue of GLEANINGS I have received a number of letters asking for additional information regarding my cell-starting device, and also for a more explicit description of the construction and operation of said device. In answer to all these inquirers and others who may become interested I will state that I have done my best in this article to give full and accurate information, carefully describing every detail. In order to avoid the possibility of any one making a mistake I have gone into the minor details more fully than commonly.

This device consists of a wire-cloth-covered frame, with a feeder nailed crosswise of the frame. By reference to the illustration accompanying my article on page 294 the feeder will be seen at A, with the wire cloth that covers the frame raised up to show the feeder. This frame must be the exact size of the hive in use, with a bee-space over and under the feeder. The wire cloth covering the frame is for the double purpose of keeping the bees from flying out when the cover is raised to pour in the feed, and to prevent robber bees from getting into the hive when



THE CHAMBERS CELL-BUILDING HIVE.

the cover is up for ventilating purposes. The remaining part of the device is what I call the trap-board, which is a plain board, cleated all around the outside edges, and made the exact size of the hive. Through the center of this board there is a hole cut, 14 inches long and 6 wide, covered with wire cloth on both sides. At either side of this double-screen-covered hole is shown another hole the same length, and two inches wide, covered on the bottom with perforated zinc and over the top with tin slides. These slides are shown at E, E, in the illustration for March 1st; and the wire cloth turned back at M is the top cloth covering the large

opening. Through the center of the board the cloth covering the bottom side can be distinctly seen. This double cloth serves several purposes. One is to maintain the colony odor and to keep the reigning queen in the lower hive as far away from the cell-builders above as possible. Still another is to afford heat and a certain measure of ventilation up through the center, where the cell-builders are located. Through the rear cleat in the board can be seen an opening one inch wide with a small plug to fit it. This plug is to be used once, to close up the opening, when the first lot of young bees are to be trapped to start cells; but in three days after the cells are accepted, the plug must be removed in order to let the young bees fly, thereby establishing a sort of independent colony in the top hive or story; and unless this semi-independent condition is established and maintained the best results are impossible. At such times the tin slides may also be pulled out, as the continuous feeding draws the young bees above in sufficient force to complete the cells. After the first batch of cells is completed the bees start a fresh batch with much greater alacrity than at first.

Last fall, as queen-rearing slacked off I shoved in the tin slides and allowed a number of young queens to mate from the hole in the rear of the board, and successfully wintered all such colonies with a queen above and below; and from what I have thus learned I have concluded that it is a better way to winter young queens over than in small separate nuclei.

By reference to the illustration on page 294 it will be noted that the tin slides pass through the side cleats, and perhaps it might be well to state that just enough of the wood should be removed to allow the slides to move freely back and forth, and should be fastened through the side cleat, with small nails fitting into transverse slots in the tin, as shown in the illustration.

In the cut alluded to, the trap-board is shown laid on top of the bottom hive; but be it remembered that this was necessary in order to show up the different parts and construction of the board. However, as I plainly said in my article for March 1, I use shallow hives, and practice nailing the board to the bottom of the upper hive; but it can, of course, be used loose if preferred. When tilting hives on end to get at the brood in the lower hive I find it desirable to have them fastened. This very difference in the description and the illustration has formed the subject of several inquiries, and several parties have asked what a cell-bar is and what is meant by Doolittle cups, and what kind of camel's-hair brush do I use. Most of these things have been written about so much that I had no idea any one would be at a loss to understand their meaning, and it seems ridiculous to describe such things. Several have asked what amount of royal jelly I use in priming the cell cups to receive the young larvæ. As this is a question about which there is no generally accepted agree-

ment I will say that, in my opinion, there is no need of more than two or three large drops. However, if the royal jelly is fresh, more can do no harm; but I question if it can be expected to do much good, for under many conditions the bees will remove most if not all of it before they begin feeding in *real earnest*; so I would say, use according to the amount you have, be it little or much. Such is my rule at least.

With regard to the kind of brush to use, I will state that I use a fine camel's-hair brush, about No. 1. These are known as artists' brushes, and should be prepared by trimming down to a fine point at the ferrules, and waxed to within $\frac{1}{4}$ inch of the point or tip of the brush, which should be kept soft and clean at all times.

With such a brush there is no need to trim down the comb in order to get at the little larva. Simply turn the comb to the light. Place the brush down by the side of the small larva. With a very light pressure, just sufficient to cause the tip of the soft hair to spread a little and pass under the larva lying on its bed of food, raise the brush out carefully, and you have the grub all ready to put where you want it. I have tried all kinds of sticks, but none of them are in it by the side of this little brush; and the beauty of it all is, the expert never kills any of the larvæ when transferring with the brush, and that is the reason why I get such a large proportion of my cups accepted.

In preparing the colony for cell-starting, proceed exactly as directed in my former article; but be sure to find the queen and put her in the lower hive or super, for it will be impossible to get the bees to start cells with the queen above; and another thing I wish to emphasize is the necessity of having but one comb of open brood in the upper story. Less will do. There should be at least four combs of hatching brood, and care must be exercised in order to get a large number of young bees above, and these must be cut off from their brood and queen in the lower hive for at least 36 hours, though they often start cells within 12 hours; but the idea is, to fix them thoroughly under the queenless feeling, so that a large number will remain and become permanently attached to the upper hive and the rear flight-hole. It will be noticed that, when the plug is removed to give them a first flight, many take a flight, but soon return and take up a permanent residence, and begin to bring pollen and carry water. With these bees the condition of queenlessness is always present, and that of itself seems to help much in inciting the young bees to cell-building again, after a batch of cells has been completed, and fresh bees and brood drawn from below with which to start another lot.

As a matter of fact, after the slides are drawn out many bees will alternate between the upper and lower hives; but this condition is exactly what I always desire, for I find that drones are reared freely under such conditions, and, so far as I know, are never driven off or starved out.

THE FIELD DAY OF BEE-KEEPERS AT JENKINTOWN, PA., JUNE 26.

Snap-shots of this Big Meet: Stingless Bees; how they Routed some Experts, etc.

BY E. R. ROOT.

The stingless-bee demonstration by W. K. Morrison, lately of the tropics, in front of an audience of one thousand bee-keepers, aroused more general interest and merriment than perhaps any thing else at this meeting.

We have heard about stingless bees, and often imagined how delightful it would be to handle a strain of bees that simply could *not* sting, even if they would. Now, this large crowd was to have the pleasure of seeing these bees handled, and to satisfy itself whether or not the stingless variety could ever be made any thing more than a mere curiosity in the hand of a practical bee-keeper. The demonstrator, Mr. W. K. Morrison, had traveled many thousands of

miles for them in South America, even going 300 miles up the Orinoco River, clear beyond the pale of civilization, where it is almost impossible for one even to chop his way through the thickly matted underbrush on the shores of the river. Here he found the bees that survive in spite of the ants and hordes of other insects that would deprive them of life and home. That he was able to bring them so far without losing them is a wonder, but Mr. Morrison says that these bees bear shipping well. They do not seem to get excited and into a fever heat, and suffocate like ordinary bees; hence stand a long journey where other bees would die.

He brought back two colonies of them safely to New York. As the city had placed a



MR. BOYDEN GIVING DIRECTIONS TO THE YOUNG LADY HAVING CHARGE OF THE DISTRIBUTION OF VEILS AT THE JENKINTOWN MEET.



OUR SECRETARY, MR. A. L. BOYDEN, TALKING TO OUR "LONG-ARM" TRAVELING CORRESPONDENT, DR. D. E. LYON, OF RYE, N. Y.—MR. BOYDEN ON THE RIGHT.

ban on keeping bees within its borders, it was not deemed wise to keep even the stingless variety in the city. So precious were they that we did not dare to trust them to the tender care of the express companies, but sent them to Jenkintown by special messenger.

One of the colonies was placed in the honey-house, and the other one in a small building in the rear. Both of them had entrances not to exceed $\frac{1}{4}$ inch (that is all they will tolerate), and around or near these entrances little groups of bee-keepers an-
 ed themselves by watching these stingless

bees enter the flight-hole with unerring accuracy. Over the entrance was placed a sign, "Watch the stingless bees hit the bulls-eye."

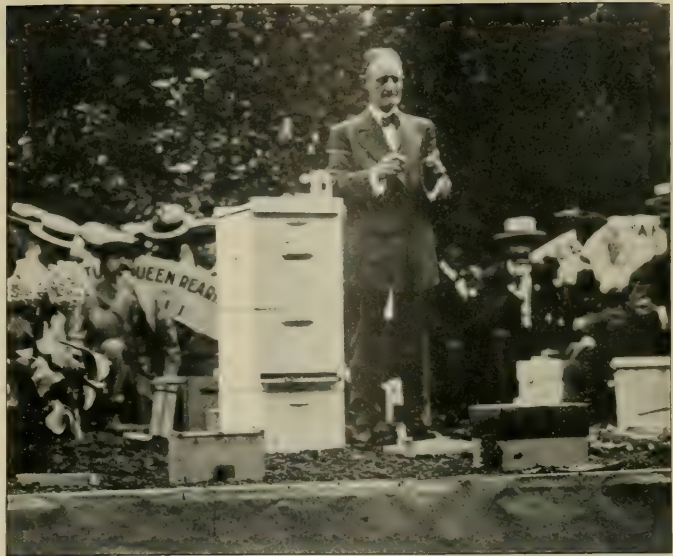
But, to return to our demonstration work.



W. L. COGGSHALL, THE BIG BEE-MAN OF YORK STATE, STOPPING TO EXPLAIN, AS WELL AS TO DEMONSTRATE AT THE JENKINTOWN MEET, HIS METHOD OF UNCAPPING AND EXTRACTING; HAROLD HORNER, HIS ASSISTANT, SHOWN AT THE UPPER LEFT-HAND CORNER.

Mr. Morrison, together with Prof. Surface, Dr. Phillips, Dr. McGregor, Prof. Bigelow, and Mr. Selser, were stationed on a platform about six feet high. The bees were in a rude box, for they can not be confined on ordinary brood-frames. While their brood-comb itself is much like that of the ordinary bees, the *store-cells* are totally unlike them. If you can imagine bumble-bee store cells on a large scale, you can get some idea of these cups of honey.

Mr. Morrison pried loose the top of the hive. Then the fun began. The scientific men on the stand, who desired to get a close view of the wonderful insects, got it with a vengeance. The little rascals poured out in great numbers, and began their furious biting. They crawled into the ears and mouths of their "house-breakers," and sometimes into the nose. They would grab a spear of hair, and pull and twist in a way that was almost as bad as a sting. They fastened



E. L. PRATT (SWARTHMORE) DEMONSTRATING HIS METHOD OF QUEEN-REARING AT JENKINTOWN.

themselves on the flesh, and would bite in a way that would make one *feel* as if he would be actually eaten up. Scores of them would be squealing in the hair of each person attacked, biting at the wrists, fingers, face, etc.

Prof. Bigelow prides himself on being able to stand the onslaughts of ordinary bees with their stings; but he began to scratch and strike in a way that started the whole crowd into uproarious laughter. Finally he jumped, or, rather, tumbled, off from the high stand, remarking, as he did so, that he had "had enough." "Why," said he, "they would drive a fellow crazy."

When the stand had been nearly cleared I concluded that I should like to know what the sensation was like. I repented, but concluded I would have to stand my ground, and I did till I could endure it no longer. I could stand the biting, and I could endure the bees in my hair; but when the little miscreants began to crawl up into my ears and *into my nose* I not only clambered off but fell off the stand, sneezing and blowing to get the little chaps out of my mustache and out of my nose. The crowd enjoyed the performances hugely. Mr. Morrison finally put on a veil, and continued his demonstration. The stingless-bee honey was passed around to the crowds, and samples of the brood-comb were also exhibited. It looked at one time as if we would lose this valuable colony, for their hive was being pillaged, so eager was the crowd to see, taste the honey, and experience the sensation of being "bitten."

Now about those bites. They are not serious. One could stand a thousand of the bees biting at once were it not for the little high-key squeals, and digging and twisting of individual hairs of the head; and then the little chaps seem to *know* that the proper thing



MR. R. DEGEN, OF HOBOKEN, N. J., LOOKING AT A FINE FRAME OF CARNIOLANS (LOCKHART STRAIN), THAT WERE BEING DEMONSTRATED AT THE JENKINTOWN MEETING.



THE BACK EDGE OF THE CROWD THAT ASSEMBLED IN FRONT OF THE GRAND STAND AT JENKINTOWN, WHERE THE STINGLESS BEES WERE BEING HANDLED.

to do is to pull at the eyelashes, and fly into the nostrils, when, presto! they are victors.

Mr. Morrison gives it as his opinion that these bees can be domesticated in the United States. There are seldom more than 2000 bees to the colony; they are vigorous defenders of their home, and when left alone will mind their own business. They very much resemble yellow Italians in size and color-markings. Their general shape is somewhat blunter, and the whole body is a little shorter (see illustration in Dec. 15th GLEANINGS, last year). No scientist as yet knows their species; in fact, I believe it has not been named. We know very little of their habits or how they may be propagated. I believe Mr. Morrison stated that stingless bees or *melipona* have more than one queen. In that case the loss of the queen would not necessarily cause the loss of the colony. As these bees belong to an entirely different genus they can not, of course, be crossed with any of our common varieties; hence there will be no danger of intermingling.

One of the pictures here shown represents the rear of the crowd while the stingless-bee demonstration was going on. The elevated stand is shown at the upper right-hand side, about half way up.

THE DEMONSTRATION BY E. L. PRATT.

The work performed by Mr. Pratt, commonly known as "Swarthmore," both at the field-day meeting a year ago and this year, attracted a great deal of attention. I think it is safe to say that Mr. Pratt has gone deeper into the general subject of queen-rearing than any other man in the United States. He has made a number of interesting as well

as valuable discoveries in connection with this subject, and the crowd was always interested in hearing him talk and explain his methods. One of the illustrations herewith shows him in the very act, on his elevated stand, with his various appliances scattered here and there.

DEMONSTRATION BY W. L. COGGSHALL.

Mr. W. L. Coggshall, of Groton, N. Y., the man who has the reputation of being the most extensive bee-keeper in the world, was on the program for illustrating his method for taking off extracted honey; for be it known that Mr. Coggshall is the man who teaches all his helpers to become "lightning operators." His lightning act of kicking off an extracting-super full of bees and extracting-combs has attracted wide attention among bee-keepers generally. At the various conventions, and at this meeting in particular, Mr. Coggshall was jossed about his kick-off-super act. I had seen him do the work at his own yards, but did not see it at this meeting. As I came up with the camera I said, "Say, Coggshall, I want to catch you in the act of kicking off a super."

"Say, Ernest, you want to poke fun at me about this kick-off act."

As he said this I caught him with the camera. The result shows in the upper right-hand-corner of the large plate. Leaning against the fence and the uncapping-can he said, "Say, some of you fellows have got the wrong idea. If you kick the super right, you loosen the propolis and do not disturb the bees any more than when you use a wedge or a pry. The kick is no harder than just enough to break the propolis connections.

It saves time; and if a little smoke be now introduced over the top of the bees and between the super and brood-nest, the bees will be no more difficult to handle than when the super is pried loose in the slow laborious way when the screwdriver method is used."

As Mr. Coggs shall is intensely practical, and works his bees for all there is in them from the point of dollars and cents, this demonstration work was closely followed. He sawed, among other things, how to use a bee-brush—the one bearing his name: how to uncup the combs, starting the knife at the bottom and gradually working upward; how to hold the frame in the left arm when cutting out a small patch of capping. The latter act is shown in the lower right-hand corner of the large plate. This is a little trick that may be found extremely convenient by others. But there is nothing like seeing a thing done by a practical man who knows his business.

Mr. Harold Horner, in the upper right-hand corner, was general assistant to Mr. Selser, field marshal of the day. Whenever a demonstrator needed help he turned in. On this occasion he was helping out Mr. Coggs shall in running an extractor while the other was taking out the combs, clearing them of bees, and uncapping.

I might explain that Mr. Coggs shall wears a one-piece bee-suit, the same opening in front. The fewer pieces one can have—that is, the fewer openings for a suit, the better for the bee-keeper, said Mr. Coggs shall. In the bee-yard he ordinarily wears boots. The legs of the trousers of this suit are tucked in the boots, and then when he is doing the

strenuous work he wears fingerless gloves, the gauntlets of which fit over the sleeves of the bee-suit.

Mr. Coggs shall also illustrated his method of making smoker fuel. He rolls old gunny sacks, burlap, or other material of that sort, around a stick until it is of the diameter of the inside of the smoker-barrel. These are tied at the proper intervals with a string, and then chopped up with a sharp hatchet into suitable lengths for a smoker. The end is dipped in a solution of saltpeter, when it is ready for ignition. Right over the name, "W. L. Coggs shall," will be seen a sample of this fuel burning in the hands of one of the on-lookers. Mr. Coggs shall showed how a piece of this fuel could be used without any smoker by holding them near the frames and blowing on them with the breath.

THE DEMONSTRATION BY PROF. BIGELOW.

Another demonstration that attracted a good deal of attention was that of Prof. E. F. Bigelow, of Stamford, Conn., wherein he showed the use of his Pearl Agnes hive and the Bigelow Educational hive. In two of the illustrations given he has before him a class of children to whom he is demonstrating the art of handling bees in his miniature hives. One of the boys shown in the foreground appears to have had a practical demonstration of the effect of a bee-sting on his upper lip. So far as I know this was the only sting that was received that day. The boy, however, as will be seen, stood his ground in spite of the enlarged lip.

Prof. Bigelow, like Prof. Surface, is a natural and easy speaker. He scarcely needs



A SNAPSHOT AT THE JENKINTOWN APIARY WHILE SOME OF THE DEMONSTRATING WORK WAS GOING ON. LOOKING TOWARD THE HONEY-HOUSE SHOWN IN BACK-GROUND. DR. LYON IS ON THE ROOF ABOUT TO PHOTOGRAPH BOOLITTLE.



PROF. F. F. EIGELOW AT THE JENKINTOWN MEET DEMONSTRATING A PEARL AGNES HIVE OF BEES TO A COMPANY OF CHILDREN. ONE LITTLE BOY JUST IN FRONT OF THE PROFESSOR GOT A STING IN THE UPPER LIP.

an introduction to our readers; but any one who may have an opportunity of seeing him make a demonstration or hear one of his interesting popular lectures, should certainly hear him.

WHY THE BEES AT THE JENKINTOWN APIARY ALLOWED THE CROWDS TO PASS FREELY AMONG THEM WITHOUT MOLESTATION.

I said that, so far as I knew, there was only one boy that was stung at that time. This does not necessarily indicate that the Root bees were so extremely gentle that they could not be made to sting; but we have learned by experience that, when there is a large crowd in a bee-yard, the bees will become utterly demoralized, and, so far from offering an attack, will buzz around in aimless confusion trying to find the entrance, for the whole lay of the land around them has been changed. The thought of "asserting their rights" or wreaking vengeance seems to be wholly lost in the other thought, "Where are we at? When and where shall we find our homes?" The crowds intermingle among the hives and the bees with perfect impunity. While some of the bee-keepers wore veils at the start they gradually lifted them up during the rest of the day. The various photos shown in the last issue and in this prove that scarcely a veil was used. The next day, when Doolittle, myself, and one or two others went among them they were by no means good-natured; indeed, they drove one of the young ladies, who was "slicking up," out of the yard, and compelled Doolittle and me to put on

veils. You see they had recovered themselves from the disturbance of the day before, and were then on their dignity.

Speaking about bee-veils reminds me of our bee-veil stand. Mr. Selser had arranged to have such a stand tended by a couple of girls, convenient of access. Our Secretary, Mr. Boyden, was giving some directions about the distribution of veils when our camerist caught the bee-veil stand and all. The result is here shown.

Mr. Boyden is shown in the first view, talking to our "long-arm correspondent" Dr. D. E. Lyon.

I regret that we were unable to get a picture of all of our demonstrators, among them being Mr. Grant Stanley, who showed how us to handle Danzenbaker closed-end frames. He made an excellent demonstration of the hive.

In our next issue we will give the names of those who were successful in the prize-winning contests, as well as a few other facts that will be of general interest.

USING HONEY-BARRELS THE SECOND TIME.

Can old basswood honey-barrels be used for honey again? If so, how should they be cleaned to make them safe for honey again? These barrels were not cleaned after the honey was taken out. JOHN SEITZ.

Mauston, Wis., May 19.

[Yes, such barrels may be used again. Wash out with hot water, and then when dry coat with hot wax.—ED.]

FOUL BROOD.

How to Cure it: a Modification of the McEvoy Plan: how to Render Diseased Honey Fit for Feeding Bees.

BY W. A. H. GILSTRAP.

It is a needless waste of good property to burn diseased brood with combs and frames. The queen and bulk of the bees should be shaken into a new hive in a new location, and the brood allowed to hatch on the old stand. The bees are shaken from the *center* of the brood-chamber, and the queen nearly always goes where we want her; but hives are numbered and dated in duplicate, so the queen can be easily located in four days. In wholesale work we can not look for queens in strong colonies in a honey-dearth.

It is very important to have all healthy stocks removed from near infected stocks before the treatment is begun. If little or no honey is coming in at the time, I place a comb of healthy brood with the forced swarm to keep it at home for four days, and then even this brood is placed with the rest of the old diseased lot to hatch. The queen-right colony can be given healthy brood, and marked "cured."

The brood will soon hatch from the old combs, and the bees can be given an inferior

comb with a little brood, if only a small piece is inserted in the comb for the purpose. The comb can be given a term in the solar extractor, and the residue put in a wax-press or stove. Boil the frames. The wax is all right after melting under good steam pressure. The honey is good to feed bees after being diluted, and then boiled ten minutes. This last statement was made by Prof. Cook in *The California Cultivator*, and I have proven it to be absolutely correct. I fear an open vessel, as it might leave some honey slightly above the water. By placing the diluted honey in a screw-cap can (screw off) it will boil and steam until safe.

Four days after taking the diseased honey from the old colony, all honey may be taken from them, as it might be diseased by this time, and healthy brood and comb may be given. If they have not raised a good queen, which sometimes occurs, they may be given a queen or united with some colony.

To have brood ever present is not necessary if honey is coming in; but my first experience with foul brood was during a long and severe honey-dearth when ordinary methods would not work. To cage queens required too much exposure of honey. To destroy one or two hundred dollars is serious, and, when unnecessary, should not be tolerated. I find no need of disinfecting or washing hands in handling frames or hives, if no



A NEARER VIEW OF PROF. BIGELOW AND HIS CLASS OF CHILDREN.

honey is touched. This plan is a complete success, avoids waste, and is done with little work.

Ceres, Cal.

[Your method of treatment, so far as I can see, is all right except that one will be taking long chances to rely on ten minutes' boiling, which, while proving effective possibly nine times out of ten, yet the tenth time the disease might be spread all over the beeyard from such honey fed back. We had a report of that kind some time ago, when ye editor was most severely scored for even suggesting that ten minutes' boiling of honey would be sufficient. The complainant averred that he had followed my advice, presuming I knew what I was talking about, and, instead of curing the one or two cases he had in the yard, he spread foul brood through the whole apiary. If I were to let this go unchallenged, I am afraid this correspondent would come back at me with clubs and stones. Shortly after this time, elaborate experiments conducted by several scientific men showed that sometimes it took two hours of boiling, repeated in two or three days, before all the spores of the disease would be killed. It is one thing to kill the spores, another to kill the actual living germs. The latter may be very easily destroyed by the application of a little heat.—Ed.]

MOVING BEES

In Hives with Open Entrances.

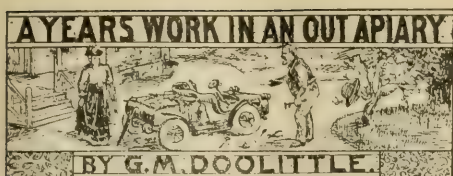
BY J. D. COLES.

In GLEANINGS for April 1 is an article asking a question about moving bees with closed entrance. Having moved hundreds of colonies, I prefer full flight of bees all the time. A few years ago I moved on the main street here 27 colonies half a mile on a wheelbarrow, two to three colonies at a time, giving bees full liberty. In moving two colonies in Florida, in my early experience, I had a hive burst open, and bees filled the air like a swarm, but did not disturb either myself or horse, but followed the wagon 28 miles in the air. When it got dark the bees went in to the hive. The last two miles was after dark, and not a bee stirring. The next day, when I gave the other colony its liberty, it swarmed and clustered on a saw-palmetto, and had to be hived. The colony that had its liberty carried much better than the one confined. When I am alone I never think of closing the entrance; for, to move the bees, I have had much better results in every way with the open door. The trouble is, if a bee-keeper could always do the work himself without calling outside help it would always be much pleasanter, as help often makes trouble instead of averting it.

Woodstown, N. J.

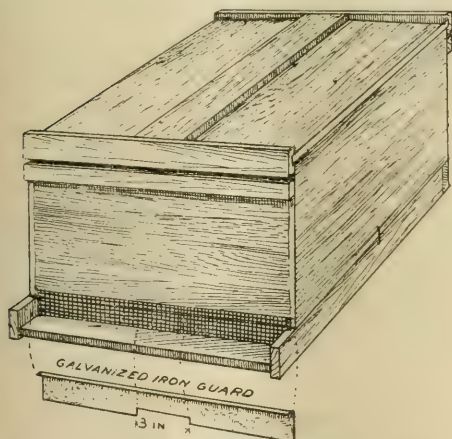


READY FOR A ROUNDABOUT RIDE TO THE OUT-APIARY. SEE DOOLITTLE'S ARTICLE ON NEXT PAGE.



CHAPTER XI.

It is now October 10th, and one of those beautiful clear days with enough of smoke and "haze" in the atmosphere to give a balmy air, which makes one of our fall days in New York so delightful. The leaves, which are soon to fall from the trees, all gorgeously arrayed in their many-dyed hues, are made more enchanting to the eyes by being "kissed" by the morning sunshine—surely a splendid day for an auto ride; and, to combine pleasure with profit, Mrs. D. and myself are soon traveling at an easy "pace" toward the out-apiary, breathing the healthful ozone of an autumn day, and feasting our eyes on the ever varying changes of the landscape before us. We go on a roundabout road, instead of the direct one usually traveled, so as to see new scenes; but even this, and with the gait of the auto so slow that I, the driver, need not be very closely confined to the chauffeur part of the matter, causes us to arrive at our destination all too soon. Mrs. D. goes in to have an agreeable hour with the farmer's wife, while I hie me away



MOUSE-PROOF ENTRANCE: $\frac{5}{8}$ MESH; BOTTOM-BOARD WINTER SIDE UP; HIVE-FASTENER WITH STAPLES.

to the bee-yard, the most delightful spot in all the world to me except my home and the church and Sunday-school of the living Christ.

With a swinging motion of the hands and forearms, together with a sort of backward bend, while the elbows are on the knees, hive No. 1, row 1, is "swung" from its stand to the ground, immediately by the stand's

side. A reserve bottom-board is now placed on the stand, winter or deep side up, when a right-sized piece of galvanized wire cloth having a $\frac{5}{8}$ -inch mesh (the same being used as a mouse-guard) is slipped into the saw-kerf made for it on the inside edge of the two-inch strips, which holds the hive that far from the board below. A few puffs of smoke are now blown in at the entrance of the hive, when the point of the ever useful piece of wagon-spring is thrust into the same, and, with a lifting motion, the bottom-board is



THE LIFTING-SWINGING MOTION.

made to part from its place through the breaking of the propolis which has been used during the summer to fasten it there.

With the same swinging motion, as before, the hive is almost instantly on the newly prepared bottom-board, and brought forward till it touches the mouse-guard of $\frac{5}{8}$ -inch-mesh wire cloth. When the bees are wintered at the farmer's cellar, who owns the land the out-apiary is located on (and I should always winter them there if possible), this mouse-guard is an absolute necessity, as a former experience of rat-and-mouse-destroyed combs and bees told me. Hive No. 1 now has an entrance two inches deep the whole width of the hive, all open except the wire cloth. This must be tightly closed in some way for a month or so, or until the bees are set in the cellar, to prevent robber bees from gaining access to the honey in the hive. This is best done with a piece of galvanized iron, the same size as the mouse-guard, having a piece three inches long by $\frac{1}{2}$ inch deep cut from the bottom side of it, when it is slipped down in the saw-kerf on the outside of the guard.

Having No. 1 thus ready for cellar wintering, the bees on the bottom-board, if any still adhere, are jarred off in front of the hive, and I go to No. 2, treating it in the same way I did No. 1, only using the bottom-board from No. 1 instead of a "reserve" by turning it deep side up. In this way I keep on till all are thus treated.

By this swinging process, as here given, which I always use in changing the bottom-board both in fall and spring, there is not half the fatigue and none of the backache that are experienced by the usual way of lifting hives which are heavy with honey;

and I would recommend it to any and all, in any and every place where it can be used.

In this change of hives and bottom-boards, any that are light in stores are quickly detected; and if any such are found, they are so marked as I go along. I do not find any of these light colonies oftener than once in three or four years; and when I do, all that is necessary is to open the hive and take out one, two, three, or four of their nearest empty combs, and give them as many heavy ones from the reserve pile. In giving heavy combs of sealed honey at this time of the year I think it better to alternate them with the light ones which the colony has, where more than one are given, as I consider such alternation more in harmony with good wintering.

Having the bottom-boards all turned, and knowing that all colonies have plenty of stores, I next fasten all the bottom-boards to the hive by driving a crate-staple on either side, with one point going into the hive and the other into the bottom-board, as near the center as is convenient with rapid working. Some seem to think that it is better to use one of these staples at each corner, and this may be so where hives are to be hauled from the out-apiary home for wintering, and back again in the spring; but for carrying to the cellar, and setting out again, the carrying being done by two men and a rope, the two crate-staples are amply sufficient. In driving these staples I find that a hand-ax, or something having a driving-face sufficiently large to cover the whole staple at each blow, thus driving both points at the same time, is much better than an ordinary hammer that drives only one point at each blow.

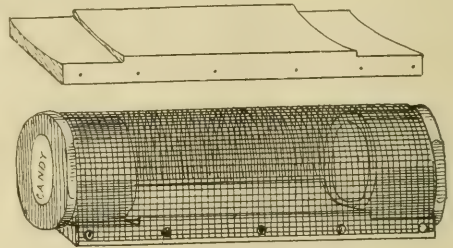
With the driving of the last staple the work done at the eleventh visit is accomplished, as well as that for the year, except setting the bees in the cellar. As the day still continues fine, we take another roundabout road for our ride home, where we arrive in due time, feeling that the day has been very profitably spent, even though we have consumed the most of it on the road.



A NURSERY AND INTRODUCING-CAGE COMBINED.

I am mailing you a sample nursery and introducing-cage for Swarthmore flanged cell cups. At one end one of the cups should be bored clear through for candy to introduce by the candy plan. For a nursery it is much better and more natural to fill the waxed hole in the cell-cup with thin honey. The

wire cloth should be folded at top and bottom, and where nailed to the wood. This is better than the round Stanley cage because it will not roll if laid down, and the cages can be placed in actual contact in the holding-frame. As a nursery, 54 of these cages will stand in an open-top holding-frame with three rows of cages, each resting on a $\frac{1}{4}$ -inch-thick bar. By turning cages the other way in the frame (wood backs all to one side of the frame), 57 cages go in one frame. This saves handling and storage room. Or 19 will go in a Swarthmore cage-pocket (of the Swarthmore cage only 12 go in the same space), or 36 to 38 in a double-depth Swarthmore cage-pocket (see "Cell Getting," by Pratt). A nursery of the same type is also adapted to your style of wood cell cups. Simply have a ledge $\frac{1}{2}$ inch from each end of the wood back, thus.



These ledges prevent the cell cups from going in too far. In any nursery the queen-cells should be removed soon after the queens emerge, and blank cups substituted, or many queens will enter the queen-cell and try to gnaw out through the wood base. Strange to say, they will stay there until they die, instead of backing out.

I wish you would make these cages to sell. They will be far simpler and cheaper than the Titoff cages, and not half so bulky.

Meridian, Idaho.

E. F. ATWATER.

[Your queen-cell and queen-cage is admirably adapted for use with the Pratt flange wooden queen-cups. It would be cheaper than the Titoff cage; and it is my opinion it would be more convenient, and better for all-around introducing. We will have some made and try them.—Ed.]

BUILDING UP SMALL SPRING COLONIES; ALEXANDER'S PLAN A SUCCESS: THE IMPORTANCE OF FOLLOWING INSTRUCTIONS.

Why can not a beginner (or perhaps I should say an experienced man) do as he is advised? Why try your own tricks with another's deck of cards? You generally make a failure, and blame the cards. This spring I found I had two weak colonies, and one with enough bees to cover the surface between two Hoffman frames with a patch of brood about two inches square. I received GLEANINGS for March 15, and saw Alexander's method of tiering up weak colonies. I thought it looked good, so I tried it. I

found three of my strongest colonies: took off the covers, put on a queen-excluder, set the weak colonies (cut down to four frames) over it; put a super over them both, and quilts over the tops and sides of the frames; put on the cover, and did not look at them again for over two weeks. I then found them full of bees and brood. I do not know where all the bees came from, but they were all there, and plenty of them.

I gave the weak ones two frames of capped honey, one on each side of the brood, and an empty comb outside of all; and I am proud to say, thanks to Alexander, they are now by far the strongest in bees out of 28 colonies. They have at this date, May 19, three full eight-frame hives and one extracting-super full of bees and brood, and this without feeding.

PENN G. SNYDER.

Secane, Pa.

THE ALEXANDER PLAN OF BUILDING UP WEAK COLONIES: ANOTHER CASE OF REPORTED SUCCESS.

I have tried the Alexander plan of placing weak colonies over strong ones with good success. April 15th I placed five very weak colonies over strong ones. Two of the weak ones now occupy two-story hives, and the other three are nearly ready for uppers.

Two of the strong ones occupy three-story hives; and the other, three two-story hives. If I hadn't followed Alexander's plan the weak ones would have just nicely built up and got enough honey to winter if the season had been favorable in this locality. As it is I shall get some surplus from them if we have the honey-flow. I had little faith in the plan. I was quite sure there would be some queen killed, and sure there would be a loss of brood from so many bees returning to the old location at the time of separating; but nothing of the kind occurred.

I want to emphasize putting weak colonies over only those that are exceedingly strong—so strong that they really ought to have an upper story put on. Then, unless the strain of bees and the locality have a bearing I see no reason why any bee-keeper should make a failure of it. This one scheme is worth dollars to me, as it has always been a puzzle to get the very weak ones in shape for the honey-flow.

E. W. Fox.

Hillsboro, Wis., June 7.

THE ALEXANDER PLAN FOR BUILDING UP WEAK COLONIES A SUCCESS: HOW TO WAX BARRELS.

Please let me know how to wax a barrel inside to keep honey in.

I have tried uniting by the Alexander plan this spring. I had good luck. I had one weak colony which I bought—a mere handful of bees, and one that was boiling over with bees; so I thought I would try the Alexander plan. This was just a few days after I had put them out. Then I did not look after them for two weeks. When I did examine them it was nearly full of brood and larvæ in all stages. The 10th of May

I was looking for the queen to clip her, and they were preparing to swarm; so I took them off and now I have two strong colonies. It worked so well I tried another one with equal success. It was the best scheme I have seen in print yet—for me at least.

Otisville, Minn.

ELOF LINDGREN.

[To wax a barrel on the inside, proceed as follows: Clean the barrel, then dry it out thoroughly, allowing it to stand a few days with the bung open. Melt about ten pounds of beeswax or paraffine, and pour it into the barrel by means of a tunnel. Quickly drive the bung in, roll the barrel around, then turn it over end for end, making sure that the melted wax covers the entire inside of the barrel. Loosen the bung with a hammer; and if your work has been well done the bung will fly out with a report. Pour out the surplus wax, then treat the next barrel in the same way, but not unless the wax is very hot. A barrel ought to be liquid-tight without using the wax. It is a question whether it is good policy to use any barrels not tight, and depend on the wax or paraffine to make them so.

Do not make the mistake of washing out a barrel with hot water and then immediately waxing it. All barrels for honey purposes should be bone-dry. In that condition the hoops should be driven down as far as they will go. Then they may be waxed to prevent the odor of the wood from getting into the honey.—ED.]

THE OHIO FOUL-BROOD BILL AND THE HISTORY OF ITS PASSAGE.

This association has made every effort since the new legislature met to make the Ohio foul-brood law mandatory, which finally ended in a grand success, due to the hard work of the committee on law, of the society, consisting of Mr. John H. Kroeger, Mr. John Sommers, Mr. John Hoffman, Jr., Mr. J. G. Creighton, and Mr. C. H. W. Weber, all practical bee-keepers of Hamilton County.

The Honorable Mr. Thomas Hunt, Senator from Hamilton County, presented the bill in the Senate, and it is due to this gentleman, who took a deep interest in its passage, that it passed the House of Representatives.

Mr. Henry T. Hunt, a brother of the Senator, and Mr. Eugene Adler, both Representatives of Hamilton County, in conjunction with their colleagues, deserve all credit this association can give them for their moral support.

Attorney G. R. Werner, an honorable member of this association, to whom every respect is due from this association, revised the bill in its present form, and bent every effort to call the attention of the Ohio law-makers to the necessity of its passage. This gentleman, though no practical bee-keeper, takes a deep interest in every thing pertaining to the welfare of the bee. In fact, the day may come when he will find sufficient time to spare from his legal duties to keep several hives of our little honey-gatherers to make a thorough study of the wonderful doings of

nature. This is the opinion of his well-wishers.

Now that the law is passed by both Houses, this society, being a State bee-keepers' association, urges every county in Ohio to organize bee-keepers' societies for the promotion of fraternity among all men and women who keep bees.

The Ohio foul-brood law does not pertain to this dread disease only, but to other diseases of the bee also. Further, it provides for the appointment of an inspector of these diseases, in every county where bees are kept, whose duty it is to see that all bees are kept in movable-comb hives, which is a great stride toward the improvement of the bee in every particular.

HENRY REDDERT,

Sec. Southwestern Ohio and Hamilton Co.
Bee-keepers' Association.

THE BEE'S SENSE OF HEARING; THE EFFECT OF THUNDER.

I notice on page 233, where Prof. Bigelow wants facts from Dr. Miller as to why he thinks bees hear. My experience says they do hear, and that without a doubt. Natural conditions give me this knowledge. Whether bees can hear sounds inaudible to the human ear I do not know; but I do know that bees can distinguish some sounds better than we can. There are several stone-quarries south of my residence, the nearest being half a mile distant, and the furthest two miles away. Blasts are made three and four times a day. When a good blast is made, the jar is felt a mile away; and the rolling sound or thunder that accompanies these blasts is heard for miles around, often fooling me in the summer months, as these sounds are hard to distinguish from *thunder* of an approaching storm.

For the last two years, when hearing these sounds I always consult the bees, for they can tell better than I. If it is a blast they'll continue work as usual; but if it is the thunder of a distant storm, you ought to see them coming in from the fields, pellmell, entering their hives. This seems to show clearly that they can hear, and distinguish better than we, for both these blasts and natural thunder cause vibration in the air.

Findlay, Ohio.

W. H. DREYER.

[It seems to the editor that the arguments you advance in favor of bees hearing are negative rather than positive. Apparently the blast which sounds like thunder, and the real thunder itself, have no apparent effect on the bees. But a very black sky with a heavy atmosphere will, as we know, drive bees home pellmell. So I should say it was not the noise, but the sense of sight and feeling that induces them to rush home. If, on the other hand, they would fly home every time there was a blast at the quarries, and there was a good clear sky at the time, *then* we might assume they either heard or felt the concussion. In saying this I do not mean to say that bees do not hear, for I believe they do.—Ed.]

THE VALUE OF SWEET CLOVER AND OATS FOR HAY.

I have a correspondent in Alabama who owns a farm of 640 acres, who grows 160 acres per year of oats and sweet clover, and cuts the combination crop expressly for hay. He has blooded stock (cattle) and keeps no bees. He says the hay when baled and marketed in Birmingham, Ala., sells readily at \$15 per ton.

M. M. BALDRIDGE.

St. Charles, Ill.

[Farmers and ranchmen as well as State legislators will some day recognize the value of sweet clover as a forage-plant. Some of the more progressive of them do recognize it now. Pity that the average run of farmers will not follow more in the wake of our experiment stations manned by practical and scientific men.—Ed.]

IF I WERE TO START ANEW; PAINTING HIVES, ETC.

If I were starting anew I would adopt the hive holding eight Hoffman frames with 3-inch entrance. I should want one super of shallow extracting-frames for each hive, to be used at the opening and closing of each season; but for the main crop I would work for comb honey, for the reason there are so many who extract before the honey is ripened (and your honey must compete with his), that the production of honey has become drudgery.

I would paint lids white on one side and red on the other—red side up in winter, and the hive white at the corners, say 3 inches, leaving 14 inches not painted; but if one side must be exposed to the noon or afternoon sun, paint it all white or you may wish you had. There are probably a few people who do not know the value of painting, say, three inches of each end of a ten-foot board. To such I would say, try it. I did so five years ago, rather unconsciously, but am much pleased with the result. The boards do not warp nor look old—probably do not take water to any extent.

As to handling comb honey, I think J. A. Green's plan is *ne plus ultra*. Any one who can handle that plateau comb honey without granulation in twelve months is all right; and R. C. Aikin wears the laurels for handling extracted alfalfa honey cheaply.

The slogan to-day is, "How and in what shape can we furnish good honey, at prices which the workingman can stand?" They will not take poor honey at any price, and the price of fancy honey is too rich for their blood.

E. PORTER.

Miramar, Cal.

NEW QUEENS FOR SHAKEN SWARMS.

Would it be advisable to introduce a queen into a newly shaken swarm in place of the old queen?

WM. PEARCE.

Sault Ste. Marie, Mich.

[If the queen is old or otherwise undesirable you can make the substitution, but it would be necessary to introduce her in the regular way, of course.—Ed.]



CAUCASIAN BEES AT "THE CABIN IN THE WOODS."

On p. 753, June 1, I told you about dividing a colony of hybrids into three equal parts, giving a young Caucasian queen to each of two of the parts. This was the first week in May. I stayed with them until both young queens had begun to lay; then I fixed things as well as I could, and left them entirely by themselves for seven weeks. I felt quite a little anxiety during the seven weeks to know whether they would be self-sustaining or not.

Well, I have told you about getting back to the cabin the first week in July; and my first anxiety was to see whether bees were going out and in at all the entrances. Sure enough, each colony was working finely, including the two-story twin hive. Grass and weeds had come up near the entrances, so there was much trouble in getting out and in; but on looking inside I found that honey had evidently been coming in continuously from the first week in May until the first week in July. Before we had been there two hours, one of the Caucasians sent out a swarm. Was that not clever, to wait almost until the very moment I got around? The same colony sent out two after-swarms, but they were both hived in two-story twin hives. The other Caucasian colony swarmed also; and, last of all, a swarm came out of the colony having the old hybrid queen. That made seven colonies from one in two months. The original rather weak hybrid colony was made into three by artificial swarming; the three sent out four natural swarms, making seven. Of course, these young queens swarmed the same season; but their hives were crammed full of honey, and one of them was in a two-story nucleus hive. This one had eight nice queen-cells on just one of the little frames.

When I made my first trip up to the cabin I carried four nucleus hives in a bundle in my hand; and after I got there I had four more sent me by express, filled with frames of foundation. I mention this to show how little the expense of transportation will be in keeping bees in these two-story nucleus hives. On the page I have referred to, June 1, I said you could get very nice honey out of these little frames, and that is just what the boys and I have been doing for the past three weeks. Either the natural swarming, or the fact that we had Caucasians, made those little hives of bees extra workers, and I lately have, for almost the first time in my life, fallen in love with natural swarming as

a method of increase. If you keep bees in these little hives it will encourage it; and I think I never enjoyed any fun as I did seeing those little second and third swarms go to work and build up. Of course, they had frames of foundation. But one of these little sheets would be built out into pretty white comb, quite deep enough for the queen to lay in just over night. Basswood came out about the middle of July; and just as soon as the young Caucasians could see they were out and at it: and some of them would come in with heavy loads, even after it was fairly dark. Of course, I cut the weeds away from the entrances, and fixed them nice "door-yards." The little hives were in the shade of the peach-trees in front of the cabin. Well, it was so easy taking the honey from these little hives that several times while we were eating our meals (and the boys happened to express a wish for some of that nice honey) I took a plate from the table, opened the hive, cut out a chunk, and was back almost before they missed me. As basswood was not out, the bees were working strong on milkweed on a deserted farm near us. Well, the boys thought (and I do not know but I agreed with them) that it was about the most delicious honey we ever tasted. The combs that were put back in the little hive, with a gap or opening in them would be built up again with beautiful white comb in 24 hours or less. Just think of it! The hives are so light and simple that you can easily carry four of them in one hand. They are making them a little wider now, so that with the division-board removed it is just right for five little combs; so that a two-story nucleus has a little more capacity than three Langstroth frames, and the shape is ever so much better for building up or for storing honey than three Langstroth frames.

Now, if you wish to keep bees in these little hives you do not need any of the complications of sections and supers—that is, if you want to raise just enough honey for your own table. If the little hive gets too full you can put on a third story; or if you want increase, let them swarm, and the swarms from these little hives are just the prettiest things to play with I ever got hold of in my life.* Whenever any woman or child came on the premises it was a delight to me to show such my treasures; and you ought to

* When the bees commence on one side of a sheet of foundation, and draw out the cells on this side before they commence on the other, the side where they are at work will bulge outward, making the comb convex instead of flat. In order to get the combs all flat and straight I looked them over every day; and with the ball of my hand I pressed the convex surface back where it ought to be. Well, at first I thought I would have to shake the bees off; but I soon discovered that, with the *Caucasians*, this was not necessary. By placing the hand gently on the backs of the bees they will scatter out of the way; but it is just fun to see them hustle back to their work after the hand is removed. When the Caucasians are building comb you can take out the frames and pass them around among different people, and they keep on drawing out the soft wax—that is, if it is a hot summer day, just as they do while the comb is in the hive. Other races of gentle bees may do this, but I never noticed it before.

have seen their eyes sparkle and to have heard their exclamations of pleasure and surprise. When we had more honey than we needed for table use I cut it out and sent it on a plate to the neighbors for a present. Perhaps the milkweed and the basswood yield had something to do with the *exceedingly* beautiful pure white combs that they built in those little frames. Why, they were so handsome it seems to me I would have some bees, even if they never brought in a drop of honey. To any one who loves to study God's work, especially as it is manifested in the insect world, such a little hive of bees is worth more than can be estimated in money. When you open one of those little hives and hold one of the beautiful combs up to the gaze of the children, or, better still, let them take it in their own hands, and see how gentle and kind the bees are, just repeat those old familiar lines:

How doth the busy little bee
Improve each shining hour,
And gather honey all the day
From every opening flower!

God bless dear old Dr. Watts!

When I first opened my eyes in the morning I went outdoors to see those gentle bees at work. I watched them more or less at intervals during the day; and before going to bed I enjoyed listening to their happy hum of contentment, and I think I may say *praise* to the great Father above. I was around them so often that they no doubt became accustomed to my presence.

I am sure this is a great factor in making the bees gentle; and when those new swarms were building their combs I do not know but I sometimes opened their little hives a dozen times a day; but I was as careful not to pinch them nor hurt them in any way, almost, as if it had been a baby—say my youngest grandchild.

I want to call the attention of the Root factory to the fact that they have not as yet made these little hives with the view of having them a *two-story hive*. When I put a second story on the lower one the space was so great that the bees would build burr-combs on which to climb "upstairs." I finally put sticks in the rabbets to raise the top of the frames level with the sides of the hive in the lower story; but they had acquired such a habit of building those little bridge-combs they would not give it up until I scraped every bit of wax from the tops of the lower frames and the bottoms of the upper ones, and then greased the clean pine wood with a little butter on the end of my finger. That stopped it. The bees did not seem to find the butter particularly offensive, but they could not "make their putty stick," and so they gave it up. After I had got my hives well fixed in this manner, the combs in the upper story could be lifted out just as easily as those in the lower story.

Now, if you wish to avoid side fins and attachments you must see that your bees have room to build, and to store honey. Bees have such a fashion for comb-building

when honey is coming in that I am under the impression that every colony should be allowed to build some comb somewhere. Perhaps raising wax cells on sheets of foundation may be almost as good; but I do not think it is quite. Let them satisfy their natural instinct and nature by at least a little comb-building somewhere in the hive.

Now another thing: I very much prefer a hive that can be opened without any snap or crack of propolis. They began cementing the covers down almost at once; and where there was space enough for a queen-cage between the top of the combs and the light pine cover, they built fins of comb up against the cover. Making all the tops of the frames perfectly clean and smooth, and then buttering them as before, cured this. After I had them fixed so there were no projections at all in the way of wax or propolis above the top of the frames I cut some little sheets of enamel cloth just a little larger than the little hive each way. Now, if you have them a little larger it is going to bother you somewhat to have the edge turned up just a little on this enamel sheet *clear around*; but you can do it if you take time; and after it has been in that shape for a day or two you can take it off and put it back without a bit of trouble. It will shape itself, especially with the propolis the bees put around the outer edge. When thus arranged, when you want some honey for the table remove the cover, take hold of this enamel sheet by one corner, take it off the frames, bees and all, and set it down in front of the entrance. By the time you have cut out your chunk of honey for the table the bees will be about all off. When you lay it down on the top of the frames in closing up the hive, if there are any bees under it, just pass your finger along the top of the frames and the bees will get down out of the way. This takes a little more time than simply to lay on a cover; but I think the time is well invested; for your covers then come right off without any snapping or sticking. The wind can not blow the cover off, because the Neponset cap keeps it in place and keeps every thing dry.

Now, one or two such little hives out in the front yard, in the flower-garden, on the window-sill, or the porch, or even on top of your house, are not only things of beauty but a source of education and pleasure to every visitor—man, woman, or child—but it comes pretty near being a "joy forever," especially when honey is coming in every day; and up at our Michigan home, so far as my experience has gone, there is some honey coming every day in the year when it is warm enough for the bees to fly. Perhaps if I had a large apiary in that locality, such would not be the case. It seems to me I should like the fun of building up an apiary with those little hives and nothing else. *When a colony gets too large for a two-story hive, let it swarm.

It has been suggested that the Caucasians have been given to too much swarming. Well, just now that would suit me all the better. If they keep on until there is only

a double handful of bees, that would be enough to raise a good queen and start to building up a colony. Whenever you want full-sized Langstroth frames so as to get big colonies, just put three little frames inside of one big frame, as has been so many times explained. I think these little hives every season would be good property to buy and sell. I do not know just what the expense is. I think a one-story hive, nailed up, is advertised at a dollar. A dollar more ought to furnish bees enough for a good start; and then you can put in any kind of queen you like. Of course, this hive is virtually the same thing as the Pearl Agnes hive; and I should not be surprised if these little hives, in connection with the gentle Caucasian bees, or a strain of gentle Italians, might prove to be a *new departure* in bee culture. Any one who felt inclined could make a start with two or three dollars. If for any reason he wants to give it up, there would be plenty of people to take them off his hands at cost or nearly that. With these little hives and gentle bees, little girls and boys might keep bees just as well as to have pet chickens or a pet dog or a kitten.

I almost forgot to add that in Northern Michigan, as well as in Cuba, the Caucasians were away ahead of the hybrids in gathering honey. As I had only one colony of hybrids, however, perhaps the test was not quite a fair one. Just before dictating this article I went down to our own apiary here in Medina, and had Mr. Wardell show me the colonies that came from queens raised early in the spring from our apiary in Florida. He agreed with me that they were fully *equal* as honey-gatherers to the Italians; and so far as we could determine they seemed, if any thing, to be rather superior. When the Caucasians were building up nicely, without any feeding whatever, we have been doing considerable feeding among some of the Italians which we wanted to build up rapidly.



Whatsoever a man soweth, that shall he also reap.
—GAL. 6:7.

Give us this day our daily bread.—MATT. 6:11.

Dear friends, this Home paper ought to be one of the most valuable that has ever come from my brain; and the more valuable because it is *not* the production of my own brain. It belongs to the man "whose brain has increased the corn crop of Iowa about 50,000,000 bushels yearly." You see I have put the above in quotation-marks. That is because I took it from a little handbill announcing that Prof. P. G. Holden would

address our Chippewa Lake Chautauqua on the 1st of August. I had heard something of Prof. Holden before. I think it was the *Rural New-Yorker* that said the "corn wizard" of Iowa had not only put American corn on the witness-stand, but that he had succeeded, after years of patient toil and study, in not only making the corn *listen* to his questions, but in making it give a definite and decided answer.

When I sat down to listen to Prof. Holden I had somehow gotten the erroneous impression that he had developed a new strain of seed corn, something in the way Luther Burbank develops new fruits, or is reported to have done so. But I was agreeably surprised in a good many ways. First, the speaker said we did not want to send off *anywhere* for seed corn—especially not to distant States. Get the best corn you can in your own immediate neighborhood. If you get seed corn more than ten or twenty miles from the locality where it has been grown for years it seems to get homesick. The thing the farmer has to do to double his corn crop must be done in his own home on his own farm; and his own children and good wife are to do it or help to do it. Prof. Holden reminded me vividly of Prof. Cook, especially when he used to give his talks at the Michigan Agricultural College. If I shut my eyes I could almost think it was Prof. Cook who was talking. He is a rather small and slim man; but his face just beams with overflowing good nature and enthusiasm. I listened to his talk something over two hours; and although it is hard work for me ordinarily to listen to any discourse an hour long, I think I could have continued to listen until dark, going without my supper without a thought of it. He was, of course, cheered and encored all the way through; and more or less questions were "fired" at him all the time. His whole audience of four or five hundred caught his enthusiasm; and, oh how he did improve the opportunity to crowd home great and important truths! His address was a home talk if there ever was a home talk. It caught hold of the women and children just as it caught hold of the men; and every little while, for fear some important matter would be overlooked or forgotten, or might slip from the memory, he would stop and say, "Now, look here, friends, you are not listening. This is a matter of exceeding importance. If you do not listen intently to every word I say, you will let a cog slip, and your work will go all to pieces."

Prof. Holden got into Medina Co. one day in advance; and just as soon as let loose he began rambling over the cornfields in our region. Then he visited our experiment station at Wooster; and, oh how he did "roast" the stupid farmers who live within easy access of our experiment station, and yet never go there to see what is being done! He had the platform where he spoke loaded with stalks and hills of corn that he had pulled up in adjoining fields. The table and chairs were loaded with specimens of ears of

dried corn. All along the stage were samples of products from Indian corn and cornstalks: a big chunk of india-rubber, samples of different kinds of sugar, all made from corn; and, finally, when he spoke of *maple molasses* made entirely from corn, there was a rather large manifestation from the audience.

Now may God help me to recollect, and tell in a way that will make it plain to you all, some of the grand truths our good friend and Christian brother (thank the Lord that he is a devoted Christian) gave us, as he tried to lift up and encourage the farmers and their boys—yes, farmers' wives and farmers' girls as well—in his talk. Besides the specimens that loaded down the platform and tables, he had wonderful charts hung up just back of him. I can not remember the statistics very well, and I did not think to put it down with my pencil; but the first chart that was hung up before us read something like this: "Value of the corn crop in Ohio, per annum, \$135,000,000; value of the hay crop of Ohio, \$115,000,000; wheat, perhaps \$90,000,000; potatoes, \$75,000,000;" and I must confess this was the first time my attention had been called to the fact that corn stood so far away above every thing else. Then other charts were unfolded. The speaker had been over our cornfields to see how many missing hills there were. Then he counted the hills that had only one stalk, those that had two, and those that had three stalks. Then he brought specimens and held them up before the audience—little spindling stalks from a foot high, all the way up to a stalk full height, perhaps without an ear of corn on it at all. He asked the audience what per cent the missing, small, and empty stalks probably made in our average cornfields. He did not discuss soils nor cultivation very much. I think it takes about four lectures to take up the whole subject. He gave us the most important one. Now, many farmers seem to have the idea that it is poor ground or lack of cultivation that is responsible for the small yield. A good many seem to think the lack of rain at just the right time is one of the troubles that can not be surmounted. Then he called attention to the fact that we have fields yielding big crops side by side of poor miserable crops of less than half a yield, with nothing but a wire fence between the two. Is it likely the raindrops stop just as they get up to that wire fence, and do not fall on the poor ground? Then he gave us a most pungent moral against shouldering the blame on the kind Father above. Why is it we have vacant hills—hills with little bits of stalks, and stalks that do not bear any corn? Prof. Holden said he was talking to a crowd of farmers not long ago, and a boy pushed his way up and looked as if he wanted to say something. Mr. Holden loves boys (and girls too) or he would not be the great man he is. After a little encouragement the boy got off something like this:

"Why, Prof. Holden, it looks to me as if there were a great lot of stalks in almost

every cornfield that just fool around all summer doin' nothin'."

This boy gave him the text for a grand sermon. He said it was not only *stalks of corn* that fool around all summer "doin' nothin'," but there are human beings just like the cornstalks. They live and die standing around "doin' nothin'" when God has placed such wonderful opportunities before them.

Now, then, friends, if it is not poor soil nor lack of cultivation, nor even a lack of rain, that is responsible for the large number of stalks of corn standing around "doin' nothin'," what is the trouble? It is largely *poor seed*. "Whatsoever a man soweth, that shall he also reap." Yes, I know you think you have the best seed; and when I told Mrs. Root about it she said her father always had the very best seed corn that could be produced. He picked out the ears before the corn was cut; watched them till they were just right, picked them, and hung them up in the garret where they would be thoroughly dried out before freezing could harm them. Yes, that is all very good—tiptop; but, dear me! it is not *half* of it. I wonder if I can explain the matter with sufficient emphasis so some boy or girl or mother, perhaps, or may be some old farmer, will see the point and get right at it. Pick out your best ears, just as Mrs. Root's father did. Get them from the best field of corn in your vicinity, no matter what you have to pay for the privilege. But get enough ears—at least six times as many as you will need to plant. I think Prof. Holden told us six nice big ears would plant an acre. So you will want forty or fifty ears for every acre you wish to plant next season. Tie them up with strings, and hang them up in the driest room in your house where there is a good current of air passing through, so as to strike them on all sides. Tie a string around one ear of corn, then lay another above it; tie; another; tie, and so on. He said the women-folks would beat the men all out in tying up corn. Put about a dozen ears in each bunch, and hang it on a wire stretched across the room. Do not put it over a pole or any thing else that a mouse can walk on. Do not omit this part of it. About the middle of March lay these ears on a floor or table where they will not be disturbed. Push them up tight together, and drive a big nail between every ten ears. This is to prevent their getting out of place. Then pick up the ears one at a time, and with your knife pick out six kernels from each ear, going over the ears so as to make an average of the whole. Lay these six kernels at the butt of the ear of corn. With a pencil, mark opposite the nails—1, 10, 20, 30, 40, and so on; that is so you can number the ears of corn and number these little piles of corn. Now get a shallow box or tray two inches deep, large enough to give a space two inches square for every six grains of corn. As this tray is to be kept among the house-plants, and cared for just like the house-plants, he said it should be made of some nice clean boards, so the good

wife would not be ashamed to have it among her flowers. Get some old sawdust and soak it over night in water. Now do not forget and think *sprinkling* the sawdust will do just as well. It must be thoroughly soaked before it is put into that tray. Squeeze out the water until it holds just about as much as it will without dripping through on the floor. When it is packed down smooth and level in this box, spread over the sawdust a piece of white cotton cloth. This is first to be marked in squares about $2\frac{1}{2}$ inches across. These squares are to be numbered 1, 10, 20, 30, just like your ears, of corn. After the cloth is patted down on top of the wet sawdust, place six grains of corn inside of each square. You see this will show you what ears of corn the grain in each square came from. On top of the corn that is placed on the cloth, spread another cloth; and on this a little mat or cushion filled with sawdust just like the other. Bundle it up well so as to keep it from drying out. The average farmer can tell you just about what amount of dampness is needed for that corn to germinate. Now keep watch. If the six grains in No. 1 all start at once, and send up a strong vigorous shoot, keep that ear of corn for seed, but not otherwise. Do not save a single ear that produces some kernels that failed to germinate or some that are even slow in germinating. It pays a tremendous big interest on the time invested in getting the very best seed, and in having every kernel that is planted in the field germinate strong and promptly. A corn plant that comes up a little behind the others will always be inferior. We can afford to give room to nothing but the very best. Yes, I know some of you big stout men will say this is too much fuss and bother. Prof. Holden looked so good-natured that you could not imagine he was ever "mad" in his life. But he said he did get mad only a few days ago. I think it was somewhere in the South where he was giving one of his talks, and a big pompous influential man came up and said something like this:

"Prof. Holden, I have enjoyed your talk immensely; but I grow several hundred acres of corn; and, of course, where we do things on a big scale like that, we can not afford to bother with such complications."

I do not know what Prof. Holden replied, but he said such talk just made him mad.

The average cost per acre for selecting said corn, according to the way I have described, should not exceed *six cents*. Just think! only *six cents per acre*, and yet this simple little thing may raise the yield from 30 to 40 bushels per acre, up to 90 or even 100. It has been done over and over again. No wonder the farmers are getting wild and crazy over the corn crop in Iowa since Prof. Holden opened up this wonderful gold-mine; and it is a gold-mine. The average farmer—you, my friend, who are reading this—when you grow corn, if you have not got hold of this new wrinkle you throw away from three to five hours a day as the boy said of the cornstalks with no ears on them.

Your wife and girls fool away from three to five hours a day to get three good square meals for you, take care of your clothing so as to make you look decent, and then *you* fool away almost half of your time just because you did not remember our text and put it in practice.

Now, there is lots more that I can not tell you about here. When you are ready to shell these extra select ears, sort them out into three piles—the ears having the largest kernels, those having medium-sized kernels, and those having the smallest kernels. Do not get the different sizes mixed. You want your corn-planter to put just four grains in a hill. After your corn is shelled and ready to plant, spread it on a table, just one kernel deep; then get all hands to pick out broken or imperfect kernels. Do not let one get into the planter that is not of average size, and perfect in every respect. Do not grumble about the "fuss." It can all be done at a cost of six cents per acre where you put in several acres of corn.*

Now, the man who has been thus careful about his seed corn will be very likely to be careful about preparing his ground and taking care of his crop. His cornfield will be a standing object-lesson. I do not know that Prof. Holden said so, but he said a good many things along the same line, that this cornfield would be a standing object-lesson *to the glory of God*. The man who owns it will be a better man; his children will be better children, and his wife will be a better woman, and his neighbors around him will soon have a cornfield something like it. The boys and girls will get into a strife—that is, a friendly neighborly one—to see who will beat; and pretty soon the whole locality will be on "higher ground."

There is a lot more to tell about corn, and there is one thing that hits the bee-keepers. He held up one of his poor scrubby stalks of corn and said, "Look here, friends, these poor scrubs send up a tassel, even if they do not bear any corn. This tassel spreads out its arms and lets loose millions of pollen grains. If you think I am stating it too high, you set to work and count them as the breeze sets them floating in the air. These pollen grains fertilize the kernels of corn. In all we have been doing we have secured a good *mother* for our kernels of corn, but how much would it amount to to have the best kind of mother if you have only a "scrub father"—one of the kind that stands around all summer "doing nothin'?" And that hits the bee-keepers. We have got the good mother, and have the parentage worked down to something pretty fine; but up to

*Out in Iowa, where they are getting to be experts in this kind of work, a farmer succeeded in getting a whole big cornfield with 98 per cent of perfect stalks. Just think of the difference between this and the average per cent of stands throughout the cornfields of Ohio! He says: "Your average crop in this State is 29 bushels to the acre. Do you know that one twelve-ounce nubbins to the hill will give a yield of 38 bushels to the acre? You raise an average of less than a nubbins to the hill on the leading crop of your State. Do you know that two seventeen-ounce ears to the hill would give a yield of 117 bushels to the acre?"

the present date bee-keepers have done little or nothing about the scrub *fathers*. Yes, the drone-traps are all right; but how many use them? How many of us have got rid of every bit of drone-comb except in the hives where we want some drones reared?

A part of that wonderful prayer reads, "Give us this day our daily bread." I hope the friends realize what this little man with his zeal and enthusiasm has been doing to make the daily bread of the average farmer throughout the United States, and perhaps I might say throughout the world, a little *easier* to get hold of; and even if it be only "corn bread," instead of bread made from wheat, may we not thank God for the *corn bread*, and *more* still that he in his infinite goodness and loving wisdom permits such a man as Prof. Holden to *live and teach* throughout our land as he is doing now almost every day of his life. I have heard it rumored that Prof. Holden commenced as a poor schoolteacher in Northern Michigan. He thirsted for an education, and he was really obliged to teach school to get the necessary means to go on with that education. Nobody has said so, but I should not wonder if he has been at some time a pupil under Prof. Cook at the Michigan Agricultural College. I wonder if the rest of the world has given dear old Michigan credit for all she has done with that beautiful agricultural college, one of the first to help us *out of darkness and into the light*, and put us on "higher ground."

After page 1076 was printed I noticed that I gave the value of the corn crop for Ohio at \$135,000,000; but I have just come across the following clipping from the *Medina Sentinel*, the editor of which was present, and heard the corn-talk. You will notice there is a trifling (?) difference in our figures:

"Prof. Holden commenced his talk by declaring that, in Ohio, corn is king, just as much as it is in Iowa. The value of the crops of the State, distributed, is as follows: Corn, \$35,892,000; wheat, \$19,319,000; oats, \$15,914,000; potatoes, \$7,533,000; tobacco, \$1,063,000; barley, \$408,000. These figures give the corn crop a big lead, and a little figuring will show that even a ten-per-cent improvement in the handling of the crop and increase of the yield would add over \$3,500,000 to the pocket change of the farmers of the State."



SWEET CLOVER — IS IT A NOXIOUS WEED?

A notice appeared in one of our Medina papers recently in regard to the law or town ordinance requiring noxious weeds to be cut down along the roadside, and in the list of noxious weeds was included sweet clover.

We hear from other States that town and county officers are cutting down sweet clover, with the understanding that it is a noxious weed. I have submitted the matter to the director of our Ohio Experiment Station, and below is what Prof. Thorne says about it:

Dear Sir:—Replying to yours of yesterday I would say that Section 4730 of the *Revised Statutes of Ohio* requires the destruction along roadsides of briars, burrs, vines, Russian, Canada, and common thistle, and other noxious weeds. Section 4732 requests the destruction in fields of the Canada or Russian thistle, lettuce, or wild mustard. I find no reference anywhere to sweet clover as being a noxious weed; and the only way it could be included in that category would be by a judicial decision placing it under the general term, as mentioned in Section 4730, although I am not lawyer enough to warrant my opinion being taken as final.

CHAS. E. THORNE, Director.

Wooster, O.

Our Ohio Experiment Station, and I think the stations belonging to other States, have several times declared that none of the clovers should ever be classed as noxious weeds; that they may be out of place in a strawberry-bed, like red clover, etc., but this does not warrant their being called noxious weeds. It would be simply a "plant out of place."

The following is copied from Bulletin 163, of our Ohio Experiment Station:

WARNING AGAINST FRAUD (BY C. E. THORNE, DIRECTOR).

The Ohio Experiment Station is in receipt of the following letters from Greene County: 1. "A man is traveling about this community claiming to represent the forestry department of the Ohio Experiment Station. After visiting and talking awhile with a farmer, he turns out to be a regular tree-agent, hailing from the nursery of J. K. Denby, Greenville, Indiana. He calls himself W. O. Walton, and offers trees for sale at \$20 per thousand for catalpa speciosa and 'North Dakota black locust.' He claims they raise all the trees which the Ohio Experiment Station sends out. Is this true? [No.] Is such a man connected with the Station? [No.] Is not \$20 per thousand an exorbitant price? [Two or three times their value.] Is it free from the borer, as he claims?" [No.]

2. "Has the State Forestry Commission, if there is such a commission, a contract or agreement with J. K. Denby & Sons, of Greenville, Indiana, to pay for 200 in every 1000 trees sold by said firm? Their salesman, W. O. Walton, has been canvassing this vicinity and making such claim."

Replying to the above we have to say that Ohio has no "State Forestry Commission," and that the Ohio Experiment Station once again recommends that any person who claims to represent this station in the selling of nursery stock be arrested and prosecuted for obtaining money under false pretenses.

We give place to the above because quite a number of our friends have written, asking us if the Experiment Station really indorsed this, that, and the other, mentioned in the above clipping. We heartily recommend the concluding sentence—not only have nothing to do with these swindlers, but take steps to have them arrested and punished according to law, in order that you may protect your fellow-farmers from being swindled.

"THE VINELESS-POTATO MAN."

We clip the following from a recent issue of the *Rural New-Yorker*:

A few of the farm papers denounced the humbug, until the Post-office Department took it up. After consulting with the Agricultural Department, a fraud order was issued and the vineless-potato man is debarred from the mails. That serves him right; but

what about the agricultural papers that printed the advertising and pocketed the proceeds? They knew from the first that the thing was a humbug!

It transpires that even some of the bee-keepers and honey-men have got bitten by this ridiculous fraud. I should suppose that any man who had ever been on a farm would know better than to be taken in by a statement that potatoes can be grown without tops or green leaves. Why, they even had the cheek to want us to accept an advertisement of the thing in GLEANINGS. Did you ever!

SPRAYING POTATOES FOR LATE BLIGHT AND CONSEQUENT ROT.

The following is just at hand from our Ohio Experiment Station:

The late blight or rot fungus of potatoes, *Phytophthora*, has appeared about Wooster, Ohio, following the rainy weather. This same fungus appeared at Wooster, August 15, 1904, and July 25, 1905; the fungus has just been collected by the Botanist of the Ohio Experiment Station, in abundance, in fields near the Station, August 9, 1905. This late blight is liable to be followed by rot.

The late blight and rot may be prevented by thorough spraying with Bordeaux mixture, made of 4 lbs. blue vitriol and 4 to 5 lbs. of lime in 50 gallons of water, if treatment is prompt. Such spraying should be repeated at seven to eight day intervals till crop is mature. Some growers gained one-third to one-half increase of crop by spraying from this time forward, in 1905. Such treatment is now again recommended.

Inquiries and applications for bulletins, spray calendar, etc., may be addressed to the Ohio Experiment Station, Wooster, Ohio.

THE UNION BUGGY CO., OF PONTIAC, MICHIGAN.

We regret to be obliged to announce that the above firm has turned over its affairs to Chester R. Freeman, trustee. The company has written us, and we have also a letter from Mr. Freeman, who states:

Dear Sir:—I have this day accepted the trusteeship of the Union Buggy Company, and they have turned over to me all of their assets. As soon as I am able to render a statement of the condition of the company I will do so. In the mean time I shall continue to conduct the business for the benefit of the creditors.

CHESTER R. FREEMAN.

Pontiac, Mich., July 30.

Now, this same buggy company gave us an advertisement a year ago. They paid us promptly for their advertising, and no complaint was ever made concerning their method of doing business. Under the circumstances I think we were excusable for accepting their advertisement this season, even though we found them quoted rather low as a buggy factory. At the present writing, only one complaint has reached us; but the company has not sent the goods ordered nor

returned the money sent for them. At present they owe us \$48 for advertising in April and May this season. We hope no one will send them any more money after receiving this notice.

JOSEPH HORNE CO.

Pittsburgh, Penn.

A Note to Needleworkers!

Women who do fancy work will be interested in this news. Our Art Needlework Department is under the supervision of a lady who is known as an authority on needlework in this country—a graduate of a famous European Fancywork school.

Consequently you can count upon our supplying you with every thing for fancywork, embroidery, and lace-making.

Ladies' Corset Covers, stamped for eyelet embroidery—on sheer nainsook—materials included for working—also paper pattern; 50c for outfit.

"Home Sweet Home" pillow-top—beautifully tinted on art ticking, ready to embroider, 25c.

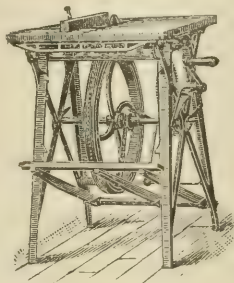
Porch Cushion-covers and Pillow-tops—tinted ready for use; a large variety of designs—15c.

Address M. O. D. Department

Marshfield - Hives - and - Sections

kept in stock; none better. DITTMER'S foundation and all kinds of bee-keepers' supplies sold right. Thousands of shipping-cases, 24-pound, 13 cts.; fancy white basswood, 16 cts, HONEY and BEESWAX wanted. Send for free list, and save 20 per cent on your order.

W. D. Soper, Route 3, Jackson, Michigan



BARNES' HAND AND FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

MACHINES ON TRIAL

Send for illustrated catalog and prices. Address W. F. & JNO. BARNES CO. 545 Ruby Street, ROCKFORD, ILLINOIS.

Fire Sale Bee and Poultry Supplies

Come or send, and save 25 to 50 per cent on slightly damaged goods. NEW LEWIS GOODS at factory prices by return freight. Golden Italian or Red-clover queens by return mail. Untested, 75c; select untested, \$1.00; tested, \$1.25; select tested, \$2.25. Full colonies in up-to-date hives, and nuclei.

H. M. Arnd, Propr. York Honey & Bee Supply Co. (Not Inc.)
Long Distance Telephone, North 1559. 191 and 193 Superior St., Chicago, Ills.

"If Goods are wanted quick, send to Pouder."

Established 1889

Bee-Keepers' Supplies

Distributor of Root's Goods from the best shipping-point in the Country. My prices are at all times identical with those of The A. I. Root Company, and I can save you money by way of transportation charges.

**New Metal-spaced
Hoffman Frames
are Here in Stock**



**Headquarters for the
Danzenbaker
Hive**

**Dovetailed Hives, Section Honey-boxes,
Weed-process Comb Foundation,
Honey and Wax Extractors, Bee-smokers,
Bee-veils, Pouder Honey-jars, and,
in fact, Every Thing used by Bee-keepers.**

BEESWAX WANTED!

I pay highest market price for beeswax, delivered here, at any time, cash or trade.
Make small shipments by express; large shipments by freight.
Always be sure to attach name to package.

Catalog Free

Walter S. Pouder
513-5 Massachusetts Av., Indianapolis, Ind.

Bee = keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

Good Goods, Low Prices and Prompt Shipments

are the **POINTS** in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

Page & Lyon Mfg. Co., New London, Wis.

Northwestern Bee-keepers!

We are headquarters for the **ROOT** supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEES and **QUEENS**.—Your orders will be attended to.

The A. I. Root Company

H. G. ACKLIN, MANAGER

1024 Mississippi Street, St. Paul, Minn.

DO YOU KNOW

That the sale of Dittmer's Foundation has increased so much that we were forced to double our melting capacity in order to fill orders promptly?

There is a Reason for This

It is because Dittmer's Foundation is tough, clear, and transparent, and has the natural color of beeswax.

AGENTS FOR DITTMER'S FOUNDATION:

W. D. Soper Jackson, Mich.
Bee and Honey Co. Beeville, Texas
E. H. Taylor ... Welwyn Sta., Herts, Eng.
E. Grainger & Co. Toronto, Ont., Can.

Our warehouse is well stocked with all kinds of bee-keepers' supplies.

Beeswax always wanted.

Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trestler Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.



Michigan Distributors

—FOR—

**G. B. Lewis Co.'s Beeware,
Dadant's Foundation.**

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service.

ADVANCED BEE-VEIL. Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

A. G. Woodman Co., Grand Rapids, Mich.

Dear Sirs:—Your advanced bee-veil just arrived, and is, as advertised, the best on the market. Find enclosure for ten more veils. Platteville, Wis., April 14, 1906. N. E. FRANCE.

**A. G. Woodman Co.,
Grand Rapids, Mich.**

Beeswax Wanted.

We Manufacture

the finest, whitest, no-drip basswood **SHIPPING CASE** on the market to-day. Covers and bottoms are of **ONE PIECE**. Everything is **POLISHED** on both sides, and a better case can not be had at any price. We can furnish them in single or carload lots to fit any number or style of section. Large quantities of all the standard sizes on hand. . . . As a special offer we will sell you 25 cases to hold 24 sections, complete with **NAILS, PAPER, and GLASS** at \$4 00. Write for prices on larger quantities. Furnish corrugated paper if desired. We can furnish you with any thing you need in the apiary. Our catalog is free. . . . **PROMPT SHIPMENT and SATISFACTION GUARANTEED.**

Minnesota Bee-supply Company
Nicollet Island, No. 20, Minneapolis, Minnesota

**Bee Supplies. Lewis' Goods at
Factory Prices.**

Best of everything the bee-keeper needs. Large and complete stock. Fine Italian and Caucasian queens. Prompt service. Catalog free. Get our prices before ordering.

C. M. Scott & Co., Indianapolis, Indiana
1004 East Washington Street

Established 1881

YES!

Same Place 1906

THIS IS THE MAN

WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year.

Geo. E. Hilton, - Fremont, Mich.

BINGHAM

Original
Direct Draft
CLEAN
Bee Smokers



Pat'd 1875, '82, '92 & 1903

Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and *last*; don't spit fire; don't go out; don't daub themselves all over. We are the most extensive *exclusively* bee-smoker makers in the world.

T. F. Bingham - Farwell, Mich.

Chico, California, October 28th, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.

J. M. RANKIN.

Third Photo Contest

We want bright interesting photos to illustrate GLEANINGS. Send in those you think suitable, and you will stand a chance of one of the prizes below.

PRIZES

Class A.—Photos of general interest, excluding swarms and apiaries. Prizes: First, \$5.00; second, \$3.00; third, \$2.00; fourth, A B C, cloth.

Class B.—Photo of swarms. Prizes: First, \$3.00; second, \$2.00; third, A B C of Bee Culture; fourth, GLEANINGS one year.

Class C.—Photo of apiary. Prizes: First, \$3.00; second, \$2.00; third, A B C of Bee Culture.

Special.—Photos that do not win prizes but which we can use will be awarded a prize of \$1.00 each.

CONDITIONS

Contest closes November 1st.

All photographs should be marked "For Contest," and have name and address attached. Prize-winning photos become our property. No photo returned unless stamps are sent. We prefer unmounted prints toned to a light-red-dish color on solio paper.

The A. I. Root Company

Photo-contest Department
Medina, Ohio, U. S. A.

Swarthmore Books!

BABY NUCLEI (2d ed.)—The second edition of this popular treatise is off the press. This book thoroughly covers the field of small mating under management. The experience of twenty years in mating young queens in baby nuclei is given. A delightful little book—good printing, enjoyable reading, and easy understanding. Price 25 cts. postpaid.

SIMPLIFIED QUEEN-REARING.—A revised edition of this book just out. It tells the honey-producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just an effective and economical plan for the bee-keeper who works for profit. Price 25 cts. postpaid.

INCREASE.—Don't depend entirely upon swarming for your increase. It's too slow and uncertain. Swarthmore tells of a way in his delightful little book entitled "Increase"—a natural way, simple and safe, no labor, little trouble. Colonies formed on this plan will work like prime swarms, and store a surplus. Price 25 cts. a copy postpaid.

CELL-GETTING.—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life. Price, postpaid, 50 cts.

SWARTHMORE QUEEN-REARING TOOLS.—Complete outfits or separate parts. Write for price list.

FOR SALE BY

The A. I. Root Company

ALL BRANCHES AND AGENCIES

BANKING BY MAIL

Depositors in all parts of the country find our method of sending deposits by mail satisfactory in every way, for the reason that they not only receive

4 PER CENT INTEREST

but they obtain the greatest safety by having their money in the care of a responsible and safe banking institution.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system. Write for the booklet to-day.



MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

BEE-KEEPERS OF NORTHERN NEW YORK

Buy your shipping-cases, etc., of

A. H. Reeves, Perch River, Jefferson Co., N. Y.

and save freight charges, and time.
A complete stock on hand ready for shipment. Comb honey wanted in no-drip cases; also beeswax. . . .

CARNIOLANS our SPECIALTY

WE HAVE been breeding this wonderful race of bees for over twenty years, and during all this time we have been making very careful selections, and we now claim to have one of the best and purest races of Carniolan bees in this country.

They are very gentle, hardy, and prolific; the best of workers; they come out of winter quarters healthier and stronger in bees; they build up very rapidly in the spring, are great comb-builders, and their sealed combs are of snowy whiteness.

Also Breeders of Golden and Leather Italians

No foul brood or other bee-diseases here. Bees and queens guaranteed to arrive in good condition at your postoffice in the United States or Canada. Descriptive price list free.

PRICES.—Untested queen, 75c; six, \$3.90; doz., \$7.00. Tested, \$1.25. Best breeding, \$2.50. Best imported,

F. A. Lockhart & Co.,

PENNSYLVANIA

Ours is the largest bee-supply house in the western half of the State. Every thing which the bee-keeper will need is in stock awaiting your order.

ROOT'S GOODS

AT ROOT'S PRICES

You can save time and expense by ordering from us. . .

Best shipping facilities. . .

Complete stock.

Do not put off ordering to-day what you will urgently need a little later on the season.

Frank W. Prothero

Successor to Prothero & Arnold

Dubois, Clearfield Co., Pennsylvania

Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

\$4.00. One L.-frame nucleus, 75c; two L.-frame nucleus, \$1.50; three L.-frame nucleus, \$2.00. Add price of queen wanted to nucleus. Special prices quoted on large orders to dealers.

Banater Bees from Hungary

This wonderful new race of bees takes the lead over all other races, all points considered, that we have seen. The three colonies we are testing are strong in bees; do not offer to swarm; are great honey-gatherers; build snowy white combs, and are very gentle; in fact, no smoke is needed to handle them. They resemble the Carniolans in color, though somewhat darker. We have never seen a race of bees with so many desirable qualities. We shall breed a limited number of queens for sale, and have started a queen-rearing apiary five miles from other bees, and expect to have laying bees ready to mail by July 15. Price \$5.00 each. Pure mating and safe arrival guaranteed.

Lake George, New York

FAIRS

Why not make the fairs you attend profitable as well as instructive? Make a good honey exhibit and secure awards. Then use your time to advantage soliciting subscriptions to **Gleanings in Bee Culture**.

Gleanings makes very liberal inducements in regular commissions besides large cash prizes. This matter is worth looking into.

County and State Fair Contest

Prizes, \$10, \$5, \$3, \$2.

To induce bee-keepers generally to enter our Fair Contest we make the following very liberal prizes over and above the regular commissions earned. For the party sending the largest list of subscribers, \$10; for the second largest, \$5; for third largest list, \$3; for the fourth largest list, \$2; fifth to tenth, a cloth-bound copy of the A B C of Bee Culture. Subject to the following

CONDITIONS

First.—That subscriptions entered in contest are obtained at the fair on dates named in application below, or obtained as results of work during fair.

Second.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, 6 mos.) are equivalent to one year's subscription.

Third.—That contest closes Nov. 15th, and announcement will be made in Dec. 1st GLEANINGS.

Fourth.—That only one agent will be appointed for any one fair.

Fifth.—That advertising matter sent is to be carefully distributed to best advantage.

CUT HERE

Date.....

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Fair Contest Department.

Please send agents' terms and enter my name as contestant in Fair Contest.

Send to my address, at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions, and agree to them.

Date of Fair..... Name.....

Name of Fair..... P. O.....

I can use.....sample copies of Gleanings. State.....

HONEY-JARS!

A neat package is a great help to the sale of your extracted honey. A glass jar is the favorite for many markets. Some retail trade demands one style and some another. We can supply you with what you want.

Simplex Honey-jars

This is a new jar with glass screw-top and rubber gasket fitted to the taper screw on jar, which seals absolutely airtight. We consider it the handsomest jar we sell for one pound of honey. Your honey in these jars is sure to attract attention and have a ready sale in any grocery.

We are now prepared to offer Simplex jars in partitioned cases of two dozen each, ready to reship, when filled, at \$1.00 per case; ten-case lots or over, at 95 cts.; fifty-case lots at 90 cts. We can ship either from Medina, Chicago, New York, Philadelphia, and, after Sept. 1, from Mechanic Falls, Me.



SIMPLEX JAR



NO. 25 JAR

No. 25 Jars

This is our standard jar—holding one pound of honey. We have sold this jar for years, and in larger quantities than any other honey-package we ever handled. It has opal cap with rubber ring and tin screw rim. Put up in re shipping-cases of two dozen. Prices same as Simplex jars quoted above.

Tip-top Honey-jars

This is a new-style jar sealed with a rubber ring under rim of a glass top held securely with spring-top fastener. This fastener is applied to a great variety of bottles and jars used for different purposes. We have selected two styles among them all as being most suitable for honey. The one and two pound square jars may be had with spring top fastening instead of cork at 75c per gross extra. We furnish in two sizes. Half-pound, 45c per dozen; gross, \$4.50. One-pound, 50c per dozen; gross, \$5.00.



TIP-TOP JAR

Tumblers

There seems to be an increasing demand for a cheap tumbler to put up a half-pound of honey to retail at 10 cts. We have secured a stock of such tumblers at a price which enables us to offer them at \$4.00 per barrel of 24 dozen. This is less than 1½ cts. apiece. For less than barrel lots we can not repack them for less than 25 cts. a dozen; or we will put them up 4 dozen to the case with partitions ready to reship when filled, at \$1.00 a case; 10-case lots at 95c.

Mason Fruit-jars

These are very largely used for canning fruit, and are often used for honey as well. As we buy them by the carload, we can make the following prices at Medina, all put up complete with porcelain-lined caps and rubbers, in cases of one dozen:

SIZE	Doz.	6 doz	12 doz.
Pint	\$ 52	\$3 00	\$5 75
Quart	55	3 10	6 00
½-gallon	75	4 10	8 00

Triumph wrench for Mason caps, 15c each; by mail, 25 cts.

Ball's waxed rings, better than rubbers, 5c dozen; postage 3c.

Sample Mailing-blocks

Price each, 6c; by mail, 8c.

These are small wide-mouthed glass bottles, which hold ½ oz., with cork, put up in a mailing-block, with top which screws on and is easily removed.

Honey-labels

We print them in large and small lots; over fifty styles. Write for sample-book and prices.

Prompt Shipment

All of our branches and agents are well supplied. Write the one nearest you.

The A. I. Root Company, Medina, O.

BRANCH OFFICES IN THE UNITED STATES

44 Vesey St., New York City
144 East Erie St., Chicago

10 Vine St., Philadelphia, Pa.
Mechanic Falls, Me.

1635 Genesee St., Syracuse, N. Y.
1024 Miss. St., St. Paul, Minn.

1100 Maryland Avenue, S. W., Washington, D. C.

QUEENS

By Return Mail at the Following Prices for the Balance of this Season. Golden or Leather-colored Italian.

Our folks say that your queens are extra fine.

The A. I. Root Co., Medina, Ohio

We have good reports from your stock from time to time.

George W. York & Co., Chicago, Ill.

On every hand I hear good words of Quirin's queens.

B. S. K. Bennett, Los Angeles, Cal.

Your queens did finely. It was one I purchased last year that gave me over 600 pounds of honey.

J. L. Gandy, Humboldt, Neb.

The breeder is surely a very fine one; her daughters do grandly.

Campbell & West, Hartstown, Pa.

I had a queen of your last year which produced bees that beat anything ever seen in this part of the country.

E. L. Messenger, New Haven, Conn.

The nuclei you sent J. A. Adams did just splendidly. Each colony stored at least 75 pounds of honey.

F. P. Merritt, 13 Breckenridge St., Lexington, Ky.

A few years ago I bought a queen from you which proved to be the best I had for years.

H. C. Shirley, Cashier of Liberty Bank, Liberty, S. C.

I have had the pleasure of seeing the results of your queens at Mr. George W. Stanley's apiary, at Scuffletown, Ky., and that is why I am ordering this half-dozen.

C. W. Brenner, Newburg, Ind.

I bought a queen from a neighbor last year who said he got her from you. She made me 193 sections of honey after July 4th—the best my other queens did was 64 sections.

C. E. Woodington, St. Anne, Ill.

With great respect I write to you in regard to your dealing and queens. If you want any references you can refer to me, as I can't recommend you too highly. Your queens are the best I ever saw. I have one hive of bees among my 45 colonies containing a queen from you that \$50.00 will not buy.

Morris Coon, Route 2, Locke, N. Y.

The two-frame nucleus you sent me was put in a hive May 25th. In July 1 brushed a swarm; had a swarm in August, and took off 75 boxes of honey. I consider this a wonderful record.

I had four nuclei from different parts of the country, and yours was far superior to any of them. They are very gentle, easy to handle, hustlers to work. All bees and queens needed by me will hereafter come from Quirin-the-queen breeder, Bellevue, O.

S. A. Peck, Box 124, Northumberland, Pa.

	1	6	12
Select queens	75	\$4 00	\$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	
Straight five-band breeders	5 00		

Safe delivery and satisfaction guaranteed of all queens. Any queen not satisfactory may be returned any time inside of sixty days and another will be sent gratis.

Address all Orders to

Quirin-the-Queen-Breeder
Bellevue, Ohio.

Better than an Island

This place is just as good as an island for breeding queens, for there are no other bees within five miles, and so pure mating is guaranteed. It is better than an island when you order queens, for the fastest trains stop here, and hence queens are not away from the colony long enough to impair their usefulness. Safe introduction is guaranteed if you follow my special directions. The best bees known are the Banat Caucasians. The gentlest bees known are the Caucasians. The nicest bees known are the Golden Italians. Banat Caucasian queen, \$3.00; Caucasian queen, \$1.50; Golden Italian queen, 75 cts.

Dele Collins, Ph. D., Emporium, Pa.

Rose - Lawn - Queens

Experience the test of quality. Our patrons are pleased. A customer in Pennsylvania writes: "The Pure Gold queen you sent me has nine frames full of sealed brood. I would not take \$100 for her. Send me another like her."

From Indiana: "I have handled queens for twenty years, but the Golden you sent me is the largest, finest, and most prolific I ever saw. Please send me three more as soon as possible."

From Illinois: "I never saw bees work red-clover until to-day, when I counted more than twenty on red-clover blossoms in my yard. They came from the hive containing the Red-clover queen bought of you."

Untested queens like this, 75c. six for \$4.00; tested at \$1.00, six for \$5.00. Requeen now, and have plenty of early brood next spring. Catalog and sample workers on request.

Caucasians, Banats, Carniolans, Red Clover, and Golden Italians.

Rose Lawn Apiaries, Station C, Lincoln, Nebr.

Caucasian and Italian Queens by Return Mail

See July 15th ad. for prices.

D. J. Blocher - Pearl City - Illinois



**Fine, Young, Vigorous
ITALIAN QUEENS**

by return mail; untested only 45c.
or \$5.00 a dozen; tested, 65c.

J. S. FAJEN, Alma, Mo.

Quality Queens

Are the Best Italians yet.

Send for circular. ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀

H. H. JEPSON,
182 Friend St., - Boston, Mass.

1906 Italian and Caucasian Queens Price list now ready. Write **E. E. LAWRENCE, Doniphan, Mo.**

Queens from 50 Cents Up!

Bred from Root's Imported Italians.

Write for prices, stating wants.

C. M. Church, Arnold, Pa.

HONEY-JARS

No. 25, with burnished cap, heavy clear glass, per gross, \$5.00; 3 gross, \$13.50.
11-ounce nickel-cap jar, gross, \$4.00; 3 gross, \$11.00.
1-lb. square jar with cork, gross, \$5.00.
Heavy cartons, \$5.50 per M.
Italian queens, 75c. Catalog free.

I. J. Stringham
105 Park Place, N. Y. City
Apiaries at Glen Cove, L. I.

COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.

Superior Queens!!!!

(—Before June 15—) (—After June 15—)

Italian and Carniolan

Untested..... 75c; \$8.00 per doz. 60c; \$6.50 per doz.

Tested..... \$1.00; 11.00 per doz. 75c; 8.00 per doz.

Select Tested... 1.25; 12.00 per doz. 1.00; 11.00 per doz.

Caucasian

Untested..... \$1.00; \$11.00 per doz. 75c; \$8.00 per doz.

Tested..... 1.50; 16.00 per doz. 1.00; 11.00 per doz.

Select Tested... 2.00; 20.00 per doz. 1.25; 12.00 per doz.

Write me a postal card for my circular.

Chas. Koeppen, Fredericksburg, Virginia

MOORE'S - STRAIN - OF - ITALIANS

as Red-clover Workers

W. T. Davison, Velpen, Ind., says: "When other bees are loafing, your bees go to work on red clover, and they seem to have a kind of get-up about them that the other bees don't have. They have never failed to work on red clover, and many times I have found them on it when there was plenty of white clover."

Untested queens, 75c each; six, \$4.00; dozen, \$7.50.

Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00.

Safe arrival and satisfaction guaranteed. Descriptive circular free.

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Ky.

MINNESOTA-BRED QUEENS.



Try our Northern-bred queens—nothing finer; three-banded and golden Italian queens, untested, 75 cts.; tested, \$1.50. Hardy and prolific. We want your orders, and will fill them by return mail, and guarantee safe arrival and satisfaction. Write for circular to

MENNIE & FENTON,
Pine Island - Minnesota.

Queens - Italian - Queens

and bees from Root's Red-clover stock and

Golden Italian queens. Better than ever.

Untested..... 60c each; six, \$3.50

Select untested..... 75c " " 4.00

Tested..... \$1.00 " " 5.00

Select tested..... 1.25 " " 6.00

Two-frame nuclei with untested queen..... 2.00

Orders filled in rotation. . . Send orders to

E. A. Simmons, Greenville, Ala.

ITALIAN QUEENS

bred from best of honey-gatherers, either three or five banded or Golden races. Untested, 65c each, 3 for \$2.00, 6 for \$3.75, 12 for \$7.25; tested, \$1.00 each, 6 for \$5.00, 12 for \$9.00; select tested, \$1.50 each; breeders, \$300 each.

J. W. Taylor, Beeville, Bee Co., Texas

Orders Filled Promptly by Return Mail

Queens from our fine strain of three-band Italians will not disappoint you. Bees are gentle, and the best of honey-gatherers. Queens are large and prolific, and every one guaranteed. Untested, 50c; \$6.00 per dozen. Tested, \$1.00.

J. W. K. SHAW & CO.
Loreauville, Iberia Par., Louisiana

The Best Stock

Nice three-banded Italians that are guaranteed to please, or money refunded. The Robey queens now go to nearly all parts of the globe. They are being used by many of the largest honey-producers of this and other countries, who pronounce them to be very superior strain of bees. I have spent 21 years in building up this strain of bees. Warranted purely mated, in any quantity, 60 cts. each; selected warranted, 75 cts. each.

L. H. Robey, Worthington, W. Va.

Untested Queens!

Golden Italian

75 cts. each; six for \$4.00; an extra fine one for \$1.00. Warranted purely mated and good queens. . . .

J. B. Case, Port Orange, Fla.

Italian and Caucasian QUEENS

A special discount is now offered on all queens and bees to be delivered before the close of the season of 1906. Pure stock, pure mating, and excellence of grade guaranteed. Address

Robert B. McCain, R. F. D., Yorkville, Ills.

DOOLITTLE & CLARK

will send CHOICE QUEENS the remainder of the season at the following prices:

Grade.	One	Three	Twelve
Untested.....	\$1.00	\$2.50	\$9.00
Select Tested.....	1.50	4.00	14.00
Tested (1905 rearing).....	2.50		
Select Breeding.....	5.00		
Extra Select Breeding.....	10.00		

Now is the Time to Requeen

Borodino, Onondaga Co., N. Y.

MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, 75c; six, \$4.00; twelve,

\$7.50. Tested, \$1.25; six, \$6.00. Twelve, \$11.00.

Best breeders, \$2.50. Safe arrival guaranteed.

W. H. Rails, - - - Orange, Calif.

Red-clover and Italian Queens!



Average untested, 65c; two for \$1.00. Select untested, 75c. Fine tested queens, \$1.00 each. Four-frame nuclei, fine queen, in painted hive, \$3.75. Remember we guarantee our queens to work red clover as well as white clover. Get my circular.

Queens sent in rotation; 50 and 100 at special prices.

G. Routzahn, Route 3, Biglerville, Penn.

BEES and QUEENS

BY RETURN MAIL.

The Three-banded
Long-tongued Strain
of Italians.

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

Superior Qualities.

Honey-gathering, size of bees, non-swarming, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price

Quality Our Motto.

1300 colonies to select from.

Untested queens.....	75c; 6, \$4.25; 12, 8.00
Select untested queens.....	1.00; 6, 5.00; 12, 9.00
Tested queens.....	1.00; 6, 6.00; 12, 11.50
Select tested queens.....	1.50.
Breeding queens, \$3.00 to \$5.00.	

Yours for best service,

The Victor-Knolle Apiary Co.,
Hondo, Texas.

Golden Queens.

My goldens are yellow from tip to tip. Every queen is worth a dollar, but I have a large number of them and offer them cheap. One, 65 cts.; 3 for \$1.95; 6 for \$3.75; 12 for \$7.50. No finer or better queens can be had at any price. They are reared right. Have had 35 years' experience in rearing queens. I insure satisfaction in every particular. Try at least one of my all-golden queens, and see how promptly I can serve you. Send for circular. It's free.

Daniel Wurth, 1111 North Smith St., San Antonio, Texas

Boston Headquarters

—FOR—

Bees-Queens-Supplies

H. H. Jepson - 182 Friend St.

Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:
Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

H. M. PARKER, Jr.

James Island, South Carolina

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy-Lands, Italians.

The JENNIE ATCHLEY CO.

Box 18, Beeville, Bee Co., Tex

Golden-All-Over

ITALIAN - QUEENS

I have a few choice untested Golden-all-over Italian queens, reared from Pratt stock, by Pratt's methods, and will be able to supply a limited demand for balance of the season at 75c each.

Wm. A. Shuff, Philadelphia, Pa.
4426 Osage Ave.

SUPERIOR STOCK.

I make a specialty of long-tongued Italian red-clover honey-queens. Untested queen, 75 cts. each; ½ doz., \$3.00; tested, \$1.00; ½ doz., \$5.00. Bees for business is my motto.

FRED. LEININGER, Ft. Jennings, O.

Yellow from Tip to Tip!!!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce golden queens and beautiful bees; non-swarmer, very gentle, and hustlers for honey. Each queen, \$1. Catalog ready.

H. ALLEY, - - Wenham, Mass.

When a Thing Needs Doing

NO *N* is the time to do it. How about those worthless queens? Will you tolerate them for another season, when the best of stock can be obtained so readily? Laws' bees and queens are bringing the best of reports. I could fill many pages of testimonials, but give you only one. Mr. T. P. Robinson, of Bartlett, Texas, says:

"Dear Sir,—The car of bees shipped June 20th are now all safely landed, and I have overhauled the entire lot. The bees are from 25 to 40 per cent better than contract, and you ought to hear my wife's exclamations of delight at seeing those fine yellow bees so quietly nestle between the combs at the very approach of smoke. I can certainly recommend you."

Leather and Golden Italians, Holy Lands, and Carniolans—single queen, \$1.00; six for \$5.00. Quantity lots, prices on application.

I also manufacture the Hoffman frames, both new and old style, at \$16.00 per M; single-story eight frame hive complete, 75c; 1½-story for extractor, \$1.00. Price list on application.

W. H. Laws, Beeville, Bee Co., Tex.

Caucasian - and - Italian Bees and Queens

Mr. Walter S. Powder, Indianapolis, Ind., June 30, 1906, writes: "Friend T., queen arrived to day in good condition. I consider her a very choice specimen of the Caucasian."

Mr. Frank G. Odell, Lincoln, Neb., writes: "The yellow Caucasian queen you sent us is an unusually fine queen and very prolific. We are very much pleased with her."

I can send such queens for \$3.00 each by return mail. Send for circular and price list.

A. E. Titoff, Ioamosa, Calif.

Red-clover Queens from Westwood Apiary

will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.

Henry Shaffer Westwood, Ohio

Wants and Exchange.

WANTED.—Bee supplies in exchange for 300 colonies bees. Ad. elsewhere. Manufacturers write if interested. LEO F. HANEGAN, Glenwood, Wis.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price. OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—To book your order for an untested clover queen (next spring delivery) and GLEANINGS one year for \$1.00 W. T. CRAWFORD, Hinston, La.

WANTED.—To rent or sell good fruit and berry farm with or without apiary; good markets; soil unsurpassed and good location for bees. A. E. WOODWARD, Rt. 1, Rexford Flats, N. Y.

WANTED.—Sealed bids for any part of two carloads of hives and supplies located at San Antonio, Texas. The right reserved to reject any and all bids. If not sooner disposed of, the whole lot will be sold at auction, piece-meal, during the next session of the National Bee-keepers' Association. San Antonio, Nov. 8, 9, 10. W. H. PUTNAM, River Falls, Wis.

Help Wanted.

WANTED.—Good man—married, without children preferred—to run farm of 52 acres near Bristol, Tenn.; ideal location, good profits from poultry, etc.; will make good offer to right party. Place for sale if can not find man. M. D. ANDER, Bristol, Tenn.

WANTED.—Hustling helper in the bee and honey business. A steady job for the right man. B. WALKER, Clyde, Ills.

For Sale.

FOR SALE.—400 acres choice citrus fruit land. ALBERT GUNN, Céspedes, Camaguey Prov., Cuba.

FOR SALE.—Bees and bee-supplies. J. GOBELI, Glenwood, St. Croix Co., Wis.

FOR SALE.—400 colonies pure Italian bees in lots to suit. Write for prices. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog. F. R. DANIELS, 117 Florence St., Springfield, Mass.

FOR SALE.—My apiary complete in the great irrigated alfalfa belt; no failure yet. See GLEANINGS of Dec. 15, 1903, page 1051. C. K. C., Lovelock, Nev.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to FRANK S. STEPHENS, Paden City, W. Va.

FOR SALE.—275 colonies of bees in good condition. Also can locate you on first-class homestead claim under Gunnison tunnel, one of Uncle Sam's biggest reclamation projects. Address Box 782, Montrose, Col.

FOR SALE.—170 colonies of bees in eight and ten frame hives; in four yards, two to four miles from town; good house at each yard; in sweet-clover and alfalfa belt; no failure in seven years, and under big Gunnison Tunnel project. Reason for selling, poor health. Address Box 772, Montrose, Colo.

FOR SALE.—First-class second-hand 5-gallon honey-cans, two in the case. OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—600 stands of bees in first-class shape for comb honey, in four yards, two to four miles from town; good house at each yard; in sweet-clover and alfalfa belt; no failure in seven years, and under big Gunnison Tunnel project. Reason for selling, poor health. Address Box 772, Montrose, Colo.

FOR SALE.—Caucasian untested queens now at \$1.00 each, \$10.00 doz. W. T. LEWIS, Lewisburg, Miss.

FOR SALE.—One dollar pays for three queens, red-clover strain, balance season. J. F. MICHAEL, Winchester, Ind.

FOR SALE.—500 lbs. yellow-sweet-clover seed for sale; also 200 lbs. white. R. L. SNODGRASS, Gordon, Kan.

FOR SALE.—Queens. I breed a superior strain of fine golden-all-over Italians. Untested, 75c; tested, \$1.00. T. L. McMURRAY, Ravenswood, W. Va.

FOR SALE.—Second-hand 2-h.-p. boiler and engine; cost \$150, will sell for \$75. J. W. UTTER, Amity, Orange Co., N. Y.

FOR SALE.—50 full colonies of Italian bees in 10-frame Root Dovetailed Langstroth hives at \$3.00 each EARL BAKER, 3309 Monroe St., Sta. B, Toledo, O.

FOR SALE.—Thirty-five colonies extra-fine Italian bees (young queens) in Danz, hives, in fine condition, for \$4.00 per colony; will not sell in less lots than ten. M. C. LONG, 421 Cypress, Kansas City, Mo.

FOR SALE.—Seeds of honey-plants—seven-head turnips, motherwort, catnip at 5c a package, postpaid, still a few sections at reduced price; 24-lb. shipping-cases, complete, 14c. H. S. DUBY, St. Anne, Ills.

FOR SALE.—Special sale of sections—Wisconsin basswood—equal to the best, No. 1 \$4.20; No. 2, \$3.70. Root Dovetailed and Danz, comb-honey hives, and all kinds of supplies on hand. Italian queens and bees. H. S. DUBY, St. Anne, Ills.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season. W. N. CANNON, Greenville, Ala.

FOR Sale.—\$1000 annual income can be made from my two-acre strawberry and truck garden, with 35 colonies of bees in this city; a large house, extensive waterworks; an elegant home. Price \$5000. J. NIPE, De Funiak Springs, Fla.

FOR SALE.—Angora and Persian cats; mostly all colors. Persians pure white with blue eyes. Everybody admires these beautiful pets. Women make money raising them. Good profits. Cats and kittens for sale at moderate prices. Also have ferrets for sale. Send stamp for circular. Mrs. J. F. SKEES, Marion, Ohio.

Poultry Offers.

FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free. A. H. DUFF, Larned, Kan.

FOR SALE.—Alger's rose-comb Brown Leghorns hold the world's record; first at Chicago International, St. Louis World's Fair, exposition at Portland, Oregon. Italian bees—Root strain direct. Flemish Giant hares, very large. Red Belgians from 16-lb. buck. Get circulars. FRED ALGER, Wauku, Wis.

Blacks and Hybrids.

Notices in this column are inserted free, and the publishers assume no responsibility for sales made. We believe, however, that every advertiser will do just as he promises.

FOR SALE.—A few young hybrid queens at 20c each. O. F. SNOW, East Dennis, Mass.

FOR SALE.—I will supersede 10 or 12 hybrid and second-season Italian queens this month, and offer them to any one at 25c each. Some of them are excellent. E. E. CROSS, Ravenswood, W. Va.

Convention Notices.

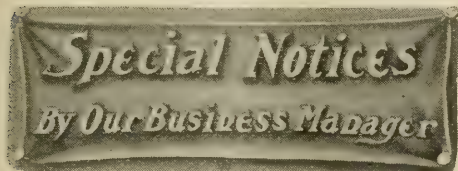
SIOUX CITY INTERSTATE FAIR.

Bee-keepers expecting to send an exhibit to the Interstate Fair (Iowa, Minnesota, South Dakota, and Nebraska) at Sioux City, Sept. 10-15, are requested to advise the superintendent of this department on or before Sept. 1.

On Thursday and Friday, Sept. 13, 14, there will be a bee-keepers' convention afternoon and evening of each day.

R. A. MORGAN, Supt.

Vermilion, South Dak.



HALF-POUND TUMBLERS.

After the notice in July GLEANINGS regarding these tumblers we found that it would make a much more symmetrical package to pack 4 dozen in a case instead of 3 dozen. Therefore we have not put up any 3 dozen to the case, as we at first proposed, but we put 2 dozen in a tier and two tiers to a case, making a package practically the same size as the case containing two dozen Simplex jars, and uniform in price with that. It also holds the same quantity of honey, and may be sold at the same price per case, filled. We include also parchment-paper disks of the right size to place over the tumbler before putting on the cover, which makes a tight seal. Price \$1.00 per case; 10 cases at 95 cts. for either the $\frac{1}{2}$ -lb. tumblers, Simplex, or No. 25 pound jars.

PRICES FOR THE COMING YEAR.

The cost of materials entering into bee-keepers' supplies has advanced during the past year from 5 to 20 per cent. The average advance is about 10 per cent. Compared with prices two years ago the advance is not quite so much on some lines. Pine lumber has never before reached as high a point as during the past eight months. For some of our stock we have paid 20 per cent more than a year ago, and the average advance is about 12 per cent.

Basswood lumber has been lower than it was two years ago, but the price is back up again, very nearly to where it was. The advance in tin plate and steel is about 10 per cent, while in pig tin, lead, and zinc the increase has been greater. Beeswax is a trifle higher than it was a year ago.

Last year we reduced the price of comb foundation two cents a pound, and gave a more liberal early-order discount than usual. This year we have already announced some reduced prices on honey-packages where we have a large surplus stock and have secured favorable prices on fresh supplies.

As we have a large surplus stock of No. 2 plain sections we have marked the price of these down 25 cts. per 1000. Aside from these few changes the same retail prices will be continued for the coming year. We may have to increase somewhat our wholesale and jobbing prices on some items to save us from loss in view of the increased cost of materials.

We reduce the early-order discount to what it was two years ago—namely, 7 per cent for cash order, before Oct. 1, and cutting off one per cent a month as the season advances.

REVISED PRICE OF PLAIN SECTIONS.

For the coming season we will furnish $\frac{1}{4} \times \frac{1}{4} \times \frac{1}{4}$ 1 $\frac{1}{2}$, 4 $\frac{1}{2} \times 5 \times 1\frac{1}{2}$, and 3 $\frac{1}{2} \times 5 \times 1\frac{1}{2}$ plain, or no-beewax sections, as follows:

1000, No. 1, \$ 4.75;	No. 2, \$ 4.00;
2000, No. 1, 9.25;	No. 2, 7.75;
3000, No. 1, 13.50;	No. 2, 11.25;
4000, No. 1, 17.50;	No. 2, 14.50;
5000, No. 1, 21.25;	No. 2, 17.50;
10,000, No. 1, 40.00;	No. 2, 32.50.

Our No. 2 grade of sections is superior in workmanship to what any of our best sections were made 15 or

20 years ago, or to the best sections put out to-day in some factories where they lack skill and experience in this very delicate piece of workmanship. We will continue this reduced price on No. 2 only as long as we have a surplus stock of this grade; and if many who now use No. 1 realized how good these No. 2 grade sections are, the surplus stock would not last many months.

EARLY-ORDER DISCOUNTS.

The discount for early cash orders this year will be: 7 per cent for cash with order before Oct. 1.

6	"	"	"	"	Nov. 1.
5	"	"	"	"	Dec. 1.
4	"	"	"	"	Jan. 1.
3	"	"	"	"	Feb. 1.
2	"	"	"	"	March 1.
1	"	"	"	"	April 1.

The discount will not apply to tin and glass honey-packages, scales, glass, paint, bushel boxes, hot-bed sash, labels, printing, comb-foundation machines, books, and other special or miscellaneous goods except where a few such items not exceeding ten per cent of the entire order, are included in a general order. The discount is intended to apply to hives, frames, sections, comb foundation, section-holders, separators, extractors, smokers, shipping-cases, zinc, and miscellaneous implements used in bee-keeping ordered early for use the following season, and only when cash accompanies the order, or is paid before the dates named.

Special Notices by A. I. Root.

WANTED—SWEET-CLOVER SEED.

If you have any, or can get any, please tell us how much and what you want for it. The demand is at present greater than the supply; and under the circumstances we can not well tell what we shall have to pay for it or what we shall be obliged to sell it for. Let us know as soon as possible how much you can furnish, and how low you can furnish it. The yellow is usually worth about a half more than the white.

A NEW EDITION OF OUR BOOK ON TOMATO CULTURE.

After several months of hard work a second edition of our Tomato Culture is just off the press. By the way, the book hardly ought to be called a treatise on tomato culture only, for of its 158 pages, 60 are devoted to tomato culture in the South; 26 to tomato-growing for canning-factories; the remaining 69 pages are by your old friend A. I. Root, and they have more to do with intensive market-gardening than with tomato culture pure and simple. In fact, part 3 starts out with the title "How to Support a Family on One-fourth Acre of Ground;" and I do think, after just going over the matter very thoroughly, there are few books in print that give the practical information on intensive gardening—that is, growing crops on a limited area of land—that this tomato-book does. It discusses particularly growing crops protected by glass or cloth. Of course, the cloth can be used only in milder weather or in milder climates. When the first edition was first put out in 1892 the book did not seem to go very fast. We printed 15,000 copies, and it took 14 years to dispose of them; but without any particular advertising the book seemed to be gradually growing in favor. The new matter added to the edition just out is mostly selections of valuable hints that have appeared in GLEANINGS during the past 14 years. The old edition contained 135 pages; so there are 23 pages of new matter in the new edition. Price 35 cents; by mail, postpaid, 6 cents extra.

"THE TRUTH SHALL MAKE YOU FREE."

"It does not hurt any business to tell the truth about it and to correct the evils which that truth reveals. Any business which can be permanently hurt by telling the truth about it ought not only to be hurt, but it ought to be destroyed."

The above words are from Hon. Albert J. Beveridge, of Indiana, author of the meat-inspection amendment in the Senate of the United States, June, 1906. To which I wish to add a hearty "Amen, Bro. Beveridge."

PATENTS.

Twenty-five Years' Practice.

PRINDLE & WILLIAMSON,

Patent practice in Patent Office and Courts.
Second National Bank Bldg., Washington, D. C.
Patent Counsel of The A. I. Root Co.

Mexican Palm-leaf Hat, 50 c.



Hand-woven by Mexicans in Mexico, from palm fiber; double weave, durable, and light weight, with colored design in brim. It retails at \$1.00; sent postpaid or 50 c. to introduce our Mexican hats and drawn-work. Same hat plain, 40 c.; both for 75 c. Large, medium, and small sizes. Fine for fishing, camping, seashore, and gardening. Hat booklet free.

The Francis E. Lester Co., Dept. A A, Mesilla Park, N. M.

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools and Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.,
Ashland, Ohio.



No. 602 Bee-keepers' Pocket-Knife Tool Kit

Made in America



Every one has use for a Knife, Reamer, File, Saw, Chisel, or Screwdriver. This outfit is practical, yet so small, being contained in a Leather Pocket-Book 4 1/4 x 3 3/4 inches, is, by carrying it in your pocket, always at hand for immediate use, whether Camping, Boating, Teaming, Driving, in the Shop, Factory, Office, Store Warehouse, Automobile, on the Farm, Bicycle, or around the Home.

Any Tool firmly attached or detached to the Pocket-Knife in a second.

Sent postpaid on receipt of price, \$2.25.

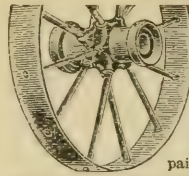
Use it five days and if not satisfactory return it and I will refund your money.

U. J. ULERY CO., No. 7 Warren St., New York, N. Y.

KEEP YOUR EGGS

all summer while prices are low, and sell next winter at a good profit. Write for our plan; it will interest you.

T. T. POULTRY CO., Springfield, Ohio.



STEEL WHEELS

with wide tires double the usefulness of the farm wagon. We furnish them any size to fit any axle. Cheaper than repairing old wheels. Catalogue free.

EMPIRE MFG. CO., Box 91A Quincy, Ill.



FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows styles and heights of farm and poultry fence. It's free. Buy direct. Write today.

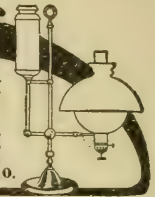
COILED SPRING FENCE CO.
Box 101 WINCHESTER, INDIANA.

THE "BEST" LIGHT

The only 100 Candle Power Light that burns its own gas and gives absolute satisfaction during a long life of efficient service.

No Grease, Smoke, Dirt or Odor.

Brighter than electricity or acetylene, cheaper than kerosene. Over 100 styles. Every lamp warranted. The Best Light Co., 316 E. 5th St., Canton, O.



You Need It.

If you have only a few chickens;

If you are at all interested in poultry;

If you are breeding for fancy points;

If you cater to the market trade;

If you are in the business on large scale, you need

Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year.

Regular price is 50 cts. **AT HALF PRICE** a year, but we offer it for a short time to introduce it to readers of Gleanings. Send 25 cts. and get it a year; or if you send us \$1 for a year's subscription to Gleanings in Bee Culture we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal Dept. 14, Dayton, Ohio.

\$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size 8x 11 1/4 inches) of valuable poultry, pigeon, and pet-stock reading, costing us thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

Poultry Item. Sellersville, Bucks Co., Pennsylvania

DO YOU RAISE CHICKENS?

If so, you will find the Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cents a year. If you have poultry to sell. The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

TO THE BEE-KEEPERS OF CANADA

WE ARE pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we are not able to offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers. Moreover, what we do list we propose to keep in large quantities, and will be able to ship promptly.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY

Deer Park

Toronto - Ontario - Canada

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

BEE-KEEPERS!

Have you secured your hives, sections, foundation, honey-cans, and extractors yet? If not, you should not put it off any longer. Be prepared when the flow comes on. Let us assist you. We carry the largest stock of goods in the Middle West. The low freight rates from

Toledo

will save you money. We will buy your honey and beeswax, and pay highest market price. It will pay you to correspond with us when your crop is ready to market. No shipment is too large for us. Carloads a specialty.

Queens! Queens!

We have a yard at Toledo with 100 colonies and over, which we use for queen-rearing only; besides several out-yards which we run for honey, also for extra bees and brood, and queens are mailed same day order is received.

Our 70-page Catalog

is sent free to any one asking for it. No matter whether you keep one colony or five hundred. We also handle a large line of poultry supplies, and sell eggs for hatching. Our 1906 mailing list is sent with every catalog. Don't buy until you have seen it.

Griggs Brothers

523 Monroe St. : Toledo, Ohio

CENTRAL AND NORTHERN PENNSYLVANIA

Distributor of Root's Goods from the
Best Shipping - point in this State.
WHOLESALE - AND - RETAIL

I sell at catalog prices, and, with the low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also rear Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

E. E. PRESSLER, WILLIAMSPORT, PENN.

The Best ^{is} Always The Cheapest

We have been furnishing bee-keepers all over the World with Supplies for over 25 YEARS, and no complaints.

Our PRICES are as low as any, while the QUALITY of our goods is HIGHEST. Catalog and price list free. We have for 16 years published THE AMERICAN BEE KEEPER, an illustrated 32-page monthly, edited by two of the most experienced bee-keepers in America. Fifty cents a year. Sample copy free.

The W. T. Falconer Mfg. Co., Jamestown, N. Y.

NORTHEASTERN & NEW ENGLAND BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

NOW is the TIME!

to improve your stock by purchasing some of our Red Clover and Leather-color Italian queens. All of our queens are bred for their honey-gathering qualities, and you'll find them prolific and gentle.

Prices for July			
	1	6	12
Untested	\$.65	\$3.75	\$7.00
Select Untested	.90	4.75	9.00
Warranted Purely Mated.....	.75	4.25	8.00
Select Warranted.....	1.00	5.25	10.00
Tested 1906 Queens.....	1.25	7.00	
Select Tested.....	1.50	8.50	
Extra Select Tested.....	2.00	11.00	

All orders accompanied with cash are booked and filled in rotation. Safe arrival by mail guaranteed. Send for price list of bees and supplies.

W. W. Cary & Son, Lyonsville, Mass.

Dadant's Foundation It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!
No sagging; no loss.
Twenty-eighth Year.
We Guarantee Satisfaction.
Wax Worked into Foundation.

Bee-supplies of All Kinds

Beeswax wanted at all times.
Send for Our 1906 Catalog.

Dadant & Sons, Hamilton, Ill.

New Goods-Big Stock

New Warehouse, Root's Goods,
Prompt Shipment, Low Freight.

Everything for the Bee-keeper at Savannah, Ga.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. . . .

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog sent free. Correspondence solicited. .

HOWKINS & RUSH

124 West Liberty Street

SAVANNAH - - GEORGIA

GLEANINGS IN BEE CULTURE

VOL. 34

SEPT. 1, 1906

NO. 17



A Load of Twin-Mating Nuclei Hauled by a Sting Proof Horse from one Mating-Yard to Another.

THE A.I. ROOT CO.,
MEDINA — OHIO

BEE-KEEPERS

We carry the largest stock of goods in the Middle West. The low freight rates from

Toledo

will save you money. We will buy your HONEY and beeswax, and pay highest market price. It will pay you to correspond with us when your crop is ready to market. No shipment is too large for us. Carloads a specialty.

Queens! Queens!

We have a yard at Toledo with 100 colonies and over, which we use for queen-rearing only; besides several out-yards which we run for honey, also for extra bees and brood, and queens are mailed same day order is received.

Our 70-page Catalog

is sent free to any one asking for it. No matter whether you keep one colony or five hundred. We also handle a large line of poultry supplies, and sell eggs for hatching. Our 1906 mailing list is sent with every catalog. Don't buy until you have seen it.

Griggs Brothers

523 Monroe St. : Toledo, Ohio

APICULTEURS

des pays de langue Française
Nous vous informons que

L'Apiculture Nouvelle

Revue mensuelle illustrée,

est tirée de:

Gleanings in Bee Culture

augmentée et complétée par des collaborateurs Européens, reconnus comme Apiculteurs éminents. L'Abonnement d'un an est envoyé franco pour tous pays de l'Union Postale, contre l'envoi par mandat poste de 7.50.

Un numéro spécimen, ainsi que notre catalogue français de tous les articles de la

A. I. ROOT CO.

est envoyé gratuitement sur simple demande,
adressée à

Emile Bondonneau,

Agent General pour l'Europe et les Colonies

de A. I. ROOT CO.,

142 Faubourg Saint Denis 142 Paris (10e)
France.

L'Edition Française de l'A B C de l'Apiculture
est également parue.

CENTRAL AND NORTHERN PENNSYLVANIA

Distributor of Root's Goods from the
Best Shipping - point in this State.
WHOLESALE - AND - RETAIL

I sell at catalog prices, and, with the low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also rear Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

E. E. PRESSLER, WILLIAMSPORT, PENN.

C. H. W. Weber,

Headquarters for

Bee - Supplies.

"Root's Goods at Root's Factory Prices."

Honey Wanted.

White clover, extracted and comb Mail sample, and state lowest price expected, delivered at Cincinnati. We pay cash on delivery

Queens Now Ready to Supply by Return Mail.

Stock which can not be excelled. Each variety bred in separate apiaries, from separate mothers; have proved their qualities as great honey gatherers.

Golden Italians.

Have no superior, and few equals. Untested, 75c; six, \$4.00.

Red-clover Queens.

Which left all records behind in honey-gathering. Untested, 75c; six for \$4.00.

Carniolans.

They are so highly recommended, being more gentle than all others. Untested, 75c; six for \$4.00.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Markets.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firm ly attached to all four sides, the combs unsoiled by travel stain, or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

PHILADELPHIA.—Advices from different points are rather conflicting in regard to the honey crop this season, and consequently there is no market price established. Some new arrivals of comb honey sell at 13 to 15, according to quality, and extracted honey at 6 to 7. Beeswax, firm at 28. We are producers of honey, and do not handle on commission. Wm. A. SELSER, Aug. 20. 10 Vine St., Phila., Pa.

TOLEDO.—The market on honey has not changed since our last quotations. Bee-keepers seem to be holding on to their goods, expecting large prices. Fancy white comb brings, in a retail way, 16 and 17; No. 1, 15 and 16, with no demand for dark. Extracted white clover in barrels brings 6½ to 7, cans the same, but very little has been offered as yet. Beeswax, 26 and 28. GRIGGS BROS., Aug. 20. Toledo, Ohio.

CINCINNATI.—Fancy and No. 1 comb honey find ready sale in this market at 14 to 15, and shipments are arriving daily. Lower grades are not wanted at any price. There is a good demand for extracted honey. We are selling amber in barrels and cans at 5 to 6½; white-clover extracted at 6½ to 8. Please do not misconstrue the above prices; they are our selling prices, not what we are paying. Beeswax is wanted at 28 to 30. THE FRED W. MUTH CO., Aug. 18. 51 Walnut St., Cincinnati, O.

MILWAUKEE.—Receipts of new-crop honey, both comb and extracted, have been good for the season, and we are pleased to note that there is a marked improvement in the handling as well as the quality of the honey, which certainly is encouraging to the seller as well as to the buyer; and we have been able to get good values for the best, which will sell when common grade does not—and we are able yet to maintain quotations, yet buyers are cautious, thinking prices will be less later. We now quote fancy one-pound sections 16 to 17; common grades, 12 to 15. Extracted, white or amber, in barrels, cans, and pails, 7½ to 8½; dark, 6½ to 7. Beeswax, 28 to 30. A. V. BISHOP & CO., Aug. 21. 119 Buffalo St., Milwaukee, Wis.

CHICAGO.—The trade in honey is good, and some fine lots are being offered that sell for 15 to 16 when it grades No. 1 to fancy. Off grades from now on will sell at from one to three cents below this. Extracted sells in some volume at 6½ to 7 for white; 6 to 6½ for amber; 5 to 5½ for off flavor. Beeswax, 30. R. A. BURNETT & Co., Aug. 18. 199 So. Water St., Chicago, Ill.

SCHENECTADY.—Honey is coming forward quite freely, and selling as well as could be expected at this early date. There is an unusual demand for white extracted from parties who put it up in small glass packages for retail trade. We quote white-clover comb honey at 14 to 15 for fancy, and 12 to 13 for fair quality. Extracted in kegs and 60-lb. cans, 6½ to 7½. No buckwheat on hand yet. C. MACCULLOCH, Aug. 20. Schenectady, N. Y.

ST. LOUIS.—The receipts of new comb honey have been quite liberal of late; most of the arrivals consisted of dark amber honey. The demand has been limited on account of large receipts and warm weather. We quote fancy white comb honey at 14; No. 1, 12½ to 13; light amber, 12 to 13; dark and broken, 8 to 10. Extracted honey at 6 to 6½ for light amber California or Spanish needle in cans; Southern new in barrels, scarce and in good demand at 4½ to 5. Beeswax, for prime, 28½; all impure and inferior, less. R. HARTMAN & Co., Aug. 18. 14 So. Second St., St. Louis, Mo.

NEW YORK.—The market is well cleaned up of the last season's crop, and expect an early opening. From the present outlook we expect to have a good demand, and advise shippers to ship early to realize the best prices. We quote honey as follows: Fancy white clover, 15 to 16; No. 1, 14 to 15; No. 2, 12 to 13; mixed, 10 to 12; fancy buckwheat, 12 to 13; No. 1, 11 to 12; No. 2, 10 to 11. Extracted white clover and basswood, 7 to 7½; amber, 6 to 6½; buckwheat, 6 to 6½. Beeswax, 29 to 31. CHAS. ISRAEL & BROS., Aug. 24. Canal and Watts Sts., New York.

DETROIT.—Honey is not moving very fast at present, and prices still unsettled. Both bee-keepers and commission men seem to be holding off yet. A No. 1 and fancy white comb stands at about 12 to 13; poorer grades at 11 to 11½. Extracted white clover and basswood, 7 to 7½. Reports from bee-keepers in Michigan seem to show alternately total failure and excellent crops. Beeswax, 26 and 28. M. H. HUNT & SON, Bell Branch, Mich. Aug. 20.

NEW YORK.—There is a good demand for new-crop comb honey, but arrivals are very small as yet, and may continue so for a week or two to come. We quote fancy white at 15; No. 1 white at 14, and No. 2 white at 12. It is too early as yet for dark or buckwheat. Extracted is in good demand at 6½ to 7 for white, 6 for light amber, and 5 to 5½ for dark; Southern common average grade, 50 to 55 per gallon; better grades at 60 to 65. Beeswax firm at 30. HILDRETH & SEGELKEN, Aug. 18. 82-86 Murray St., New York.

WANTED

FANCY COMB HONEY IN NO-DRIIP SHIPPING CASES, ALSO EXTRACTED HONEY. IF YOU HAVE ANY TO OFFER, QUOTE US YOUR ROCK BOTTOM CASH PRICE DELIVERED HERE, AND MAIL US A SMALL SAMPLE OF THE EXTRACTED HONEY. WE BUY EVERY TIME THE PRICE IS RIGHT, AND REMIT PROMPTLY.

THE FRED W. MUTH CO.

No. 51 WALNUT STREET,

CINCINNATI, OHIO.

KANSAS CITY.—The demand for comb honey is improving, but receipts light. No new extracted in the market. We quote No. 1 white, in 24-section cases, \$3.00; No. 2 white and amber in same, \$2.75. Extracted, 5½ to 6. Beeswax, 25.
Aug. 20. C. C. CLEMONS & Co., Kansas City, Mo.

ATLANTA.—The honey trade is picking up, and we are having good demand at following prices: Fancy comb, 13 to 15; No. 1, 11 to 12½. Extracted white, 6 to 6½; amber, 5 to 5½. Beeswax, 27 to 28.
Aug. 13. J. HEARD & Co., Atlanta, Ga.

WANTED.—Choice white comb and extracted honey; clover preferred.
B. WALKER, Clyde, Ills.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—I have a good demand for fancy white comb honey. Those interested please correspond.
A. H. DOOLITTLE, 180 Perry St., Buffalo, N. Y.

WANTED.—To buy for cash, fancy comb and extracted honey.
ROBT. A. HOLEKAMP,
4263 Virginia Ave., St. Louis, Mo.

WANTED.—No. 1 and fancy white comb honey (unglassed), Danz. sections preferred.
THE A. I. ROOT CO., Medina, Ohio.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.
GRIGGS BROS., Toledo, O.

WANTED.—Fancy white comb and extracted honey. I pay cash—no commission.
WALTER S. POWDER, Indianapolis, Ind.

WANTED.—Extracted clover honey; highest price for the right article.
C. G. TURNER, Mechanic Falls, Me.

WANTED.—Comb and extracted honey. State quality, quantity, and price.
JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Well-ripened extracted basswood and clover honey, light in color; prompt payment on receipt; 7½c per lb., f. o. b. West Bend.
H. C. AHLERS, West Bend, Wis.

WANTED.—Fancy white comb and extracted honey; must be partly from clover; also beeswax. Will pay in cash or bee-supplies, as preferred.
E. W. PEIRCE, Zanesville, Ohio.

WANTED.—Beeswax. We will pay 30 cts. per pound for fancy pure yellow beeswax delivered in New York until further notice.
CHAS. ISRAEL & BROS.,
486 Canal St., New York City.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Honey, steadily from September 1 to April 1. Prices given on application. Suggestions and advice about packing and shipping honey cheerfully given from long experience, close study, and observation.
H. R. WRIGHT, Albany, N. Y.

WANTED.—Beeswax. We are paying at this date for pure average beeswax delivered at Medina or any branch office named below, 27 cts. in cash or 30 cts. per lb. in exchange for bee-supplies, less transportation charges. We can not use old combs. Pack securely and address plainly. Be sure to send bill of lading when you make shipment, and advise us how much you send, net and gross weights. Ship to home office or nearest branch named below.
THE A. I. ROOT CO., Medina, Ohio.

Chicago, 144 East Erie St.; New York, 44 Vesey St.; Philadelphia, 10 Vine St.; Washington, 1100 Maryland Ave., S. W.

FOR SALE.—Fine alfalfa honey in large or small lots and at a very low price. Dealers and others wanting a fine table honey should write for free samples and prices to

THE DELTA APIARIES, Delta, Colo.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL

at the World's Fair,
St. Louis, 1904.



**UP-TO-DATE,
STRONGEST,
COOLEST,
CLEANEST.**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke. I find it all you claim. In the spring I shall want several. I always want the best.

N. E. FRANCE, Platteville, Wis.

SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, I can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel is all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."

GRANT STANLEY,
Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

F. DANZENBAKER, MIAMI, FLORIDA

EVANS & TURNER,

Columbus, Ohio,

are in the market for white comb honey, and especially want some fine stock from Wisconsin, Michigan, Indiana, and New York. They would also like to hear from Iowa producers. Write fully what you have; and if you care to name price, do so, stating about what time you will be ready to ship.

Chas. Israel & Brothers

486-490 Canal St., New York

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments Solicited. Established 1875.

FOR SALE.—Alfalfa honey in five-gallon cans, \$5.00 per can; more than one can, \$4.80 per can, f. o. b. here.
VIRGIL SIRES, North Yakima, Wash.

FOR SALE.—White clover and basswood extracted honey. How much am I offered per pound by the can or barrel f. o. b. Van Wert, Ohio? Sample if wanted. Bank references.
N. MURRAY, Van Wert, Ohio.

FOR SALE.—5000 lbs. of well-ripened buckwheat honey put up in 60-lb. cans. Sample and price on application. Clover honey all sold.
G. A. BLEECH, Jerome, Mich.

FOR SALE.—Well-ripened fancy extracted clover and basswood honey in 60-lb. tin cans, two in a case, at \$10.00 a case f. o. b. here. Sample on request.
ERNEST W. FOX, Hillsboro, Wis.

FOR SALE.—Light extracted honey, good quality; two 60-lb. cans, 8½c per lb., barrel at 7½c; amber, 60-lb. cans at 7½c, barrel at 6c; sample, 10c. We pay 29c for beeswax.
I. J. STRINGHAM, 105 Park Pl., N. Y.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

E. R. ROOT
Editor

A. I. ROOT
Editor Home Departments

H. H. ROOT
Asst. Editor

DR. C. C. MILLER,
LOUIS H. SCHOLL,

J. A. GREEN,
G. M. DOOLITTLE,

Department Editors:

PROF. A. J. COOK,
W. P. ROOT.

J. E. CRANE,

J. T. CALVERT, Business Manager

A. L. BOYDEN, Advertising Manager

Circulation 30,000. Reaches every State and 60 foreign countries.
Established in 1873. Sixty-four pages. Semi-monthly.
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

Terms---\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.

Postage is Prepaid by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS., 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 6/.*

Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publisher.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY.....STATE.....

DATE.....If you want Gleanings discontinued at expiration, check here ()

RASPBERRY HONEY!

I have produced a crop of extracted honey from the wild red raspberry of Northern Michigan. It would be an easy matter to send this entire crop in a lump to some dealer, but I prefer to give each of my friends an opportunity of supplying his table with this truly delicious honey—a honey with a flavor all its own—a flavor that smacks of the wild raspberry of the forest.

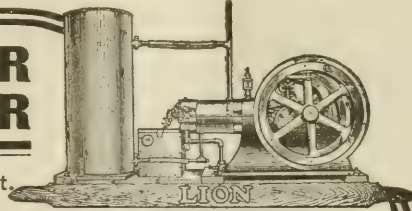
The honey is put up in 60-pound cans, two in a case, and a single case (120 pounds) will be sold at 8½ cents a pound (\$10.20 for a case) and larger orders will be

filled at 8 cents a pound (\$9.60 a case) but not less than that, even though the whole crop should be taken.

If you prefer to taste the honey before ordering, drop me a postal, and I'll mail you a generous sample—enough so that the neighbors, too, can have a taste, and perhaps will wish to join you in ordering a case, if you should not care to take that much yourself.

W. Z. HUTCHINSON, Flint, Michigan.

A READY POWER AT ANY HOUR



That's the kind of a power you want. You do not have to wait for steam, or until the wind blows, before you can pump water, grind feed, saw wood or the hundred and one other jobs about the farm, if you have a **Lion Gas or Gasoline Engine**. Have you ever thought just what a saving of time, labor and money it would be to have such a practical power **always ready to operate** your various machines on the farm, in the shop, printing-office, or—anywhere?

The LION Engine



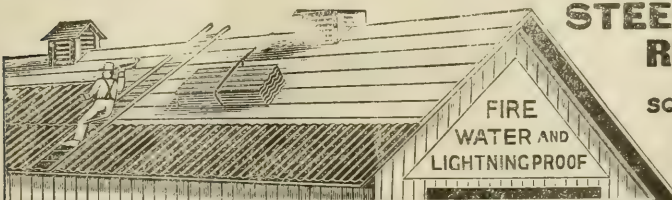
is such a power. It is **simple** in construction, **practical** in operation, and **economical** in the use of fuel. You do not require the services of an engineer, as anyone can operate it. We send the **Lion engine**

Direct From The Factory

on a **ten days test trial** and give explicit instructions and directions for setting up and operating it. Write now, stating your power needs, for our easy payment plan. Remember, we send the **engine**, not the agent.

LYONS ENGINE CO.,

Lyons, Mich.



STEEL ROOFING
PER 100
SQUARE FEET
\$1.50

Most economical and durable roof covering known. Easy to put on; requires no tools but a hatchet or a hammer. With ordinary care will outlast any other kind. Thousands of satisfied customers everywhere have proven its virtues. Suitable for covering any building. Also best for ceiling and siding. Fire-proof and water-proof. Cooler in summer and warmer in winter. Will not taint rain-water. Makes your building absolutely perfect, brand new, painted red two sides. **\$1.50** is our price for our No. 15 grade of Flat Semi-Hardened steel roofing and siding, each sheet 24 inches wide and 24 inches long. Our price on the corrugated, like illustration; sheets 22 inches wide x 24 inches long **\$1.60**. At 25 cents per square additional we will furnish sheets 6 and 8 feet long. Steel pressed brick siding, **per square \$2.00**. Fine Steel Beaded Ceiling, **per square \$2.00**. Can also furnish standing seam or "V" Roofing.

WE PAY THE FREIGHT TO ALL POINTS EAST OF COLORADO, except Oklahoma, Texas and Indian Territory. Quotations to other points on application.

Satisfaction guaranteed or money refunded. We will send this roofing to any one answering this advertisement C. O. D., with privilege of examination if you will send us 25 per cent of the amount of your order in cash; balance to be paid after material reaches your Station. If not found as represented, you do not have to take the shipment and we will cheerfully refund your deposit.

Ask for Catalog No. W-688. Lowest prices on Roofing, Eve Trough, Wire, Pipe, Fencing, Plumblings Doors, Household Goods and every thing needed on the Farm or in the Home. We buy our goods at sheriff's and receiver's sales.

CHICAGO HOUSE WRECKING CO.,

35TH & IRON STREETS,

CHICAGO

CONTENTS OF THIS NUMBER.

STRAWS	1107	Measuring Bees' Tongues.....	1120
EDITORIAL	1109	Ferris System of Producing Comb Honey.....	1121
Nomination Notice.....	1109	Hive-lifting Devices.....	1124
Baby Nuclei for Children	1109	Bee Expert	1127
Hauling Bees to Out-yards without Horses.....	1109	Two Young Bee-keepers.....	1127
Jenkintown Meeting in the Evening.....	1110	HEADS OF GRAIN	1129
Virgin Queen in Wrong Hive.....	1110	Industrial Parade.....	1129
Cutting Sweet Clover along Railroad-track.....	1111	Can a Drone-laying Queen again Become Good.....	1129
Good Things that GLEANINGS will Have.....	1111	Italianizing a Locality.....	1129
Fall Flows of Honey.....	1111	Clover Hay for Smoker Fuel.....	1129
Bee-keepers and Anti-spraying Law in Ohio.....	1111	Plan for Getting Plenty of Cells accepted.....	1130
CONVERSATIONS WITH DOOLITTLE.....	1112	Excellent Recipes for Making Candy.....	1130
BEE-KEEPING AMONG THE ROCKIES	1113	How to Take Care of Unfinished Sections.....	1130
GENERAL CORRESPONDENCE.....	1115	How to Make a Swarm-catcher.....	1130
Horizontally Divisible Brood-chambers.....	1115	Alexander Plan.....	1130
Ancient Bee Demonstration	1116	YEAR'S WORK IN AN OUT-APIARY	1131
Where is Honey-market with Bee-keeper?.....	1117	OUR HOMES.....	1132
Black Ants	1118	HIGH-PRESSURE GARDENING.....	1134
Hoffman Frames	1118	TEMPERANCE.....	1137
Size of Sections	1119	SPECIAL NOTICES.....	1137, 1151

INDEX TO ADVERTISEMENTS.

Banking by Mail.		Household Specialties.	
Savings Deposit Bank Co.....	1144	Best Light Co.....	1152
Bee-books.		Horne Co., Joseph.....	1139
Swarthmore	1148	Rochester Radiator Co.....	1152
Bee Smokers.		Stromberg-Carlson Mfg. Co.....	1139
Bingham, T. F.....	1143	Ulery Co., U. J.....	1152
Danzenbaker, F.....	1099	Machinery.	
Bee Supplies.		Empire Mfg. Co.....	1152
Blanke & Hauk.....	1147	Lyons Engine Co.....	1101
Cook, J. H. M.....	1144	Myers & Bros., F. E.....	1152
Falconer Mfg. Co., Back Cover		Miscellaneous.	
Hershiser, Orel L.....	1151	Chicago House-wrecking Co.....	1101
Hilton, Geo. E.....	1142	C. M. & St. P. R. R.....	1145
Hunt & Son, M. H.....	1104	Mann, F. W.....	1151
Kretschmer Mfg. Co.....	1102	National Legal Bureau.....	1147
Lewis Co., G. B.....	1106	Prindle & Williamson.....	1152
Mason, J. B.....	1147	Seaboard Air Line R. R.....	1139
Minnesota Bee Supply Co.....	1142	Storrs & Harrison.....	1151
Page & Lyon.....	1141	Publishers, Agricultural-paper.	
Pouder, Walter S.....	1140	Southern Fruit Grower.....	1151
Prothero, Frank W.....	1144	Publishers, Bee-Journal	
Reeves, A. H.....	1144	Falconer Mfg. Co.....	Back Cover
Root Co., Syracuse.....	1104	Root Co., The A. L.....	1100
Root Co., St. Paul.....	1141	York & Co., Geo. W.....	1105
Scott & Co., C. M.....	1142	Publishers, Poultry-paper.	
Stringham, I. J.....	1147	Ohio Poultry Journal.....	1152
Weber, C. H. W.....	1097	Poultry Gazette.....	1152
Woodman Co., A. G.....	1142	Poultry Item.....	1152
York Honey & Bee Supply Co.....	1139	Wants and Exchanges.	
Bees and Queens.		See page.....	1151
Alley, H.....	1149		
Atchley Co., The Jennie.....	1149		
Cary & Son, W. W.....	1149		
Case, J. B.....	1148		
Clemmons, H. C.....	1148		
Church, C. M.....	1147		
Collins, Ph. D., Dele.....	1148		
Doolittle & Clark.....	1148		
Kanagy, A. H.....	1147		
Koeppen, Chas.....	1148		
Laws, W. H.....	1149		
Leininger, Fred.....	1149		
Lockhart & Co., F. A.....	1144		
McCain, Robert B.....	1148		
Moore, J. P.....	1148		
Parker, Jr., H. M.....	1149		
Quirin-the-Queen-Breeder.....	1149		
Rails, W. H.....	1148		
Robey, L. H.....	1148		
Routzahn, G.....	1148		
Shaw & Co., J. W. K.....	1148		
Shuff, W. A.....	1149		
Simmons, E. A.....	1148		
Taylor, J. W.....	1148		
Victor-Knolle Apiary Co.....	1147		
Comb Foundation.			
Dadant & Son.....	Back Cover		
Dittmer Gus.....	1141		
Fences.			
Brown Fence & Wire Co.....	1152		
Coiled Spring Fence Co.....	1147, 1152		
Honey for Sale.			
Hutchinson, W. Z.....	1101		
Honey-buyers.			
See pages.....	1098, 1099, 1151		

ADVERTISING TALKS

BY THE AD. MAN.



The ad. man would like to know that every number of GLEANINGS, when received, is immediately placed in a binder. Then every advertisement would have its life more than doubled—meaning more advertising, and, consequently, a better GLEANINGS. The subscriber, too, would be benefited. Every copy would be preserved for present as well as future use. You would take pleasure in referring to your volume of GLEANINGS and showing it to your friends. Its value would be doubled to you.

One reason why binders are not used is because they usually cost almost as much as a year's subscription. We have discovered a binder that meets every requirement—very reasonable in cost, handsome in appearance, its methods of use as simple as tying a shoe. It is well named "The Perfect Pamphlet Preserver." On the shelf it looks just like a book; holds one number or the volume. We have had a lot made specially for GLEANINGS, with its own title stamped in a very attractive form. We are going to sell these "preservers" for a limited time at about the actual cost—25 cts. each; by mail, 7 cts. extra. There is no excuse now for GLEANINGS not being bound.

EXTRAS.—If you find some numbers missing when you order your binder, ask the ad. man to send you these and he will gladly do so without charge.

HELP.

Do you own a lot of bees, and find you have so many other duties that you can't give them all the attention they need? If so, you have surely wanted to find a good man to help you. Our classified columns are do-

ing some excellent things for our subscribers. Read the following, which appeared on page 1090 in our Aug. 15th issue:

WANTED.—Good man—married, without children preferred—to run farm of 52 acres near Bristol, Tenn.; ideal location, good profits from poultry, etc.; will make good offer to right party. Place for sale if can not find man. M. D. ANDES, Bristol, Tenn.

On Aug. 22, seven days later, Mr. A. wrote us: "I haven't received my Aug. 15th GLEANINGS; but I have secured my man through my advertisement." Try this method of securing help. The cost is 20 cents per line. No cost if you fail to get replies.

SELLING HONEY.

In our last issue, page 1038, was found the following advertisement:

FOR SALE.—Choice extracted clover honey. Extra choice, selected from all new combs, in round-jacketed five-gallon cans, for family use; \$5.00 per can. Prices on larger quantities in 60-lb. square cans, two cans in case, on application. Sample, 5 cts.

G. A. BLEECH, Jerome, Mich.

We have just received the following from Mr. Bleech, which speaks for itself:

The A. I. Root Co.:—My advert in GLEANINGS has brought me more orders than I can fill. My crop of 5000 lbs. of light honey is all sold.

G. A. BLEECH.

We have known for a long time, and have told our readers, that our advertising columns are eagerly read by honey-buyers, and that bee-keepers desiring to sell direct to the consumer, or, in fact, to any buyer through the mail, can usually find a good market by using our Honey Column. This is a good time to sell. We want to show our subscribers what we can do, so send along an adv't for our Sept. 15th issue. Make a definite price on your honey if possible, and keep the adv't under 35 words if you can. The cost is only 20 cts. per line. If you fail to sell your honey, advise us and we will make no charge.

BEE-KEEPERS' ADVERTISING.

Of course, when a bee-keeper has something to sell to bee-keepers the first medium thought of is GLEANINGS. This is perfectly right, because GLEANINGS reaches the largest number of bee-keepers. But, magazine advertising is only a form of publicity. How about booklets, cards, and the like? Also your stationery? Do you know how much effect this has on your possible customer? Don't neglect your printed matter, nor use poor stuff. Honey-labels also add much to the appearance of your product. GLEANINGS does a great deal of printing for its subscribers. Its equipment is the very best, and the work turned out is first-class, and prices reasonable. Tell us what you require and we will give you prices.

Seasonable Goods!

Non-drip Cases

The kind we call "Root Quality"—none as good.

Glass and Tin Packages

for extracted honey. A neat package means a fancy price.

Honey-extractors

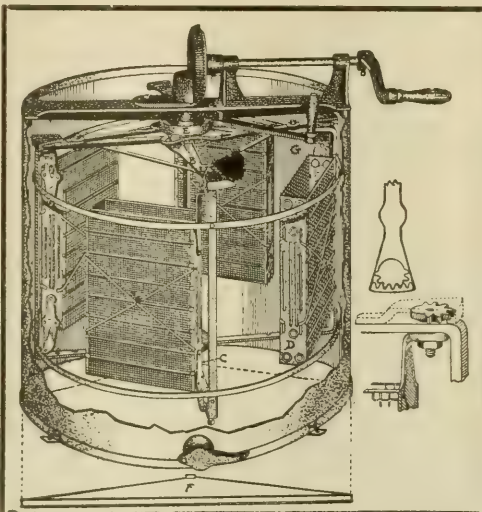
The Cowan No. 15 will give you years of honest service. You need one.

We will have an exhibit of Root's goods at the Michigan State Fair, August 30 to September 7. We will be pleased to have you call on us, and make yourselves known. Bee and Honey Department is under south end of Grand-stand. Bee-keepers' day is Tuesday, September 4.

We Have the
Largest Stock of Bee-supplies in Michigan
and all **ROOT QUALITY**

M. H. Hunt & Son, Bell Branch, Michigan
Wayne County

The A. I. Root Company's Bee-keepers' Supplies



Illustrate the wisdom of paying enough to secure true economy. There are no better appliances at any price, and those sold for less eventually cost a great deal more. Our catalog tells all about them.

The A. I. Root Company, Syracuse, N. Y.

SPECIAL OFFERS for Sept. and Oct. ONLY

Cloth-bound Dollar Books for 60 cents each



DR. MILLER



DOOLITTLE

ALSO

**A 75c Book and a 75c Queen for 25c each
when taken with the American Bee Journal as
offered below :**

(To either New or Renewal Subscribers.)

No. 1 The Bee Journal a year
with Dr. Miller's cloth-
bound "40 Years Among the Bees"
(book alone \$1)—both for \$1.60.

No. 2 The Bee Journal a year
with Doolittle's cloth-
bound "Scientific Queen-Rear-
ing" (book alone, \$1)—\$1.60.



No. 3 The Bee Journal a year
with Doolittle's leather-
ette-bound "Scientific Queen-
Rearing"—(book alone, 75c)—\$1.25

No. 4 The Bee Journal a year
with a Standard-Bred
Italian Honey-Queen (Queen
alone, 75c)—\$1.25.

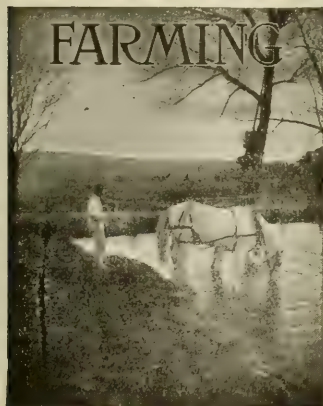
Remember, that each is a separate offer, and must be taken before Nov. 1, 1906, if you want the advantage of these special prices. ●

If more of the same kind of Queens are wanted, order at these prices during September and October: 3 for \$2.00; 6 for \$3.75; 12 for \$7.00. Now is the time to re-queen.

A free sample of the Weekly American Bee Journal on request; or a "trial trip" of 3 months (13 copies), sent for only 20 cents. Regular price is \$1 a year. Address,

GEORGE W. YORK & CO., 334 Dearborn St., Chicago, Ill.

All our Special Offers always apply only to the U. S. and its possessions, Canada, Mexico and Cuba.



A Delightful Combination

GLEANINGS IN BEE CULTURE, \$1.00 per year.
FARMING MAGAZINE, \$1.00 per year.

PRICE FOR THE TWO, \$1.50.

*Nothing need be said about GLEANINGS. It is the best publication of its class in the world; semi-monthly, 72 to 80 pages, fully illustrated.

†FARMING is a new publication—a beautiful journal for the man who produces from the soil. It is edited and published by the Doubleday Page Co., the people who edit *Country Life*, *World's Work*, and the *Garden Magazine*, a sufficient guarantee of its merit. Larger than GLEANINGS—fully illustrated. Published monthly.

THIS OFFER IS GOOD, EITHER FOR NEW GLEANINGS SUBSCRIPTIONS OR RENEWALS, BUT MUST BE TAKEN ADVANTAGE OF WITHOUT DELAY.

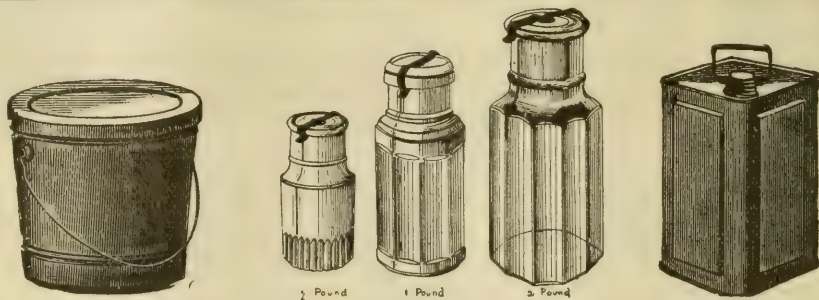
WE CAN ACCEPT SUBSCRIPTIONS FOR THIS COMBINATION AT THIS SPECIAL RATE ONLY WHEN SENT DIRECT TO THE PUBLISHERS OF GLEANINGS.

The A. I. Root Company, Medina, Ohio.

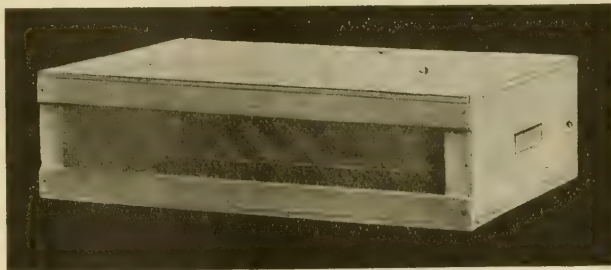
*Sample copies of either publication will be sent upon request.

†Publications will be sent to two different addresses if desired.

THERE IS MONEY IN YOUR HONEY IF PUT UP IN LEWIS PACKAGES



Lewis Shipping-cases are the Finest in the World



Thousands of the Lewis shipping-cases and millions of Lewis sections, as well as all kinds of honey - packages, now ready for you in the warehouses of ourselves and our agents, as given below.

Beware where You Buy Your Beeware

ENGLAND—E. H. Taylor, Welwyn, Herts.
FRANCE—Raymond Gariel, 2 ter Quai de la
Megisserie, Paris.
CUBA—C. B. Stevens & Co., Havana.
C. B. Stevens & Co., Manzanillo.
CALIFORNIA—Chas. H. Lilly Co., San Francisco.
SOUTHERN CALIFORNIA—
Fletcher-Doyle Co., San Diego.
Fallbrook Co-operative Association, Fallbrook.
Paul Bachert, Lancaster.
COLORADO—R. C. Aikin, Loveland.
Arkansas Valley Honey-producers' Ass'n, Rocky
Ford.
Colorado Honey-producers' Association, Denver.
Fruit Growers' Association, Grand Junction.
Robert Halley, Montrose.

IOWA—Adam A. Clark, LeMars.
Louis Hanssen's Son, Davenport.
ILLINOIS—York Honey & Bee Supply Co., 191-193
Superior St., Chicago.
Dadant & Son, Hamilton.
INDIANA—C. M. Scott & Co., Indianapolis.
MICHIGAN—A. G. Woodman Co., Grand Rapids.
MINNESOTA—Wisconsin Lumber Co., 432 Lumber
Exchange, Minneapolis.
MISSOURI—E. T. Abbott, St. Joseph.
OHIO—Norris & Anspach, Kenton.
OREGON—The Chas. H. Lilly Co., Portland.
PENNSYLVANIA—Cleaver & Green, Troy.
TEXAS—Southwestern Bee Co., San Antonio.
UTAH—Fred Foulger & Sons, Ogden.
WASHINGTON—The Chas. H. Lilly Co., Seattle.

G. B. LEWIS CO.

Manufacturers Bee-keepers' Supplies
WATERTOWN, WIS., U. S. A.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

SEPT. 1, 1906

No 17



PURE MATING is guaranteed with no other bees within five miles, in ad., p. 1087. With three different kinds of bees within that five miles, how is pure mating secured?

"THE NOVICE should distinctly understand that natural swarming does nothing toward renewing or superseding a queen, and that there is just as good a chance for the renewal of a queen if a colony never swarms."—*American Bee Journal*.

THE EDITOR of *Bienenvater* stipulates that in migratory bee-keeping the man who drives the team should be an abstainer, as many a mishap in hauling bees has been due to a drunken driver. Right you are, Herr Alfonsus; and abstinence is a good thing for the bee-keeper as well. Among American bee-keepers the man who uses either whisky or tobacco is a *rara avis*.

I AM GLAD to see Mr. A. I. Root interested in bees; but it makes me a bit sad to see him playing with toy hives, so as to favor natural swarming and comb-building without foundation, when that brain of his might be of so much use to those of us with whom bee-keeping is a matter of bread and butter if he would work at our kind of bee-keeping. But I'd rather he would play with them than not to handle them at all.

A. I. ROOT thinks that, to avoid side fins and attachments, bees must be allowed at least some little comb-building in the hive, without foundation, p. 1074. But, but, Bro. Root, if we "have got rid of every bit of

drone comb except in the hives where we want some drones reared," as you advise, p. 1078, will they not be sure to build drone comb if they have no foundation?

PROF. COOK said in *American Bee Journal* that in Dadant and Grimm we got the best Europe had to give. Commenting on this, Herr A. Schroeder asks in *Ill. Monatsblatter*, "How about Wagner, who founded the *American Bee Journal*? and Huber, the blind seer? and Dzierzon, the discoverer of parthenogenesis? and Hruschka, the inventor of the honey-extractor? and Mehring, the inventor of comb foundation? and Leandri, the inventor of the solar wax-extractor?—only to name a few—were these indeed Americans?"

AS EXPLAINED, p. 1048, Mr. Editor, your view of sweet clover is all right, and I heartily endorse what A. I. R. says. It is very hard to get a stand of sweet clover on ground in good tilth, but very easy to get a good stand on the hardest ground by the roadside. It is more easily kept down by cultivation than many weeds. The only place where it will keep its hold is in hay or pasture land, and it is a good thing to have some of it there; but I don't want it on a lawn. [I do not see how it could grow on a lawn, doctor. The frequent cuttings would kill it. Or is it possible I am mistaken? Some of our readers who have tested this, can, perhaps, tell us.—ED.]

DOOLITTLE is right; two staples are enough to fasten bottom-boards when hives are not to be hauled, p. 1070; but instead of putting them midway of the length I prefer them at two corners diagonally opposite—just a little more sure to keep the hive square on the bottom-board. [We have used both ways; but we prefer to put them on as Doolittle does. If the bottom-board is a little out of true, fastening them at the diagonally opposite corners may not close up the gaps, although if the high or low corners were diag-

onally opposite, it might do so. But the middle fastening with its seemed to give better results with the bottoms as they run.—Ed.]

AT THE RISK of being accused of lack of conservatism I must confess that I no longer reverse bottom-boards as described by Doolittle, p. 1069. Instead of that I have a two-inch space under the hive all the year round, keeping it filled with a rack of sticks during the working season—good deal easier to put in the rack and pull it out again than to lift the hives spring and fall so as to reverse bottom-boards. It also saves drawing the staples and driving them again. [I have seen this arrangement of Dr. Miller's, and must confess it is a decided improvement over the old way of reversing the bottom-board. It saves some heavy lifting and a good deal of time, because there are no fastenings between the bottom and hive-body to loosen.—Ed.]

OUR COW had a large proportion of sweet clover in her pasture, and paid little attention to it. Then came the terrible drouth, leaving pasture grounds as brown as in winter, and she made good use of the sweet clover. The point is, that sweet clover remains green and flourishing when other forage-plants dry up. [Your experience has been duplicated time and time again; and yet there are road commissioners and town councils that, I suppose, will continue to cut down sweet clover because they class it as "a noxious weed."]

That reminds me that the Southwestern Ohio and the Hamilton County Bee-keepers' Association has requested all the railroads leading into Cincinnati not to cut the sweet clover, because of its value as a forage for bees. I understand the big roads are complying with this request, with the result that the amount of sweet-clover honey for the bee-keepers along the said roads has been materially increased thereby. See Editorial.—Ed.]

HERE'S A PLAN to shake bees off combs that is used here with much satisfaction: Take hold of one end of the top-bar, with the bottom-bar pointing forward; swing the frame forward, and when six inches or more above the ground let it fall, the lowest end of the top-bar striking the ground in such position that the center of the comb shall be vertically above the point that strikes the ground. We have used it with very light and with very heavy combs without any breaking. If done just right you can clear almost every bee off with one stroke. [I do not quite understand whether you actually let go of the frame when you let it strike on the end of the top-bar or not. I judge not: for if the frame were actually released it would fall on its side, crushing bees and mashing the face of the comb. As I understand it, you grasp one corner of the frame and allow it to swing, pendulum-like, with the exception that the other end of the pendulum on the down stroke hits the ground a sharp blow. The moment the bees are dislodged the frame is lifted from the ground.]

It strikes me that this is worth illustrating.

and I am sending you a special camera with the request that your women-folks show this swinging-pendulum act of jarring bees off the combs in three or four different positions while you do the swinging. There is nothing like showing a thing, you know, to understand it fully.—Ed.]

"IN MOVING bees, I had a hive burst open, and bees filled the air like a swarm, but did not disturb either myself or horse," says J. D. Coles, p. 1068. I had a hive burst open while being hauled to the Wilson apiary, and had the severest case of stinging I ever had in my life. [Both experiences have been duplicated by others; and I suspect it would be wise to err on the safe side by making the fastenings very secure, for one can never tell what a big "thank you, ma'am" in the road may do. On the other hand, I surmise that hives with entrances that are *not* closed, where the bees can pass in and out, may not cause nearly as much "commotion." When a hive is overcrowded with bees, and bees are struggling to get out, suffering from a want of ventilation—well, when such a hive breaks open, the bees rush out like shot from a gun. Bees that have been struggling to escape, when suddenly liberated are almost sure to attack every thing in sight.]

This whole question of moving bees with closed or open entrances is one that will involve a variety of experiences.

If bees can be moved in an automobile, as shown elsewhere in this issue, I should say it would be wise always to leave the entrances open—for strong colonies at least. This will eliminate all possible danger of suffocation, injury to brood, and, if any particular colony *should* become "obstreperous," it would do no particular harm to the apiarist, who could, if necessary, wear a veil and have a smoker handy. Taking it all in all, it will be wise, for the beginner at least, when moving bees, to cover the whole top with wire cloth, and then make the fastenings so secure there can be no possibility of the bees being suddenly liberated.—Ed.]

THE EDITOR of the *Bee-keepers' Review* says: "After frames have been in use a few months they must be pried loose before they can be handled, regardless of how they are supported; but the *amount* of strength needed to loosen them is not very great. It requires no more time and no more *appreciable* effort to loosen frames supported upon plain wooden rabbets than it does those on tin rabbets; hence I see no gain in using the latter." I don't know whether Mr. Hutchinson is talking about loose-hanging frames, Hoffman, or what; and I suppose the kind of frame makes a difference. My experience with tin rabbets, not a small one, has been chiefly with the Miller frame, and here's the way the matter stands "in this locality:" The glue affects the moving of the frame but little until it is filled from the bottom of the rabbet up to the top-bar, and it requires a good deal more than a few months to do that. If the rabbet is cleaned out once in three years the average amount of effort to

move the frames during that three years' time on tin rabbets will be very *appreciably* less than with plain wooden rabbets, and will not require more than half the time. [I understand that Mr. Hutchinson refers to the old-style plain Langstroth frame, without any spacing-attachments, the same hanging on wooden rabbets. This is what he recommends in his book. With such a frame a wood rabbet is better, in my opinion, than a tin one. Frames should be fastened just secure enough so that when the hive is picked up and carried across the bee-yard they will not jar loose. But instead of an unspaced Langstroth frame on a *wood* rabbet I personally prefer a Hoffman, or, better, a metal-spaced frame on a *tin* rabbet. That such a frame will not be any harder to release than an old-style loose Langstroth frame on a wood rabbet is true "in this locality;" and, besides, it will have the advantage that, in moving, there will be no danger of the frames getting too close together, mashing bees and killing brood.—ED.]



SOME of our more discriminating readers will probably discover that this and the last issue of GLEANINGS is printed with a brand-new face of type. The heavy editions printed on the old type had worn it down to such an extent that it would not give a good letter-press effect.

Do not forget that now is the season to advertise honey at your county fairs. Build up your own home market, and do not be afraid to go into the show business. When I say "show business" I mean the handling of bees inside of a wire-cloth cage, bareheaded and barearmed.

NOMINATION NOTICE.

THE following, from General Manager N. E. France, will explain itself:

Each National Bee-keepers' Association member is hereby requested to mail to office of General Manager, on or before Sept. 29, his nomination for offices now filled as follows:

President, C. P. Dadant; Vice-president, G. E. Hilton; Sec'y, W. Z. Hutchinson; Gen. Manager, N. E. France; Director, Jas. A. Stone; Director, G. M. Doolittle; Director, R. A. Holekamp. N. E. FRANCE.
Platteville, Wis., Aug. 25.

BABY NUCLEI FOR CHILDREN: SOME CHARACTERISTICS OF BABY NUCLEI IN GENERAL.

It is, perhaps, not understood that a baby nucleus will accept virgin or laying queens at

various ages much more readily than a strong colony or a strong nucleus. One of the great points in favor of miniature hives for queen-rearing is that they will treat both queens and the apiarist with kindly consideration. Indeed, almost any child can handle them when it would be unwise for him to tackle a full-sized colony. The fact that these babies can be opened and handled without smoke is another proof of their tractable nature. It is only in rare cases that a smoker is needed at all. While in other ways these babies are difficult to handle, or, rather, I should say, difficult to keep going, they will tolerate extraordinary conditions that a strong colony will not accept for a moment.

Some of our twin nuclei show a record of mating of some 16 to 17 queens after only two months of actual use. This result is made possible in part by caging an extra virgin two days before the other virgin already in the hive (and loose) is ready to begin laying. On the day that she lays a frame of eggs, the slide of the introducing-cage of the captive queen is slipped by, when the bees release her in the matter of two or three hours; so that it comes to pass that not more than a few hours will elapse when there will be no queen running free in the hive. But before another virgin is caged, mind you, the *second* queen is allowed sole possession until she reaches an age when she will probably lay within two days. As the date of expectancy does not always mature, some nuclei will not begin to do as well as others; but it is astonishing even then what they will do.

HAULING BEES TO OUT-YARDS, WITHOUT HORSES.

I HAVE already given an intimation to our readers how we were using our automobile in going to and from our out-yards. On the front cover page of this issue, and in an illustration on page 1128, it will be seen how we hauled one load of queen-mating nuclei from the Harrington yard to the basswood apiary, a distance of some four miles. As we were putting up our new building, our horses were all busy; consequently, if the bees were to be moved at all they would have to be moved by the horseless vehicle. Robbers were teasing the baby nuclei at the Harrington yard; and as nearly all the babies were at the basswood apiary we decided to put the whole number in one place, where we could look after them a little closer. We accordingly put on the detachable carrying-box and loaded up some forty twin nuclei with bees or eighty single nuclei. These were packed closely, and cushioned with straw. The roads were none too smooth; but we drove the bees down to the basswood yard, and in the course of a few minutes more every nucleus was placed on its stand, and the entrances opened.

Some of the weaker nuclei were being robbed at the time they were closed before being moved. We shut the thieves in with the bees already in the hive. These, when

moved to the other yard, made a united force of bees for a nucleus that was formerly weak; for the would-be robbers, discovering they were in a new location, naturally went back to the homes they had been trying to despoil.

The horseless carriage had the advantage that it could be driven right up among the bees, without any danger of a fracas; and even if a nucleus should be broken out or tumble out on the road, as did happen in one case, no harm will be done. You see, it was this way: A lot of mating nuclei had been made up at an out-yard, some six miles distant. In hauling home over the rough roads, one of them fell out, bumped over the ground, and dumped all the bees out into the road. Things were lively for a little while; and had a team of horses been hitched on to pull the load, there is no knowing what might have happened. But the horseless carriage stood its ground, when one man was sent up the road to stop a team that was coming, to warn the driver of the danger until the bees could be scooped up and carried away. This was done without any trouble.

The horseless vehicle has come to be almost a necessity in our out-yard work. While the yards are located on street-car lines, yet the cars are often tied up for want of a current, and sometimes clear out of their regular running schedule. But the automobile, as now perfected, enables us to go any time when it does not rain, get to the yards in a very short space of time, and to haul light loads every now and then.

This detachable carrying-box which we have made to fit our machine will carry eight ten-frame colonies or 150 combs or frames of foundation. When a larger load is required we use the team and big wagon.

THE JENKINTOWN MEETING IN THE EVENING; CONTINUED FROM PAGE 1061.

AFTER the general field-day work the bee-keepers were invited over to a large hall near by, where they were entertained by a lecture from Dr. E. F. Phillips, of the Department of Agriculture, Washington, D. C. This was followed by a stereopticon lecture by Dr. D. E. Lyon, at the conclusion of which we were entertained by a vaudeville bee performance by E. L. Pratt, or "Swarthmore."

The hall was crowded. The address by Dr. Phillips was listened to with the closest attention. He stated briefly what the government was doing for bee-keepers; how it was taking hold of this question of bee diseases, and what it expects to do in the future. As usual he delighted his audience, for he it said bee-keepers generally are highly pleased with what the government is doing for bee-keeping.

Dr. Lyon then gave his popular lecture on the general subject of bees and bee-keepers, illustrating it with a stereopticon followed by some moving-picture work. The doctor is a natural and easy speaker and a good story-teller. The stereopticon views, mostly

of his own taking, need to be seen to be appreciated. The moving-picture work was then put on the screen, illustrating the handling of bees as it is practiced in old mother England, beginning with the capturing of a swarm of bees, driving bees from a straw skep into a modern hive, ending up with a demonstration of how hives are opened, etc.

The last feature on the program was what might be called "a vaudeville bee performance." Mr. Pratt had prepared, at considerable expense (with the special view of giving it in vaudeville theaters), a mammoth wire-cloth cage with some colored scenery of a neatly kept apiary in the background. Joining on to the picture were the real hives of bees that Mr. Pratt manipulated, explaining as he would to a popular audience the general subject of bees and honey production, illustrating his remarks as he proceeded. At the close of the work he took frame after frame of live bees out of the hives, hung them up to the frame of the cage, making an arch of live bees. The whole effect was quite pleasing, and elicited a substantial encore from the bee-keepers.

Thus closed a day of actual demonstration work among the bees, the like of which had never been attempted before in this country—at least not on so large a scale. In a subsequent issue we hope to present a picture of the veteran Henry Twining, who at this meet made an artificial swarm on his bare arm. My camera did not catch this, but another camera did, and this I will later present to our readers.

VIRGIN QUEEN, AND WHAT BECAMES OF HER WHEN SHE ACCIDENTALLY GETS INTO THE WRONG HIVE.

OUR readers will remember there has been a little controversy between Dr. Miller, a comb-honey producer, and myself as a queen-breeder, over the kind of reception accorded a young queen just returning from a mating-flight, when she goes into the wrong hive by mistake. I made the claim that the interloper would, in the great majority of cases, supplant the old queen. Dr. Miller dissented; but, apparently, he was basing his claim on the kind of treatment a virgin would receive when introduced in the regular way. I admitted that such queen would generally be killed, leaving the old queen in control as before. Dr. Miller apparently still felt, however, that the conditions would not be materially different when a returning virgin accidentally goes into the wrong hive. In relation to this whole discussion, Mr. J. E. Chambers, a honey-producer as well as a queen-breeder, has this to say. He also offers in this connection a bit of experience on the subject of burr and brace combs. Mr. Chambers' letter is as follows:

Friend Root:—Your answer to Dr. Miller's Straw, page 929, is correct according to my experience. I have made many experiments in order to find out for certain whether or not it was practical to queen in this manner. With the Chambers cell-starting device on the hives I have allowed queens to mate, and have then torn off the zinc and allowed them to go

below, where the old queen was laying. In every case the old queen was found dead within twelve hours. So, too, the same thing happens when a queen returning from her mating-flight goes into the wrong hive, and, just as you say, there is not one chance in a hundred that the intruder will not be accepted. But it is quite different when a strange queen is let into the hive. She is not allowed, in nine cases out of ten, to get a chance at the reigning queen, but is promptly balled. The reason for this should be apparent to any posted bee-keeper. Lately I have been regueneeing by placing the cell-starting board over colonies, and then introducing virgins to a weak nucleus above; and, as soon as they were mated, remove the zinc and let them go below. It has proven a sure shot every time so far.

I also note you want reports on the building of burr and brace combs between the tops of bars $\frac{1}{2}$ and thinner. With 3000 % top-bars in use I never see a burr or brace comb. I have often been puzzled to account for such complaints as, bees will not go up into supers, or they build burr and brace combs, etc. I can not but feel that something is wrong with bees, man, or hive, when these conditions prevail.

Vigo, Texas, Aug. 15.

J. E. CHAMBERS.

GETTING THE BIG RAILROADS TO REFRAIN FROM CUTTING SWEET CLOVER WHILE IN BLOOM ALONG THEIR TRACKS.

THE Southwestern Ohio and Hamilton Co. Bee-keepers' Association appears to be an organization that is very much alive. It has not only been active in legislation in matters relating to the subject of foul brood in Ohio, but it started out on a course of action that should meet the hearty approval of bee-keepers everywhere. Last year this organization requested all the railroad companies whose lines run into Cincinnati and vicinity to refrain from cutting down sweet clover during the time of bloom. Strangely enough, a majority of the companies complied with the request, with the result stated—"a great gain to bee-keepers" along those railroads.

This is a move that may well be imitated by other organizations. If the great railroad corporations can be swayed by a comparatively small number of bee-keepers in one locality, those same corporations would be equally willing to heed the request of organized bee-keepers in other places.

THE Southwestern is now preparing to stir up a sentiment among bee-keepers in favor of an anti-spraying law in Ohio (at least not spraying while the trees are in bloom). It is, perhaps, not generally known that there is no such law in Ohio, and the bee-keepers of Cincinnati are very anxious that such a measure shall be put on the statutes-books of this State. They urge the co-operation of bee-keepers all over the State.

HONEY TO ALLAY THE SOURNESS AND BITTERNESS OF THIS WORLD.

DOUBTLESS among our readers are many who admire Nathaniel Hawthorne; but probably very few of them are aware that he ever had any thing to say on bees. Our advertising man, glancing through a volume of Hawthorne the other day, came across a gem which he thought so good that it ought to be placed before the bee-keepers of the country. The sentiment is so beautiful that we all can read it with profit. Here it is, right from the pen of Hawthorne:

Multitudes of bees used to bury themselves in the yellow blossoms of the summer squashes. This, too, was a deep satisfaction, although, when they had laden themselves with sweets, they flew away to some unknown hive which would give back nothing in requital of what my garden had contributed. But I was glad thus to fling a benediction upon the passing breeze, with the certainty that somebody must profit by it, and that there would be a little more honey in the world to allay the sourness and bitterness which mankind is always complaining of. Yes, indeed! my life was the sweeter for that honey.

Pity that some of the western ranchmen who complain because their neighbors' bees gather the nectar from their alfalfa-blossoms could not look at the matter in the same broad and liberal manner. Pity, too, that there is some sourness in this world that even honey won't sweeten.

Yes, the bee, every time it appropriates a sip of nectar, gives back something in requital that it takes from the garden. It performs a service (cross-fertilization) that is often vital to the perfect growth of the fruit. If this were not so, nature would not have put the nectar there to entice the bee.

THE USE OF CONCRETE IN THE CONSTRUCTION OF BEE-CELLARS.

MR. HUTCHINSON, in the last issue of the *Bee-keepers' Review*, discusses the question of building bee-cellars and how best to do it. A good deal will depend on the locality and the cost of building-material; but in sandy soils, by all odds the cheapest way is to mix Portland cement with the sand, and some broken stone or gravel if it can be obtained. If sand only is available, mix the Portland cement and sand in the proportion of anywhere from one to five to one to eight. Do the mixing dry; then turn on the water, and mix thoroughly again. Pour this into a trench or a wooden form.

I expect to illustrate the full process of making concrete walls on a plan that any one can follow, in an early issue of GLEANINGS, for we are now putting up a concrete building, and have gained some experience in this line of work.

FALL FLOWS OF HONEY.

IN our own immediate vicinity, in different yards the bees on certain days have been working on red clover or smartweed as heavily as any day in June or July on white clover. At one yard the honey seems to be almost exclusively from second growth of red clover. At another yard, where there is no red clover, but along near the river, is a very luxuriant growth of smartweed. Some days this yields honey quite heavily.

It is many years since I remember any honey from smartweed in this locality; but nearly every year we get a little honey from a second growth of red clover in the vicinity of the yards where it grows. Our neighbor, Mr. Vernon Burt, who has been educating the farmers in his locality for years on the value of clover crops, gets quite a little honey from second-crop red clover, for much of it is grown near him.



HOW MANY BEES FOR WINTERING.

"How are Doolittle's bees doing on buckwheat this year?"

"They have not done much till within the last two days, which have been warm and moist, after cool nights; and last night was the first I noticed any smell in the bee-yard as though buckwheat honey were coming in."

"What! can you tell by the smell in the bee-yard when buckwheat is yielding honey or nectar?"

"Most surely we can, Mr. Smith."

"How does it smell?"

"Well, when a light flow is on, the smell somewhat resembles that from a field of buckwheat when in full bloom, only in a more modified form; but when there is a heavy flow on, a flow sufficient to have the bees fall short of the hives from their heavy loads of nectar, and that flow continued for several days, then the odor is less pleasant, reminding one of carrion some distance away. One year when the bees stored nearly 60 lbs. of section honey on an average per colony, in about a week's time, passersby in the road wanted to know what there was near my house that smelled so, saying to me, 'It stinks horrid.'"

"Then that was what I smelled when I was passing an apiary out in Cortland Co. yesterday. I could not think what it was. You know they raise lots of buckwheat around Ripley Hill."

"Yes, I know that ten acres are sown there to where one is sown here."

"Well, I came to have a little talk with you further than a talk we had a year ago, about your plan of making nuclei and colonies of bees by shaking bees into the nucleus box which you have told the readers of GLEANINGS about during the past, and which I have used successfully ever since I read about it in that paper."

"Very well. What do you wish to know further?"

"I want you to tell me how many pounds of bees you would put into such a box, giving a queen; and the next day, when hiving from the box, giving frames of honey, to make a full colony to winter over."

"It is calculated, I believe, that there are about 5000 bees in a pound, where they are taken from the frames without filling themselves with honey, more than there naturally are when not disturbed."

"What! so many as that?"

"Yes. Bees when not filled with honey, and especially during the fall, when no chyle is being prepared for brood, are very light

as to weight, as I have found from many years of observation."

"If one pound will contain 5000 bees it should not take many pounds to form a colony, should it?"

"It is calculated, I believe, that 20,000 bees make a good strong colony four or five weeks before swarming; but at swarming time there may be more than double that number, so that, where we work for comb honey on the non-swarming plan, we usually calculate on from 55,000 to 60,000 bees as making a good strong colony for working in the sections to the best advantage."

"But you do not think that colonies go into winter quarters with any such numbers of bees?"

"No; and I doubt if the average colony for wintering contains even the 20,000. I have reasons for believing that many colonies which are called strong for winter do not contain more than from 12,000 to 15,000 bees—yes, more often the first number than those which contain 20,000."

"But where you use the nucleus-box plan a pound would hardly contain 5000 bees, would it?"

"No; because I always cause the bees to fill themselves with honey before putting them into the boxes; and from considerable experience, by way of experimenting, I am quite certain that the pound of bees taken from the combs in the way they should be to have 5000 in a pound would weigh fully two pounds when filled with honey the way I cause them to fill themselves."

"That would change the condition of affairs quite materially, would it not?"

"Yes. If we call from 12,000 to 15,000 bees the right number for a colony good enough to winter the most successfully, we shall want those in our nucleus box to weigh from five to six pounds, which is about the number of pounds I take when forming a colony for winter, taking the bees from several other colonies."

"About how many bees do you take from a colony?"

"Unless your bees breed very late in the fall, or you are willing to feed to make them so breed, I would not take more than two pounds from any one colony, for fear they might be made too weak for good wintering, or wintering to the best advantage; for it surely can not be advantageous to make a new colony, no matter how badly you wish more colonies to go into winter quarters with, where the making of such colony injures the prospect of successful wintering of two or three others. People become reckless, especially beginners, and seem to think that number of colonies makes success, no matter how weak they are; but from all of my experience of the past, Quinby's advice, given more than half a century ago, to have your colonies in good condition as to bees for wintering, was the best advice ever given to beginners in apiculture."

"Then you would think it best for me not to try to make more colonies this year?"

"Not just that. But if you can not make a colony or colonies this fall without injuring the prospect of those from which you take the bees, *don't make the colonies.*"

"But my bees often breed during the whole of September."

"That may make a difference. In localities where bees breed during September, and where a laying queen is given to the made colony when it is made, as I suppose you intend to do, one-half the bees, or from three to four pounds, will do fully as well as the six pounds would where no bees are reared after the colony is made."

"And if they should not breed as is desired, this breeding could be brought about by feeding, as you have hinted at, could it not?"

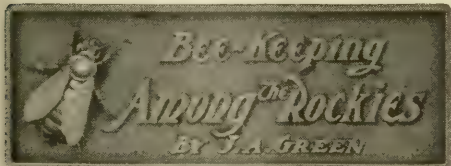
"Certainly. If the person making such colonies has the time, disposition, and means to feed moderately during September, three pounds would do well enough; for by thus feeding, brood would be reared during September in almost any part of the United States."

"By the *means* part I suppose you would buy sugar."

"That is what I would do. Where one has the time, and can afford to buy the sugar, there is nothing in the bee business that gives much more real pleasure than building up colonies of bees ready for winter during the fall."

"How soon will brood-rearing commence after the feeding is begun?"

"In a day or two; and after they have been fed from five days to a week, brood-rearing will commence in earnest. And if you do not have all the combs you wish for these colonies, they will build combs, or draw out foundation in the most beautiful manner for the one who is willing to work along these lines in the right manner; but a half-hearted slipshod person had better not undertake such matters, for such a one is more liable to make a failure of the things than otherwise."



Now plan your work so that you will not have a great lot of unfinished sections at the close of the season. If you can not use extracting-combs to finish the season, have the bees fill combs that you can use to feed any that may be short of stores. If you can not do any better, fill the supers you put on after this date only half full of sections, unless the conditions fully warrant you in giving more room.

WASTE OF WAX SCALES.

I think there is always more or less waste of wax by a newly hived swarm, but I never knew before of such an extraordinary waste of wax scales as there has been this season in all swarms, natural or artificial. Wax scales covered the bottom of the hive, and drifted out of the entrance in many cases until the ground in front was liberally sprinkled. This was doubtless due to the very cool nights we have had, and seems to indicate that a better protection of the hive would be profitable.

REQUEENING COLONIES.

Now is the time to requeen your colonies. If you have only one apiary, and do not mind having your bees swarm, it may be as well to let the bees supersede their queens themselves; but for the man who is keeping bees in out-apiaries, I think it will pay to supersede all queens after their first season. One of the easiest and cheapest ways, though not the surest, is to put a ripe queen-cell in a cell-protector in each colony needing a new queen. The young queen will in very many cases supersede the old one. If you keep your queens' wings clipped you can tell whether this has been done or not. As you do not have to hunt up the old queens, this plan involves very little labor, expense, or risk.

BRUSHES.

I have never bought many brushes for bee-work, especially of late years. I seldom do much brushing of bees; and when I do I prefer a brush made of fresh weeds or grass when I can get it. There are many varieties that make good brushes. Select something that is not too stiff, short, or stubby; do not use too large a bunch, and do not try to brush the bees with the end of the brush. Pick out something that is slender and pliable, and brush the bees with the side of the bunch, not the end. A brush of this kind, used in this way, does not irritate the bees nearly as much as many of the brushes in common use. One of the best features of this kind of brush is that you can throw it away and get another whenever it becomes daubed with honey or otherwise unsuited for the best work.

SOWING SWEET CLOVER IN THE SUMMER.

July 18th I gathered some yellow-sweet-clover seed, and several days later sowed it, together with some old seed of both the white and yellow varieties. This was on cultivated ground, and it has been kept well irrigated since. The white and yellow were not treated exactly alike, and it is possible the yellow was covered too deeply. Only a few plants of the yellow have put in an appearance, but there is a good stand of the white. The seed of the white was gathered for me by the field mice. Under a hive at an out-apiary I found about a peck of sweet-clover seed, perfectly clean and nicely hulled. The nest of the mice was occupied by a

bumble-bee, showing that something had happened to the industrious gleaners after they had gathered their winter store, but before they had consumed any of it, so that I found it intact in the spring. Possibly it germinated better because it had been hulled. The seed of the yellow was planted just as it was gathered, with the hulls on.

SHEEP IN THE APIARY.

Where it can be managed, the best and easiest way to keep down the weeds in an apiary is to let sheep have access to it at all times. When I came here I located my apiary in a patch of alfalfa. After a year's struggle to exterminate it or keep it down by using the hoe and scythe, I got a couple of sheep. The cow-yard adjoined the apiary, and in the fence between I made an opening through which the sheep could go. They fed in the apiary when they chose; but if the bees became troublesome they could run behind the barn, which was something they soon learned. Since then the apiary has been kept free from grass and weeds, without any attention on my part, until this season, when it became invaded with the "squirrel tail" grass, which even sheep will not eat. Not more than one or two sheep should be allowed in an apiary, unless the hives are a good distance apart. A flock is liable to "bunch" and crowd each other, knocking the hives off their stands and displacing the covers.

HOW FAR DO BEES FLY TO GATHER NECTAR?

One of the things that has been borne in on me with increased force this season is the great difference that exists between localities that are only a short distance apart. I bought out several apiaries this spring, and, wherever I could do so conveniently, I left them where they were; consequently with a few less than 300 colonies to start the season, I had six different apiaries. No apiary was over three miles from the next one, and two miles was the usual distance. The whole of them are in a territory seven miles long and three miles wide, and I can visit the whole of them and get back home with only about 23 miles of travel. Yet, closely as they are located, there are great differences in the results at the different apiaries, and the best and poorest apiaries are only two miles apart. There are several factors that enter into the problem, which I have not worked out yet to my satisfaction. All parts of the field are pretty nearly equally stocked with bees; and the amount of sweet clover, from which nearly all the surplus was gathered, does not appear to vary enough to account for the difference. The only moral I can draw from it at present is that, in some places at least, it is a great deal safer to have several apiaries than one.

SIZE OF SECTION FOUNDATION.

Many bee-keepers fail to have their sections as well filled as they should be, simply because they do not use as large a piece of

foundation as they ought to. This applies not only to those who use only a small piece of foundation as a starter, but to many who think that they are using full sheets. The regular size of section foundation sent out by some manufacturers is $16\frac{1}{2}$ inches long. The largest piece of foundation that it is practical to cut from this is $3\frac{3}{4}$ by $3\frac{3}{4}$ inches, five of which may be cut from a sheet. If this is hung in the section the long way down, there is too much room between the foundation and the sides of the section to secure good fastening. Besides, it does not work as well in the foundation-fastener, as the thin edge of the long sheet is not as easily handled on the hot-plate machines as the edge that has been cut. If the cut edge is used for the top, making the sheet wider than deep, there is a great deal too much space left at the bottom, and many of the combs will not be well attached to the bottom of the section, especially if the honey-flow has been a little light.

A much better size is that adopted by The A. I. Root Co., whose regular length is $15\frac{1}{2}$ inches. This cuts into four pieces $3\frac{3}{4}$ square. A sheet of this size will just nicely fill a section; and if put on during a good honey-flow, so that there is no gnawing of foundation, it will result in perfect combs every time. Even if the honey-flow is not good, a sheet of this size will make much better combs than the smaller sheet. It is very important that the comb should be attached to all sides, as such a section not only looks and consequently sells better, but it will ship with much less danger of breakage. To scrimp on the size of foundation used is very poor economy; and in ordering your foundation you should see that you get a size that will cut into full-sized sheets without waste.

Some prefer to use a shallower sheet in connection with a very narrow bottom starter. This doubles the work of putting in foundation—in fact, I think it more than doubles it, on account of the greater difficulty of putting in these small pieces, and, with me, gives little if any better results than the single full sheet, certainly not enough to pay for the extra labor. Perhaps I would think differently if I used the $1\frac{1}{2}$ section, as I believe the bees fasten the combs to the wood better in the narrow sections I use.

SEEDLESS APPLES AND SEEDLESS GRAPES.

This department is supposed to be devoted to bee-keeping; but GLEANINGS is devoted to "Home Interests" as well as to bees and honey, and A. I. Root's crusades against frauds of various kinds have doubtless been appreciated by its readers. An extension of the seedless swindle lately has led me to believe that a word from me might do some good. This is the home of the seedless-apple business, and the reputed originator lives only about a mile from me. I want to say to the readers of GLEANINGS that the orchardists of this locality are not planting the seedless apple, though apple-raising is the principal business here. Of nearly half a million trees planted in this valley last spring, it is safe to say that not one in a thousand was of the

seedless variety, and I do not believe there will be anywhere near that proportion among the trees to be planted hereafter. The apple is of some interest as a curiosity, but in all other respects it appears to be valuable only to its promoters.

It has quite recently come to my notice that an eastern branch of the seedless-apple company is advertising cuttings of the Sultana seedless grape at the modest price of only a dollar apiece, and representing it as something new, and suited to the climate of their locality. The seedless Sultana is a very desirable grape. We have it in our vineyard, and appreciate it highly; but it is one of the tender foreign varieties, belonging to the *Vitis vinifera* family, and is entirely unsuited to the climate of the Eastern States, though it might succeed in some localities with careful winter protection. It is nothing new. It has been raised in California for many years, and doubtless for centuries in Southern Europe. The price asked for cuttings, in connection with their other claims, shows plainly the character of the company. It is one of the common commercial varieties here, and any one who wanted to experiment with it could obtain all the cuttings he wants for a cent apiece or less, and could doubtless obtain rooted vines for ten cents apiece or less from any of the nurseries west of the Rocky Mountains.



HORIZONTALLY DIVISIBLE BROOD-CHAMBERS.

The Advantages of the Deep Frames.

BY C. P. DADANT.

[To freshen the memory of our readers I will state that Mr. R. F. Holtermann, on page 365, March 15th issue, presented a strong array of facts in favor of large hives, of not less than twelve Langstroth frame capacity. Among other things, Mr. Holtermann agreed with Mr. Aspinwall that swarming was the bane of bee-keeping. Mr. J. E. Hand, on page 658, May 15th issue, strongly took issue with Mr. Holtermann, arguing in favor of shallow brood-chambers, saying that with such a hive the natural instinct of bees to swarm could be made "a blessing" to the bee-keeper. In the editorial comment I called for the opinion of Mr. C. P. Dadant. Mr. D and his father, the late Charles Dadant, had been pioneers in the advocacy of large hives, practicing what they preached, and opposed to the principle of chopping up the brood-nest into small divisions such as are required by the divisible brood-chamber. Mr. Dadant's comments on this interesting question will be read with unusual interest; and when it is taken into consideration that he is a large producer of honey, and has practically no swarming, it will be seen that our correspondent is not basing his argument on mere theory.—Ed.]

Mr. Editor:—Your kind request on p. 658 was duly read by me, and I beg to be ex-

cused for not replying sooner. I have been very busy; but, better late than never.

Permit me to give my views on the subject, without any criticism of the views of others. I only wish to state the matter as I see it. The proof of the pudding is in the eating. The first improved hives that I saw my father use were Debauvoys movable-frame hives. These he discarded, because they had frames that were fitted in the hive-body without bee-space, and would not work when once coated with propolis. The next hives he used were "eke" hives, "ruches à hausses." These hives were made in sections about five or six inches high, two or three of which composed the brood-chamber. Additional ekes were supposed to secure the surplus. The eke hive is an old idea. In Reaumur's work, published in 1740, I find, on page 280, a description, with plate, of a hive divided not only horizontally, but vertically as well, the lower stories being each divisible into halves while the upper stories are shallow tiers of supers. Hamet, in the sixties, recommends the eke hive as the most convenient. It was in favor of this hive, as against the American ideas concerning the Langstroth invention of movable frames, that he took the field in opposition to my father, who was at that time trying to introduce American ideas into Europe. You know how well he succeeded.

Hamet claimed for the eke hive a greater ease in the making of divisions, or in uniting colonies, a greater facility to renew the comb by removing part of the brood-ekes, and a greater result in removing the surplus honey.

In practice, when comparing this hive with the movable-frame hive in one piece, we found:

1. The movable-frame hive, such as the Jumbo, which is nearest to our choice, enables the apiarist to enlarge the hive, one comb at a time, from the very smallest space a colony can possibly fill and keep warm, up to the largest laying capacity of the best queens. It is useless for us to seek a more gradual increase of space than can be given with such a hive and a dummy.

2. In the full-depth movable-frame hive the queen has the greatest possible chance to develop her fertility. All of you who have examined combs of brood have seen that the queen lays eggs in a circle, hardly ever missing a cell, especially if young and vigorous. When she lays in a shallow frame, five to seven inches high, her laying is less regular, because at each round she comes upon the wood, at the top and at the bottom. Time is money with you and me; time is honey with the bees. If the queen is delayed, her eggs drop to the floor like so many ripe fruits, for she can not hold them during the best period of laying, and the time that she wastes in hunting for cells is for ever lost. The damage is less in a deep eke, because the circle that she makes is larger than in a five-inch body. But with a seven or eight inch body you can not enlarge gradually your breeding-room. You may have it single or double. Single, it is too little; double,

it is too large. It is true that you may have recourse to Dr. Miller's method, reduce the brood-chamber again when the crop comes; but that is an increase of manipulations that does not please me. With a very shallow eke, or divisible brood-chamber in several pieces, say three pieces, five inches each, you have your breeding-space cut into a number of apartments. Such were the ekes my father used. We found in practice that the bees often would desert one of them entirely; sometimes it was the lower story; and when we thought we had a strong colony we found all of a sudden that the bottom tier was empty. The queen, finding all the stories equally shallow, would just as readily breed in the upper as in the lower—a thing she rarely does with our deep brood-chamber.

These ekes were not movable-frame hives. But I can not see that there would be any gain in using thirty shallow frames in place of ten deep ones, or even twenty instead of ten. True, it is held that we can handle hives instead of frames; but I can see no chance of handling only hives, when hunting for a queen, when looking for queen-cells, when looking for brood, or for diseased brood, or, in fact, for two-thirds of the necessary manipulations. We must have frames if we wish to keep at the head of the procession; we must still have hives that may be taken to pieces "like a puppet-show" (Hamet), and with the horizontally divisible hives we have twice or three times the number of frames to handle that the original Langstroth idea gave us.

For winter we have found, time and again, that a small colony will winter far better in five frames ten inches deep than in ten frames five inches deep. I have no doubt that dozens of instances may be given me where shallow hives have wintered well, over and over; but I nevertheless hold, for I have tested it, that a shallow hive runs more risks than a fairly deep one. The nearer we can get our brood-nest to the shape of a ball, the better will the cluster winter, for that cluster is naturally made in the shape of a ball. All who have examined the bees in cool or cold weather have noticed it.

If I have a brood-chamber with deep combs, I can enlarge the room of a small colony one frame at a time, two frames if I see fit. But at any rate I need not, unless I wish to do so, increase it faster than a tenth of its ultimate full capacity. If I use a divisible brood-chamber I must increase it by doubling its capacity, or at the very least add a half to its size.

Before we make any radical changes in our methods of bee culture, let us bear in mind what has been repeated over and over, by leading writers: It is because of the Langstroth invention that American bee-keeping has found itself so very far ahead of other countries.

Hamilton, Ill.

[Mr. Dadant brings forcibly to the front one argument that I do not remember he has ever advanced, or any one else, quite so

strongly; and that is, that the instinct of the queen is to lay in the form of a circle. When she finds that this circle is broken up by bridges or gulfs she hesitates, loses time, and skips cells. As her time is the bee-keeper's time, therefore, according to Mr. Dadant, there is a distinct loss. This is an interesting development of this discussion, and we shall be glad to hear from our subscribers, particularly those who are the users of the split-up or double brood-chambers.

The editor takes no sides in this discussion; in fact, he is "on the fence," and has been for years—candidly, not knowing which side has the best of the argument. It may be that we shall have to reduce the whole discussion to the point that localities, circumstances, and the man, will have to decide this interesting question.—ED.]

AN ANCIENT BEE DEMONSTRATION.

Give Honor to whom Honor is Due.

BY D. M. M.

Your excellent article, Feb. 15, with the admirable accompanying illustrations, should do an immense good in showing a way in which a knowledge of bees and their produce can be brought home to the general public. The more extensively the virtues of honey are spread broadcast through the land the better; and I know no more efficient plan for disseminating this knowledge than open-air demonstrations with live bees. Your reference on page 201 gives honor where it is due; but I write you now to show that it is no modern invention, as it has been practiced in this country for over two hundred years at least.

Away back in August, 1678, an open-air demonstration took place in the Royal Gardens, St. James' Park, London, before King Charles II. and many of his courtiers, among them being many noble and titled ladies. The demonstrator in this case was Moses Rusden, apothecary, and bee-master to the King's Most Excellent Majesty (to give him his full designation, as recorded on the title-page of his book), and the exhibition was a most decided success. Soon after, bee-keeping became all the rage in high quarters. The hives used were of the Gedde type, the first genuine departure from straw hives, and undoubtedly the progenitor of all our modern hives. They were in some cases made "transparent." Mewe, their inventor, says, "A gentleman in Pliny's time endeavored to make their works transparent. I tried, and finished the essay to the satisfaction of myself and others. Every time I view them I see something new. They serve to give me an account of the daily income and expenditure or their negotiations, so that, with half an hour after dinner or supper I know what hath been done all day." Among others who observed bees in these hives was Sir Christopher Wren.

Rusden claims for them in particular that they enabled him to secure "right virgin

honey," and he seems to have had something like a two-pound section, because we are informed he supplied the king with combs of this pure honey measuring 8 inches by 5. Further, he *advertised* that he kept samples of this comb honey all August and September at his house, Bowling Alley, Westminster. I think I may, therefore, claim for Rusden that he was the first royal bee-master, the first public demonstrator, and the first to advertise pure comb honey.

His ideas on some points, however, were peculiar. He believed every colony was headed by a *king*, and he pictures him in one illustration with a crown on his head. Under him, and carrying out his royal commands, were duces, or leaders, who controlled the plebs, or common workers. Without their king they die out, because they can not breed. Reviving an exploded theory of Virgil's he believed bees gathered "animable matter" from the flowers, into which, when placed in the cells, the king ejects sperm, whence come the young bees. The drone he viewed as a "redundancy of nature," which was of no use unless he might care for the young brood when bees were out collecting nectar. All the same, Rusden had a high opinion of the bee. "As honey excels all other things in sweetness, so doth the bees other insects in art, wisdom, forethought, industry, valor, and loyalty. They are excellent chemists, incomparable architects, and indefatigable workers. Their laws are steady and inviolable, and they govern with prudence, foresight, courage, and fidelity."

Banff, Scotland.

WHERE IS THE HONEY MARKET WITH THE BEE-KEEPER?

The United States Census shows that, where there are the Largest Number of Bee-keepers, there is where the Most Honey is Consumed; a Refutation of the oft-repeated Statement, the Multiplying of Bee-keepers Decreases the Demand for Honey.

BY B. S. K. BENNETT.

Of much interest is the article by George Shiber, page 729, "What is to Blame for the Present State of the Honey Market?" and his sound remedy of bee shows and advertising.

The Root Company is doing more good in this line than most bee-keepers will admit; in fact, many condemn the making of bee-keepers. Why? Have we too much honey? The census gives the annual production at 61,196,160 pounds; the population at 76,303,387—or about $\frac{1}{4}$ of a pound per capita. Are not new bee-keepers most enthusiastic and great advertisers of honey? We all know that an old bee-keeper rarely speaks of honey, rarer eats it, and is first to suggest its being mixed by dealers.

The United States census figures prove to me that the bee-keeper makes the honey market; that where there are many bee-keepers there the most honey is consumed.

Dividing the United States with a line North and South through Kansas City we find the Eastern half, with a population of 63,803,000, produces 2100 cars of honey, or $\frac{1}{3}$ lb. per capita, while the Western half, with a much vaster honey floral territory, and 12,500,000 population, produces 790 cars, or 1 lb. per capita. Still the Eastern half is the market for Western honey. Why? Is it not the advertising given the industry by a large number of bee-keepers? Some may say the market is made by demand of greater population.

The States of low production are Massachusetts, with $2\frac{1}{2}$ million people; she produces $\frac{1}{3}$ lb. per capita; Rhode Island, $\frac{1}{2}$ million people, $\frac{1}{17}$ lb.; Oklahoma, $\frac{1}{24}$ lb.; North Dakota, $\frac{1}{40}$ lb., and District of Columbia $\frac{1}{54}$ lb. These States are few in bees and bee-keepers, and are not receivers of honey, excepting possibly Boston, Mass. Does population make the honey market?

The five eastern States of large production are Tennessee, producing 170 cars of honey; Missouri, 151; Illinois, 135; Kentucky, 130; Iowa, 120. These have an average of 40,000 bee-keepers to the State; and while the production is 1 lb. per capita they are consumers of much Western honey.

Comparing three States of equal production, 100 cars each, for Ohio, Michigan, and Alabama, whose population is 4 million, $2\frac{1}{2}$ million, and 2 million, we find that Ohio has the largest number of bee-keepers, and her cities furnish the best market for Western honey. In fact, Ohio is the center of development of bees, bee-keepers, and market, of commercial honey-producing, started less than 35 years ago by GLEANINGS, that educator of amateurs.

Summing the States up in another way we find six western States with a population of 3 million, producing 4 pounds per capita; 13 eastern States with 23 million people, 1 pound per capita; 28 States of 45 million people, $\frac{1}{10}$ lb., and 5 States of 6 million people, $\frac{1}{10}$ lb. per capita. The six western States mentioned above are California, producing 34 lbs.; Nevada, 4 lbs.; Utah, 5; Colorado, 3; Arizona, 8; Texas, $1\frac{1}{2}$ per capita, or to each person a year.

Texas is one of the new States in honey-making, yet has 60,043 bee-keepers, ranking first; is first also in production, and, from all reports, is a large consumer, buying honey from California, Arizona, Colorado, and other States. Five eastern States of large honey-production leave one bee-keeper to each 70 people, while 5 far eastern States have one bee-keeper to each 1500 people. Which eat the most honey?

In conclusion I would say, don't fear over-production yet awhile. Let each bee-keeper enthuse his neighbor, and get him into the business. What we need most is enough honey so that we don't run short when we do create a market; young bee-keepers to improve the *quality* of the product; and the surplus? When there is a *large surplus* it will take care of itself by finding its way into the hand of speculators and foreign ship-

pers. We hope for much more; but let us first build the foundation, *more honey*.

Census figures show less than one pound of honey a year for each person in the United States; that where the most bee-keepers are, there the most honey is produced and eaten; that dense population does not demand honey, and that the United States sugar-factories produce 20 pounds of sugar a year to each person, and are still building more sugar-factories.

Los Angeles, Cal.

BLACK ANTS.

How to Protect Weak Nuclei.

BY E. W. PEIRCE.

The article by Mr. O. O. Poppleton, on Florida ants, Feb. 1, recalls some experience I had with ants last season. In feeding up some nuclei the syrup was placed in an empty super over the bees. As the super was a little out of true, quite a crack was left between it and the hive-body. Through carelessness, also a little syrup was spilled on the ground, which soon attracted a multitude of large black ants. These, having licked up the syrup, returned with re-enforcements, climbed up the sides of the hives, dodged through the cracks, and eventually sneaked in at the entrances.

As ants seem not to be accounted a serious enemy of bees here in the North, I was at first disposed to look upon the matter with some degree of indifference; but when I began to realize that A bore to B about the ratio of 16 to 1, and that the latter, though offering a noble resistance, could not long endure against such odds, I bethought myself of an investigation. An examination revealed the fact that not only had the ants left the bees paralyzed with hunger and fear, but, not content with rifling them of their stores, were feeding upon them bodily, as attested by heads and bits of wings deposited in the lids and corners of the hives.

On account of the number of ant-harboring cavities in the old trees of the orchard in which my little apiary is located it was found impracticable to destroy the ants in their nests. The experiment was made of pouring kerosene about the hives, but this proved of no avail. Finally the invaders were circumvented by mounting the hives on improvised scaffolds with spikes for legs, each spike being immersed in a tin-can lid kept filled with kerosene and water. After the nuclei became strong enough to defend themselves they were again set down on their brick foundations.

These ants must be fully as large as those described by Mr. Poppleton, and, like them, "love darkness rather than light, because their deeds are evil."

They, too, have "powerful jaws"—at least the one that took occasion to explore the interior of my nether apparel.

So far as my experience goes, these ants never molest full colonies of bees. Possibly

they would not attack nuclei unless attracted by outside sweets. However, in my future dealings with them I shall adopt the advice, "Trust not the horse, O Trojans!"

Zanesville, Ohio.

HOFFMAN FRAMES.

Can the Slats of the Fence Separator be Spaced Further Apart? Bees that Work on Red Clover.

BY C. D. FARRAR.

During the past few years I have noted with considerable interest the controversy over the advantages and disadvantages of the Hoffman frame. My own experience with them has been confined to the past three seasons; and, although our bees collect a large amount of propolis, I should never once think of again using the unspaced frames. There are one or two points about them which, as ordinarily used, I consider great drawbacks, but defects that are easily remedied.

The first and (with me) the most important is where the two outside faces of the outside combs allow so little bee-space between them and the sides of the hive and follower. This space, I find by the use of observatory hives, to be just enough for a scant bee-space; consequently the queen rarely lays on the two outside surfaces; and the space between the top-bar and side of hive is so narrow that the bees are quite inclined to close the space with glue.

Now, I find that a good plentiful outside wall of bees is most essential for the best welfare of the colony, as well as for completing the outside row of sections. Here on these outside surfaces the bees have stored several pounds of white honey, which with loose frames would have been well filled with brood. My experience has been that, in our climate with its cool nights, bees can not rear brood where a single layer of bees is the only protection. Now this trouble can be obviated by simply tacking a narrow strip of section, say $\frac{3}{4}$ inch wide by three long on the upper inside corner of the side of the hive where the spacer of the Hoffman frame comes in contact with the side of the hive, and using a follower $\frac{3}{4}$ inch thick with a similar piece of section tacked where it comes against the frame, and then using two super springs in the space between the follower and side of hive where it comes in contact with the frame. While working about a hive I always stand upon the same side—that is, with my right hand nearest the entrance. So I have the strip tacked on the far side of the hive with follower next to me. I have all hives face the southeast so as to bring the single wall of the hive where the sun will strike it early, thus sending the bees much earlier to the fields.

Another point about which I am particular is to have the side of super which contains the springs come over the follower in the hive, as every bee-keeper well knows that

bees will work much sooner over the brood than at one side.

With this arrangement I have no difficulty in removing the follower by simply removing the springs with a good screwdriver, and loosening the follower with a one-inch chisel.

I often wish the top-bar of the frame were not quite so thick; for, the nearer you can get the section boxes to the brood-nest, the easier it is to get the bees to occupy them. However, there is little trouble in this respect since the advent of bait combs.

I find that warmth is the great essential in the production of comb honey, and that, by using a sheet of burlap over the frames or super, and placing upon this a cushion some three inches in thickness, filled with dry leaves and planer-shavings (as chaff contains too much dust and weed and grass seed), I retain in this way the warmth of the hive, thus enabling the bees to breed much faster and draw more comb than they otherwise could. In fact, this cushion business is the very best thing you can use when hiving a swarm, as it protects the heated bees from the hot sun, and at the same time prevents any direct upward draft, which, I feel confident, any swarm of bees detests. In fact, I began keeping bees in 1879, and have kept them a great part of the time since, and have always followed this method, and never had a swarm come out until this last season, when I tried a few swarms with a single cover and shade-board, and they almost invariably swarmed out, either within an hour or two or the next day, when, upon using the burlap and cushion, upon rehiving them I had no further trouble.

I have never used a frame of brood in hiving before; but without the cushion this season, even this would not always hold them.

The one trouble with this arrangement is that the bees can not seal the super-case to the hive, so a driving rain sometimes beats into the hive; but this moisture seems to be used at once for breeding purposes. Could not the slats of the fence separator be placed a trifle further apart to give freer access to each section, without the surface of the combs being built irregular, as I find many of the spaces which they evidently consider too narrow completely filled with propolis? Such openings I shall rasp out a little wider than the standard distance, and thus prove to my satisfaction what the result will be.

This free communication which the fence separator allows is certainly a great improvement.

During the summer of 1902 I received an Italian queen from The A. I. Root Co.; and, although not a warranted red-clover queen, eight of the twenty-three colonies which I now have of this stock were working finely on second-growth red clover this past season. This is the first time I have ever seen a honey-bee on a red-clover blossom.

Lewiston, Me.

[We have tried tacking something on the side of the hive to provide the necessary half bee-space, which, in connection with the widen-

ed end of the frame furnishing the other half bee-space, makes a full bee-space. But extended experience leads us to feel that we, at least, do not want any thing of that kind. The frames should be tightly squeezed together—as tight as possible—then the follower and the whole set of frames should be placed exactly in the center of the hive. This can be very readily done with a hive-tool, leaving a full bee-space on each side of each outside frame.

I should like to place the strongest emphasis possible on the value of top protection against both heat and cold. I verily believe the time is coming when not only the top but the sides of all comb-honey supers will be protected by an extra shell or wall, and in addition some form of packing between.

We know ourselves how it feels to be under a low shed with a single thickness of boards for a roof, on a hot day—how there will seem to be a pressure of heat on the crown of the head; but if that roof is made double, with an air-space, how much more comfortable!

It would not be practicable, as we have learned by experience, to place the slats in the fence further apart, as you suggest. Better not increase the width of the opening or you will be sure to regret it. Wide openings cause a ridgy or washboard effect on the face of the comb honey. The slats should be far enough apart to allow worker bees to pass between and no more. If too close the bees will gnaw at the openings; and when they *once get started* to gnawing they will ruin the fence.

Your report in regard to the red-clover bees is only a sample of many that we get. I hesitated about giving it here in the reading-columns, as it savors too much of advertising; but there are many who question whether the honey-bee, no matter what the strain, ever gets any honey from red clover.

A great deal depends on the locality, much on the strain of bees, and every thing on the character of the season, whether bees will work on red clover or not. When we are asked whether we will guarantee that our strain will work on red clover, we always reply in the negative. All we can honestly say is that they will work on red clover if any strain will; and even then only when conditions are favorable.—Ed.]

THE SIZE OF SECTIONS.

Please the Public and your Fortune is Made.

BY F. B. RICHARDSON.

Mr. E. R. Root wonders on page 277 why there has not been more of a demand for the 1½ square plain section. One great reason in Massachusetts, so far as I have been able to learn, is the "eye deception;" that is, people think they are getting more for their money when they buy a 4×5 section, because they *see* a greater surface. You know the demand of the times is "something for nothing," and buyers of honey think (I

am informed by sellers) that they are getting that very thing—something for nothing—when they buy a 4×5 section, because they actually see more of their goods. It seems to bee-keepers a foolish idea; but to the store-keeper it is a stern reality, that his 4×5 sections are cleaned out before his 4½ square begin to sell. One man told me that, if there was a section made that showed 5×8 or so, and weighed only 14 oz., it would be preferred by the generality of people. Very few people in the city or in large villages know much about the weight of a section of honey. Of course, there are people who do, but they are few and far between. If a section looks large it is all they ask, and, strange as it may seem, a good many people think they are being cheated to pay a few cents more for a full pound of chunk honey than to buy a section containing sometimes one or two ounces less than a pound. To me it shows lack of care in providing; but in a city, so few housekeepers know the kind or weight of any thing that is served on their tables that it is hard, so far as they are concerned, to reach or convince them.

Of course, the store-keeper wants what sells best; the wholesaler wants what sells best, and the bee-keeper wants to produce what sells best in his market.

At a recent bee meeting held in Worcester, Mass., by the Worcester County Bee-keepers' Association, there were two sections of honey that were examined by quite a few people, one a 4½×4½, the other a 4×5. Almost to a man (also woman) the 4×5 was pronounced heavier; but actual weight showed little if any difference. This is, of course, only one example; but it goes to prove what we are all aiming at—"please the public and your fortune is made."

West Medford, Mass.

[If very few, as you say (and I think you are right), know the weight of a section, much less associate the idea of a pound with a box of honey, then there is and can be no deception. If an oblong package is more popular than a square one, furnish what is called for.—Ed.]

MEASURING BEES' TONGUES.

A Simple and Automatic Device for that Purpose.

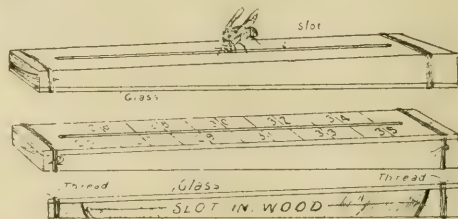
BY F. A. POWERS.

I have an instrument for measuring the length of bees' tongues which is a success, as it is comparatively accurate and takes but little time to use it. The idea is original with me, but I do not know whether the principle has been used before or not.

I take a piece of fine-grained wood, about 6 inches long, 1 inch wide, ½ inch thick at one end, and ¾ at the other end, and make a saw-kerf through it, through the thin way of the block. The saw-kerf is ¼ inch wide,

very smooth, and extends the length of the block except ½ inch at each end. The slot should be made with a small circular saw.

Take a piece of window glass, 6×1, and put the crowning side next the block, and tie it tightly with linen thread around the glass and block at each end past the slot in



the block. But before tying on the glass measure very accurately the thickness of the block near the thin end, and make a mark across the block just where it is ⅜ inch thick, also make a mark across it near the thick end where it is ⅝ inch thick; now divide the space between these marks into 10 equal spaces, making marks across the block with the point of a knife. Number the marks with a lead-pencil from 25 to 35, then tie the glass on over the marks and figures as described. Now put it in a vessel with some beeswax and set it on the stove and melt the wax, and let it soak into the wood 15 minutes or so. After you have drained the wax out of the groove, scrape the remaining wax out of it with a stick and it is ready for use.

To use it, fill the groove with honey; place it on the flight-board of a hive whose bees' tongues you wish to measure (there should be but little or no honey coming in at the time). The bees will eat the honey out of the groove as far as they can reach, in half an hour or so. You can then take the instrument, and, by looking at the glass side, you can see how far the bees have licked the honey off the glass, and the mark at this point will indicate the length of the tongue in 100ths of an inch.

Of course, the bee's jaws will go into the groove some distance, I think about ⅛ inch; but you can get the relative length of the tongues, which is good enough for practical purposes.

Parma, Idaho.

F. A. POWERS.

[A device for measuring bees' tongues that was quite similar to this was illustrated a couple of years ago.—Ed.]

BUILDING COMBS UPWARD.

Did you people ever have or hear of a swarm of bees starting to build combs from the bottom up? They did not stand up very well. A neighbor has such a colony.

Apollo, Pa.

H. R. RICHARDS.

[Yes, bees will sometimes do this, but when they can get a good point of attachment overhead they prefer it.—Ed.]

THE FERRIS SYSTEM OF PRODUCING COMB HONEY, AND SWARM CONTROL.

The Hive-handling Machine and its Uses.

BY A. K. FERRIS.

All will agree, no doubt, that the exceedingly strong colonies, in large hives, produce more honey proportionately than the small colonies in smaller hives; but the question that always arises with large hives is the hard labor in handling them: so in using the twelve and fourteen frame hive the question of lifting and operating them is a serious one when considered without proper aid; but with the device described in the following, and illustrated in Figs. 13, 15, 16, 17, it is mere pleasure to handle these extra-large colonies.



FIG. 13.—HIVE-HANDLING MACHINE: FRONT VIEW, AS READY TO BE SHOVED UP TO A HIVE.

When it becomes necessary to manipulate the brood-nest of a four, five, or six story colony without help it is enough to make one sigh; but with this device you simply roll it up, lock the wheels by stepping on the cogwheel brake (see Fig. 17), shut the gate, blow a little smoke in the entrance, and begin lifting.

When the weight of the stores above is removed, pry the bottom one off and smoke them a little more, and then hoist them out of the way and leave them hoisted while you are manipulating. When through simply loosen



FIG. 13.—ANOTHER FRONT VIEW.



FIG. 14.—HIVE-TIPPING DEVICE AS USED FOR EXAMINING BROOD-NEST FOR QUEEN-CELLS.

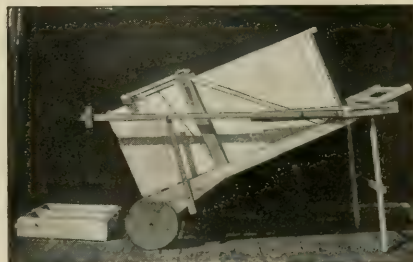


FIG. 15.—HIVE-HANDLING MACHINE AS USED FOR EXAMINING BROOD-NEST FOR QUEEN-CELLS.

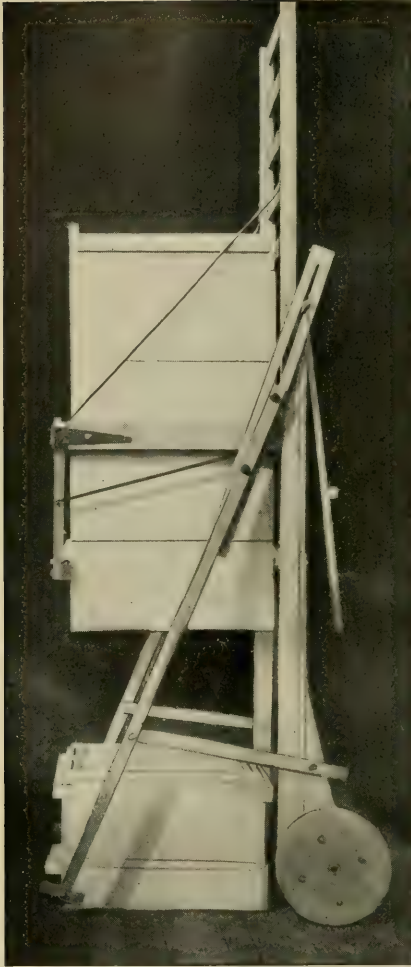


FIG. 16. —HIVE-HANDLING MACHINE IN POSITION FOR BROOD-NEST MANIPULATION: RIGHT VIEW.

the crank-catch, and let the stories gently down on the bottom story, brushing the bees off so as not to crush them. In examining for queen-cells I have illustrated two devices in operation—see Figs. 14 and 15, which need little comment.

The hive-tipping device is easily made, quickly adjusted, and put on to any number of stories up to six. It holds them all in place by spring pressure while being tipped back, so that, with a little smoke, the entire brood-nest can be viewed for cells in a few moments, as the queen is confined to the lower story.

With the hive-handling machine the hive can be laid down nearly flat if desired, as seen in Fig. 15.

When we desire to take off honey, all we need to do is to distribute our bee-escape boards, then take our machine and proceed to lift the stories you wish to take off; slip

in the bee-escape board, and then the next day, rain or shine, you can go along with your truck or wheelbarrow, and roll in the honey. This makes bee-keeping to the strong or weak a pleasant occupation rather than a task.

THE HIVE-HANDLING MACHINE AND SWARM CONTROL.

In the preceding subjects we have considered swarm prevention, and noted some of the fundamental causes. By prevention of these causes, swarm control can be effected without the loss of honey; therefore, whenever possible, so operate your colonies as to prevent the development of the swarming fever. This is accomplished by the foregoing method in making the brood-nest extend the whole length of the hive at the commencement of and during the flow, so making them contented, and it even stimulates them to build comb.

In this method the comb honey is placed in the center of the hive, and each story is slipped under the last one until the flow is about over, when a story of extracting-combs is placed above to catch the overflow after

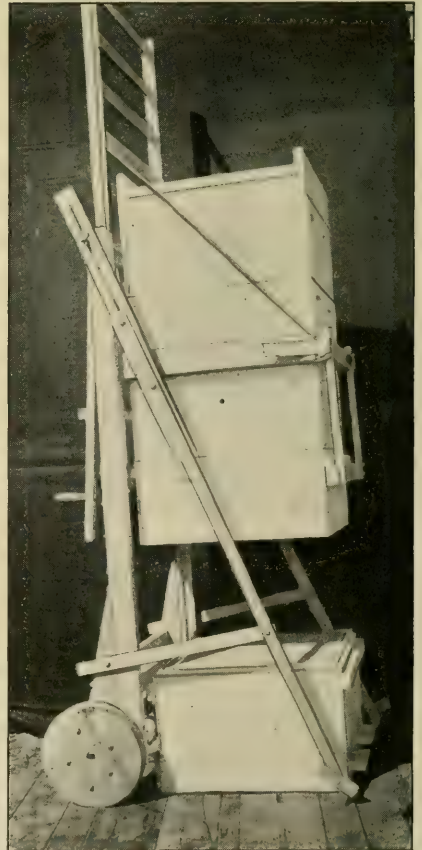


FIG. 16: LEFT VIEW.



FIG. 17.—MACHINE AS USED IN THE SIBBALD METHOD OF SWARM CONTROL.

the sections are full. This does away with half-filled sections, and secures through these devices practically all fancy comb honey, and the amount that would be otherwise is in the extracted form.

With bees of a decided temperament to swarm, or when conditions are especially favorable to induce it, such as excessive heat or some other known or unknown cause, it often becomes very necessary to have some easy way to control them absolutely, even after the fever has been already contracted.

For this alone the hive-handling machine will pay for itself in a very short time. By going through the yard and tipping the hives as shown in Figs. 14 and 15, we are able to examine 25 or more five or six story colonies an hour, without other help. When one is found preparing to swarm, simply remove the brood-nest and place it on another bottom, as shown in Figs. 16 and 17. If the colony has contracted the fever for lack of room, simply give it a story prepared as described in Fig. 11, using a clean comb of brood on either side of the attachment, and by keeping some frames of foundation in the brood-nest these will always be available; or a story of frames with starters or extracting-combs can be given instead, and one frame of brood from the brood-nest. In this way the large colony can not swarm, as they have no queen and but little brood, and soon

lose the fever. The large hive is returned so that it looks just the same as before. All the field-bees, together with quite a large number of the nurse-bees and comb-builders, will return; and as there is practically no nursing brood they soon become fielders. On the other hand, the brood-nest and queen being deprived of all fielders, and having no honey coming in, soon lose the swarm fever. In a week or ten days this story can be returned to its old place with both parts cured. Only the cells on the combs of brood in the large hive must be torn down, as they will have them on account of being queenless. The bees in the brood-nest division will have torn down their cells, as they have already concluded that, as no honey is coming in, it is no time to swarm.

This has been described by others; but as I consider it a very effective way of destroying the fever after it has once been contracted, and it is so easily accomplished by this device, I feel it deserves being mentioned for those who have not happened to know it.



FIG. 18. MACHINE AS USED IN PUTTING ON BEE-ESCAPE BOARDS.

The shook-swarm method will also accomplish the object; but with such large colonies as we secure by this system it is very tedious, and costs the loss of considerable honey.

HIVE-LIFTING DEVICES.

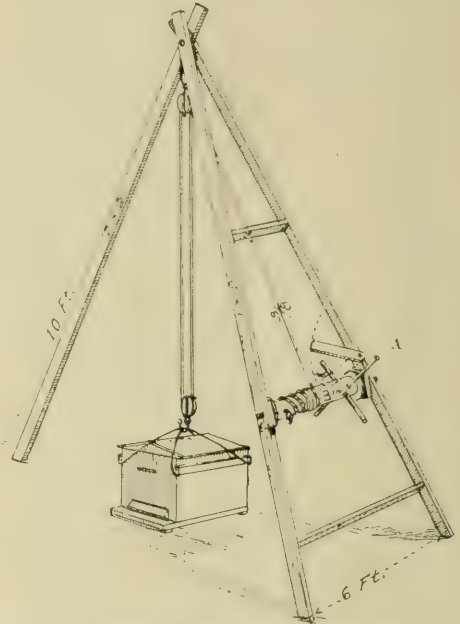
A Simple and Cheap Apparatus.

BY JOHN BAILEY.

I enclose a sketch of a hive-lifter which I use with great satisfaction in my apiary. It is a great labor-saving apparatus—away ahead of lifting a hive off and setting it on the ground to do the work with it that is necessary.

It is simple in construction, and can be made with ease by almost anybody. It is made of two pieces of 1×2 pine and one piece of 2×2 pine, all 10 ft. long, bolted together at the top with a 2×2 piece in the center, which admits of its moving out or in to regulate height, or for moving a hive back or forward. The two pieces of 1×2 are strapped together by a piece of 1×2 above, and below a three-inch roller, as shown in the sketch. The roller is about 3 ft. from the ground, and is 4 ft. long with two pieces of $\frac{3}{4}$ stuff rounded put through from opposite sides to act as handles for turning the roller. A clevis hangs from the bolt at top, and on it is hooked a double-reef block and tackle, with the end of the rope securely fasten-

ed to the roller. Use two-inch blocks and $\frac{3}{8}$ rope. The gudgeons of the roller are $\frac{3}{8}$ iron. Desiring to lift a hive, place the lifter over it to the height desired (regulate the height



BAILEY'S HIVE-LIFTING DEVICE.



R. F. HOLTERMANN'S SUPER-LIFTING DEVICE.

by moving the 2×2 leg in or out), and put a piece of rope over the hive under the hand-holds and draw the rope together on top. Providing you have a hive with either one or two supers on, you fix your rope with a loop in one end big enough to slip over the top of the hive, and put a hook on the other end, and also one about the center, between the end and the loop. Put the loop over the bottom hive, then run the other end over the top of the supers and hook into the loop on the other side. If you have only one super, use the middle hook; if two supers, use the end hook, and so on. You can put in as many hooks as you like, according to the number of supers on the hive. The whole cost of the hive-lifter is from \$2.00 to \$3.00. Hook in your

block and turn the roller, thereby raising the hive. When the hive is up a sufficient height, drop in the anchor shown in the sketch at A, which holds the roller from turning. The hive is then hung up and you can examine it for queen-cells from the bottom, or put in a super, or do any thing you desire, without help. When you have finished your examination, raise out the anchor and lower the hive to place. If you desire to move a hive a piece from its former position, lift the 2x2 leg from the ground and carry it either forward or back, as desired, and the hive will move with it.

I consider this apparatus a great labor-saver, as one man performs the operation much easier and better than by any other way I know of.

The lifter shown is of sufficient strength to lift any weight to 400 lbs. Mine has been subjected to greater weight. Care should be taken to have material free from knots of any size, especially in the legs.

Bracebridge, Ont.

ANOTHER SUPER-LIFTING DEVICE.

It is strange how often several men having an apparent connection of thought will have an idea at about the same time. Owing to the back-breaking work of lifting supers, I decided, two years ago, to have a hive-lifter made, with the result as shown in the illustration. A year ago last May I paid a visit to Mr. F. J. Miller, Vice-pres. Ontario Beekeepers' Association. Just as I was leaving, Mr. Miller said to me, "I have another idea" (he had shown me several labor-saving devices) "but it will be of no interest to you." So I went to his beehouse and here he had a device for raising supers from the brood-chamber for separating and tilting up the upper half of a Heddon divisible brood-chamber. So I told him

I was very much interested and what my ideas were. That such labor-saving devices will come into much more general use I have no doubt.

Brantford, Ont.

R. F. HOLTERMANN.

[Mr. Holtermann comes very near striking at the truth when he says he thinks that these labor-saving lifting-devices will come into more general use in the bee-yard. A good deal depends on the strength of the bee-keeper and the lay of the land where his



FIG. 1. A SWARM THAT CLUSTERED ON A LIMB THIRTY FEET FROM THE GROUND.

hives are situated. A person, for example, who can lift a load in a stooping posture of fifty or one hundred pounds, without danger of straining his back, would probably not need any derrick. But not every one is built with the sinews of a giant; and we very often see workmen who have been crippled from overlifting, when a little intelligent application of common sense would have saved a lame back and not wasted any time either. As my old grandfather used to say, we boys needed to learn how to get the advantage of a load. In our last issue, G. M. Doolittle showed how to lift a whole super of combs without putting any strain on the back.

But here is a case where over half the hives have been tiered up three or four stories high, and we find it necessary to get into the brood-nest. How shall we manage? Nothing short of lifting the hives off one by one will permit of examination of the brood-nest unless we use a derrick to suspend the load at a convenient height while the brood-nest is being examined. While the Ferris derrick is the most expensive, it is apparently the most portable and the quickest to apply. The other devices here shown are cheaper, but I should suppose would require more time in setting up and getting ready for business.

Some of the old veterans may ridicule these lifting-appliances; but they should not forget that there are some men and a good many women who are physically incapable of doing any heavy work in the bee-yard



FIG. 2. THE PARENT COLONY AFTER ALL QUEEN-CELLS BUT ONE ARE REMOVED.

without some simple device of the kind here shown. It is to this class that these appliances will appeal.

Possibly some honey is yet to be taken off the hive, and probably a good deal of extracted. We should like to have those who have such honey to take off try one of these appliances and report what they think of it.

Mr. R. F. Holtermann is one of the most extensive bee-keepers on this continent. He is fully six feet tall, and capable of lifting with the average man; but if he finds that a machine enables him to do more and better work with less fatigue, some of the other veterans may well consider whether it may not be money in their pockets to join the crowd who have less of the giant strength at their command. [Ed.]



FIG. 3. AN ENLARGED VIEW OF QUEEN-CELLS: DRONE AND WORKER.

A BEE EXPERT WHO TAKES CARE OF ALL THE BEES IN HIS VICINITY.

A Prime Swarm from a Prime Swarm in the Same Year.

BY M. L. BREWER.

For a quarter of a century I have kept bees in a small way. My text books have been the A B C of Bee Culture, Cook's Manual, and GLEANINGS, with such side lines of study as came in my way. I use a hive somewhat similar to the Danzenbaker, which I make for myself and others, as I do a small supply business. I also use Hoffman frames, and for myself full sheets of wired foundation, thereby insuring straight worker combs as well as more rapid work of my colonies. All these have been worth more to me than I can tell. I usually have charge of most of the farmers' bees in a radius of five or six miles, they preferring to pay me rather than do the work themselves.

This year, May 28, I was called to hive a prime swarm after they had hung up thirty to forty feet on a limb all night. July 10 I was called back after being told swarm No. 1 had cast a swarm which also hung over night. It was my first experience of this kind, and I was anxious to know why. On examination I found they had made all due preparation, and it was all in the regular way. Is not this a little out of the ordinary, especially in a poor year? Their brood-nest was not complete by one side frame. I removed all queen-cells started, and put them back where they came from after smoking both them and the hive well; and now, July 18, all is still satisfactory.

I am always interested in the methods of the notables, especially on prevention of after-swarms and keeping down increase when not desired, and so have been working some while studying methods of others.



"WHO'S AFRAID?"

The camera and I are partners, and it will help me tell my method.

MY METHOD OF PREVENTING SWARMS.

June 25 our first prime swarm issued (I say *our*, for, like A. I. Root, I believe a good wife should have an equal share). After ignoring all low trees they clustered on a limb fully thirty feet from the ground. No. 1 shows conditions after the descent. No. 2 is a few hours after, when all queen-cells but one were removed, by which method we never had an after-swarm; and to prevent increase our method is to double back, which has worked for us whenever tried, keeping all working force gathering and storing honey. No. 3 shows something of what we found in No. 2—queen-cell in building, larval queen, and cell complete, with a drone and worker bee.

I have spent some time in farmers' institutes trying to show our farmers the value of bees as fertilizers, as well as honey-producers.

Philo, Ill.

[The idea of having one bee-expert for a locality is excellent. If this were done in more localities where there were small bee-keepers, especially of the farming class, the results would be much more satisfactory. Too many farmers have too many irons in the fire already to do some of their work well.—Ed.]

TWO YOUNG BEE-KEEPERS

Who Have Started out Well in the Business.

BY G. BRUNDAGE.

I am sending you the photo of a young bee-keeper and queen-breeder, George Gregory Brundage, of Salisbury Mills, N. Y. He has helped his father in his apiary of 340 colonies for the past two years. He can cage



"I DON'T WANT TO HAVE MY PICTURE TAKEN, 'CAUSE I GOT A SWELLED EYE."



A BEE-KEEPER'S PART IN AN INDUSTRIAL PARADE.

queens and bees, and can pick up bees nearly as fast as a hen can pick up corn. We have two out-yards five miles from home, and it is very seldom that he does not go along and help do some light work at the out-yards. Ever since he could talk, if anybody asked him what kind of a man he was going to be he would always say, "A bee-

man;" and ask him how many bees he expected to keep he would nearly always say fifteen hundred; sometimes would get as high as eighteen hundred; so you see he intends to do something.

In the morning of the day his photo was taken he helped his papa cage some queens. While he was working that morning a bee



MOVING A LOAD OF BABY NUCLEI FROM ONE MATING-YARD TO ANOTHER. SEE EDITORIAL.

got up under his veil and stung him, but he did not run as Prof. Bigelow did at the convention in Jenkintown, June 26, when the stingless bees ran him off the stage, and he did run for sure; but instead of running you see him holding a frame with hundreds of live bees on it, and he seems to look happy, as he always is when working with bees. This boy is large for his age—not six years old; and I think if nothing happens to him he will be heard from later as one of New York's large bee-keepers. At the same time, George's little brother, J. Stephen Brundage, $3\frac{1}{2}$ years old, had his photo taken. He, too, is a bee man, and comes into the home apiary of 200 colonies nearly every day.

Salisbury Mills, N. Y.

[GLEANINGS offers its congratulations to the little man who is not afraid to go among the bees and help papa. As an expression of our good will we are sending him a 1907 Root smoker that he is to have all for his own.]

We especially admire the spirit in the young lad who aims at high things. While a small boy never comes up quite up to his own aspirations, yet show me the boy who does not aim high and I will show you a man who in after years never rises very high in the world. If the three-year-old boy can come up to the same proficiency of his older brother, there is a smoker awaiting him also.—Ed.]



AN INDUSTRIAL PARADE.

I am sending you under separate cover a picture of what we had in the industrial parade here on the Fourth—a wagonload of hives with smokers on top and Alley traps on back end, and two observatory hives. It did not pretend to be much of a float; but as there were a good many thousand strangers in town that day I thought it a good opportunity to call attention to this branch of our business. The picture does not do justice to the new wagon and team, which are making their first trip with the hives. Back of the rigs you catch a partial view of our store; third story is devoted to bee-supplies.

DuBois, Pa.

F. W. PROTHERO.

CAN A DRONE-LAYING QUEEN BECOME AGAIN A GOOD ONE?

The report of Mr. Whitney, p. 1239 of last year, would be more interesting could he prove that superseding had not taken place in the spring of 1905. This is possible only

when he has marked the queen (cutting off a wing); otherwise his story tells nothing at all. I ask, therefore, did Mr. W. mark the queen? and when was it that good brood again appeared in the hive? It is doubtless because the operations of June, 1903 and 1904, affected the queen strongly, forcing her to lay more eggs than a queen normally does; and it is no wonder that she became a drone-layer. But I doubt highly that the bright orange-colored fresh plump queen was the same he bought of A. I. R.

HIVING SWARMS WITH A LOOKING-GLASS.

It may be about ten years since the recipe of the looking-glass was given, and for the last five years I have always used the looking-glass when a swarm went out, and it is very much used in Switzerland, *always with the best success*—not that you can force the bees to settle anywhere you like, but at all events you can keep the swarm down, and it will settle much quicker than without that instrument. To perform this you take your place so that the swarm is between you and the sun, and with proper movements of the looking-glass you let fall the reflection of the sun downward on the swarm. I think this is the best means against absconding swarms if you come early enough.

Zurich, Switzerland. DR. BRUNNICH.

[As the great majority of swarms that go out will settle, or at least 95 per cent of them, before going to the woods, it would be hard to believe that the looking-glass has any thing to do in causing them to alight; but when we spray water on the bees we put up a mechanical obstruction, making their flight laborious, and perhaps making the bees think it is raining. I have seen the looking-glass tried, but could never see it had any perceptible effect.—Ed.]

ITALIANIZING A LOCALITY.

I think it best to requeen every two years at least, as I have often left it to the bees, and lost lots of honey by the queen failing in the honey harvest. I keep Italians, buy some queens, and rear some. I do not keep a swarm of blacks long. I have Italianized my neighbors' bees just by keeping a good strain of Italians.

Roseville, Ohio.

H. B. TERRIL.

[It is true that, if one keeps nothing but pure Italian stock in his locality, that stock will soon yellow up the bees for a mile or two around.—Ed.]

CLOVER HAY FOR SMOKER FUEL.

I should like you to try well-dried clover hay as a fuel for a smoker. It need not be a fine quality—just so it is well cured. Be sure it is well lighted in the beginning. I should like your opinion of it. Cutting it as for chops is necessary before using it.

Washington, D. C. W. W. CONNER.

[It undoubtedly would work well, but we prefer greasy waste, which can be got for the asking.—Ed.]

A PLAN FOR GETTING PLENTY OF CELLS ACCEPTED AND FINISHED WITHOUT DEQUEENING A COLONY OR BORROWING BEES.

This plan which I am about to describe does not stop the colony from storing honey nor interfere with the queen in any way. It is not necessary to have bees queenless for several hours to get them to accept prepared cells and build them out properly, as some claim. The plan is as follows: Having already fastened my empty cells in a frame I remove from its stand a good two-story colony with excluder on, and put in its place a bottom-board, then take the body of combs from over the excluder and put on this bottom, and put the cover on; then shake the bees from two or more combs from the brood-chamber in front, and let the bees run in (of course, be sure not to get the queen); then close the old colony by putting back the cover, and set behind, facing the opposite direction. You are now ready to go and put the jelly and larvæ in the cells; and by the time you do this, which takes only a few minutes, your bees are ready for the cells, which you slip into the center of this hive-body on the old stand. In two to four hours later you can go and put the brood-nest back in its old place and put the body with cells back over the excluder for the bees to finish. I usually give 20 cells to a colony treated thus, and they usually accept every one if properly prepared. With me this is by far the best and quickest way of getting plenty of fine cells of any plan I have ever tried.

Montgomery, Ala.

D. R. KEYES.

[I believe your plan will give good results.—Ed.]

A FEW EXCELLENT RECIPES FOR MAKING CANDY.

Believing you will appreciate a good thing and another way to make a small demand for honey, I send you the two following candy recipes that are original with me. All I have let sample ours have pronounced it superior to almost any candy you buy, and it is easy to make.

TAFFY.

Granulated sugar, 3 cups. Extracted honey, $\frac{3}{4}$ cup. Hot water, $\frac{3}{4}$ cup. Boil all together until it "spins a thread" when dropped from a spoon, or some hardens until brittle when dropped in a cup of cold water. Pour into a greased vessel deep enough to hold; put in a spoonful of any preferred flavoring. Let it cool until one can handle. Pull until white. Here's a finer one:

HONEY NOUGAT.

Granulated sugar, 3 cups. Nut meats, $1\frac{1}{2}$ cups. Any kind is good, but English or common walnuts and hickory are fine. Strained honey, $\frac{3}{4}$ cup. Hot water, $\frac{3}{4}$ cup. White of one egg, beaten stiff. Boil the sugar, honey, and water together until they make a rather hard ball when dropped in cold water; remove from the fire; pour in the beaten white of the egg, and beat briskly

with a silver fork. After beating awhile, pour in the nut meats and beat until it begins to get a hard creamy mass. Then pour into a buttered dish and let cool. You will have no trouble in giving this away if you can't eat it yourself.

LaDue, Mo.

Mrs. W. M. BURKE.

HOW TO TAKE CARE OF UNFINISHED SECTIONS.

At the close of the season, finding I had some unfinished sections on hand I got a small box with a sliding lid from the grocer's. I fixed this so that I could easily insert and place in it three or four sections, and close it so that only one bee at a time could enter it. This box I placed with the opening to the hive on the entrance-board, having removed the board so as to have the contracted entrance underneath. A little block of wood enabled me to contract the entrance so that sufficient room was given for ingress and egress to the hive, at the same time enabling the bees to go in and clean out the sections without being troubled by other bees. I placed the sections in the box at night, and the next evening found them all cleaned out as nice as could be, so that I have some excellent sections of empty comb ready for next season. Will not such a plan enable one to feed up any colony requiring help in the fall, without inciting stronger colonies to rob? You can thus give the benefit of the unfinished sections to the colonies most in need of such help.

REV. W. L. PALFORNON.

Mt. Brydges, Ont.

[Your plan is all right, but it would require some labor to attach a set of sections to an entrance in such a way that there would be communication between the receptacle for holding the sections and the hive.—Ed.]

HOW TO MAKE A SWARM-CATCHER.

I have all my queens clipped; but occasionally I have a second swarm, and if they settle high up in some valuable fruit-tree I can get them without climbing or cutting the tree. To make a good swarm-catcher, get a small light pine box, 8x10 inches. Knock off two sides, and replace with wire cloth, which will make it still lighter. Fasten two small hinges to the top for a lid. Now get a light pole 18 ft. long; fasten the box to the end of the pole. Attach a short rubber band in such a way that it will tend to keep the cover closed. A stout cord should run from the lid over the top of the pole, and down to the bottom.

To use the swarm-catcher, push the box up to the swarm; pull the cord to raise the lid, and give the pole a quick push up against the limb. The bees will fall into the box. By releasing the cord the rubber band will close the box. Dump the bees in front of a hive; and if all the bees are not caught, repeat the operation.

I also have an 18-ft. pole with a hook on the end; and if bees persist in going back to the limb of the tree, I hook the pole over the limb and keep shaking until all come down and go into the hive with the swarm. I like this arrangement better than any other I have ever seen.

S. G. KILGORE.

London, Ohio.

THE ALEXANDER PLAN OF BUILDING UP WEAK COLONIES.

I wish to ask a question concerning the Alexander plan of setting weak colonies of bees over strong ones with a zinc excluder between, as spoken of by Q. A. Pearce, page 581. Does it require a zinc queen-excluder the full size of the hive, or will, say, a one-third size of hive do with a wood frame around it?

IRA SHOCKEY.

Long, W. Va.

[[The smaller pieces of zinc will probably do just as well.—ED.]



CHAPTER XII.

It is now the 17th day of November; and as there has been no storm for the past five days the bee-hives are dry and nice for cellaring. Then the mercury stands at 40, which allows of taking the hives from the stands without any prying up, and thus disturbing the bees, as always is the case when the hives are frozen down, which will generally be the case if they are left out very late in the season. So I again call my partner of the home yard and in the queen-rearing business (he has no interest in the out-apiary) into service, as I did in setting out, as two can do the work of carrying the bees to and from the cellar much more easily than one, especially where there are cellar stairs to climb and go down, as is the case at this out-apiary. After seeing that the platforms in the cellar, on which the hives are to be piled, are all safe and in readiness, we go to No. 10 on row 3 to commence. And why do we commence there? Because we set the hives in the cellar in rotation, so that they may be set out in the same way. In this way hive No. 1, on row 1, is the last one to go in, and consequently the first one to be set out in the spring. If the reader will turn back to visit four he will see why it is always best to commence all work with the bees (but this setting in the cellar) at No. 1, row 1. And in no part of our work is this more true than in setting out in the spring, and the consequent first flight of the bees, as it puts each hive on the stand it occupied the year before, in such a way that there is little or no

mixing of bees, and the carriers do not come in range of the flight of the bees from any hive, when they are going out in a rush for their first spring flight; nor are any of the later-carried-out colonies set down in front of another which is now in full flight.

If there is anything which causes bees great annoyance, outside of careless manipulation, it is the putting of something right in line of their flight as they go to and from the entrances of their hives. It is well to be always on the alert in avoiding this, as much as possible, so we begin at hive No. 10 on row 3.

While Mr. Clark adjusts the carrying-rope under the cleats to the hive I carefully remove the galvanized entrance-protector from the front, thus exposing the whole mouse-guard, and then take hold of "my side" of the rope. We now start for the cellar, the hive swinging by the rope between us, and in this way the bees scarcely know that they are being moved. Arriving in the cellar, the hive is put on the first platform in the corner of the same, with the entrance toward the wall, and as close up to it as the three-inch projection of the bottom-board will allow, this being done to exclude the light from the entrance of the hive, as much as possible, as the farmer opens the doors and windows, and uses his cellar just the same in every way as he did before I had an out-apiary on his premises, no restrictions being placed upon him other than *his* vegetables and cellar require.

No. 9, on row 3, is next brought in and set on No. 10, when the same is done with No. 8, thus making each pile of hives three hives high, which is as high as heavy hives can be piled with any comfort. No. 7 is set on the next platform, immediately beside No. 10, but not so as to touch it; for did the piles touch, or were they all on one platform, then any jar on one hive would arouse all the colonies in the cellar, which is to be avoided if we would meet with the best success. By piling them as here given the most that can be aroused by the hitting, or any thing falling on one hive, will be three colonies. No. 6 is set on No. 7, and so on till all are in, when the work for the twelfth visit, and the last one for the year, is done, after picking up and storing away the galvanized entrances and giving a general glance over things to see that all is left in good shape for winter.

One or two of these visits might possibly be combined so as to make the whole number for the year only ten; but I doubt whether this would be good economy in the end. Just at present there seems to be a great desire on the part of some to make the visits to the out-apiary just as few as possible; which, undoubtedly, is the thing to do where a large number of colonies are to be worked in each out-apiary; but I would not consider it a wise thing to carry this to such an extent that a consequent decrease in the prospects of our success would be the result. There is such a thing as being penny wise and pound foolish.



For what glory is it, if, when ye be buffeted for your faults, ye shall take it patiently? but if, when ye do well, and suffer for it, ye take it patiently, this is acceptable with God.—1. PETER 2:20.

These words of the apostle have been repeated so many times I fear they often fall on our ears without any particular meaning; but the real devoted follower of the Lord Jesus Christ will bring out the meaning if he strives earnestly to carry the spirit of it right along with him through all his daily life. Professing Christians, deacons in our churches, yes, and some of our ministers, fail or forget to make a practical application of these beautiful words, many times, when they are suddenly confronted by somebody or some *thing* that seems spiteful, malicious, and unkind. To illustrate what I mean, I wish to make a quotation from a recent issue of *The American Bee-keeper*:

At the recent meeting of the Pennsylvania Beekeepers' Association held at Jenkintown, Pa., one of the "exhibits" which created much amusement was an old man who went about introducing himself as "I am Blankety Branch" (we omit his real name) and seeming much surprised and disgusted if the recipient of the "honor" did not show due delight and adoration. His egotistical antics added much to the entertainment of the visitors. The boys who stay away from the conventions often miss rare enjoyment.

I did not see the above till one of the boys called my attention to it. I do not know whether they thought it would hurt me or worry me or not; but I am glad to say it took my attention for only a few moments until I afterward considered that it is calculated to mar the harmony and pleasant relations that have existed between the editors of all of our bee-journals of late, with some little exception. Of course, my name is not mentioned in the above at all; and perhaps I am somewhat in a hurry to—"put the coat on." Well, it is possible it had no reference to me at all; but it certainly referred to somebody; and if somebody must wear it, I think I will save further trouble by putting it on. "My shoulders are not very broad, it is true; but I think they are broad enough to wear the above becomingly. A good many years ago my beloved pastor, Rev. A. T. Reed, said in his morning prayer before the church, "O Lord, we thank thee for our enemies, because they will tell us our faults when nobody else will." On the same ground I can thank this same brother bee-keeper for telling me of my faults, even if he did not do it with very much brotherly kindness. By the way, while he was about it why did not the writer say, "a stoop-shouldered old man," instead of just saying *old man*? On page 1002 there is a picture of myself talking

about the Caucasian bees. Well, now, that picture is going to do me a lot of good. The minute I saw it I said to myself that I would have given somebody a five-dollar bill if he had just clapped me on the shoulders and told me to "straighten up"—at least while my picture was being taken. If Mrs. Root had been present, *she* certainly would have reminded me that I am getting *stoop-shouldered*, and that I fall into the habit when I do not know it. Well, now, that picture is going to do me a lot of good. Every time I look at it or think of it I involuntarily straighten up and throw my head back. Now don't you think, friends, it sometimes does us a lot of good, not only physically but spiritually, to be held up before the world as "others see us"?*

It is true, dear friends, that I made a little more effort than usual to be genial and good-natured and sociable with the great number of friends I made in Jenkintown. Before I consented to go, the boys told me there were many people in the East who were anxious to meet *me* particularly, at least once in their lives; and I hardly need tell you I found it true. I do not know that I ever in one day shook hands with so many people, and listened to so many kind words, while I made an effort to recollect their names and places of residence. I remember that at one time when I was shaking hands with a little group one person stood right before me, apparently unnoticed. After I had shaken hands with the rest I said, extending my hand, "And who is *this* brother? I am A. L. Root." He put out his hand with some hesitation, but did not seem very much pleased to meet me. If I made a mistake, I am sure God will forgive me, and I guess the rest of the friends will. The brother is certainly mistaken, however, in saying that I was surprised and disgusted because I did not receive the same amount of attention everywhere; and God knows I do not want "adoration," much less do I take any "delight" in it.

It is not my nature to be obtrusive. I am naturally diffident; and it is very unpleasant for me to be obliged to push myself into any place where I am not wanted. I sometimes go into saloons; and if they know who I am *they* certainly do not want to see me. By the way, I believe it was Prof. Cook who taught me more than anybody else to get over my diffidence and make an effort to get acquainted with the people. Dr. Miller, also, while traveling, has been very helpful to me in that way. He has a peculiar grace and gift for making the great outside world smile and look good-natured; yes, and so had our dear departed brother Dr. Mason a gift in the same way. When folks were inclined to look sour and unsociable he would set them all to laughing; and in this way he honored and glorified, *not* himself, but the Lord Jesus Christ, whom he was trying to serve.

Sometimes when in traveling when I am

*On the front cover of last issue, I am glad to notice I "straightened up" a good deal better.

tired, perhaps hungry, it is a hard matter for me to be sociable; but feeling it to be a Christian duty to lose no opportunity of lending a helping hand I have dozens of times overcome this feeling of wanting to be let alone, and tried to extend a helping hand to some fellow-traveler. On the way home from this same Jenkintown meeting I rode many miles in a car that was almost unoccupied. Finally I crossed the aisle and sat down by a stranger, as I supposed, and asked him some questions about our destination. He replied, and pretty soon dropped some remark indicating that he was a bee-keeper and had been at the Jenkintown meeting. I presume he felt a little hurt to think I had not recognized and spoken to him and remembered him among the crowds I met there. Well, we had a real pleasant chat for an hour or two. I forgot my weariness and hunger, and he told me about my connections, and where I could get a lunch without patronizing saloons. He told me about his home, church, Sunday-school, etc. Now, would it have been Christianlike for me to travel several hours without making *any* effort to find out whether there was not somebody in the car whom I ought to know and have a talk with? I do not think the word "disgusted" belongs to me, especially when traveling. I greatly enjoy traveling; and whenever I am tempted to feel disgusted or disappointed with any thing unexpected, I try to keep it to myself and overcome it.

Such unkind words as the above sometimes do us good in another way. They help us to have a higher appreciation for our friends. They help us to enjoy kind words in a way that we perhaps could not otherwise. Sometimes in life I am obliged to be present where low-lived, slangy, and blasphemous conversation is going on. Of course, I try to stop it when there seems to be any possible way of doing so. When not, I try to bear it as well as I can; but, oh how such experiences do help me to appreciate the companionship of clean, pure, intelligent Christian people! I have often said to myself that I did not know how much I *loved* people who try to be good in God's sight until I had to mix in with those who were all for worldly things and self.

As an illustration, just contrast the following letter from a dear brother whom I have never seen, with the extract from that bee-journal:

Mr. A. I. Root:—I wrote to Medina for your present address. You must long ago have become used to praise, and I've for a good while had the desire to bestow some of it upon you, but have kept saying to myself, "He does not need it—doesn't know me personally, any way;" or, "So many have said fine things to him that he doesn't care for mine."

Well, I looked upon your picture in a recent GLEANINGS, and then meditated: "Now, that picture is ten years old, and here I've not written to Mr. Root yet, and either he or I will die one of these days and then I shall never have said my few kind words to him."

In the word we have a picture both of neglect and lost opportunities in the sentence, "The harvest is past, the summer is ended, and we are not saved." My lapse I can not call neglect, for I have blessed you every two weeks for twenty years or more, upon the arrival of GLEANINGS. It is rather a fear of being a little too presumptuous, seeing I never came nearer you in a material way than in annually purchasing

some apiarian supplies either at the Home or in Philadelphia.

Really I will try to say only a little, Mr. Root, but I mean it all. It is that I want to tell you how much I have thought of you for the high-minded, vigorous, honorable methods you have pursued in your now greatly increased business, and call your attention not only to what it all means right now, but for the future, also, in getting your sons and sons-in-law in the correct track of life's doings. Your works will follow you in theirs. The boys have their own high mindedness and honor as personal traits, and I don't think they will mind my giving you credit for steering them into the best paths. You should be proud, not only of what you started and struggled to maintain for years, but of the noble way in which the boys are continuing. "A good man leaveth an inheritance unto his children's children." So the sons and daughters should be grateful too, and in the best way proud, for no inheritance in this world is the equal of that from fathers and mothers of integrity and Christian character. Improved by them, it is treasure in heaven. It can not be rusted, stolen, wasted, nor lost. It is real saving, "laid up in store for *themselves* against time to come."

Please let me tell you, also, how much I think your semi-monthly discourses on moral and religious themes must have meant to hundreds of plain homes, where people take no distinctively religious paper. I have been a pastor for twenty-five years, and know that, while some people, like Gallio, "care for none of these things," they *all* come at last to me for baptisms, marriages, funerals, and, in time of sickness, distress, or loss, for religious comfort and "the effectual fervent prayer." So we can and must not stop for those who want all material and no spiritual while all goes well with their health or their bees, but go on "casting our bread upon the waters," "sowing beside all waters." We get it back with greater interest than any bank but heaven's pays.

May the Lord bless you and your beloved Mrs. Root. She may take her good share of what you have been and are to past and present patrons of your house and to readers of GLEANINGS. If you are like me you will be giving her credit, next to the Lord himself, for what you have been prompted and enabled to do.

T. C. POTTER.

Glasgow, Delaware, March 19.

Of course, the dear brother who writes the above greatly exaggerates what I have done for bee-keeping or for the world; but I do not know but it is allowable, occasionally, for those who have worked hard for years, to let the world see the encouragement we get in the way of kind words for these lives we are living.

On another page in that same journal there is an intimation that our institution is charging greater prices to bee-keepers than we need to; also a suggestion in regard to our "eloquent silence" in the matter. Permit me to say that if any other manufacturing establishment can supply the bee-keepers of our land with any goods at lower prices we will try to rejoice with all the rest of you; for God knows that I, and, I think, every member of The A. I. Root Co. are seeking the greatest good to the greatest number of bee-keepers in our land. On page 755 (June 1) I told my neighbor I should be just as glad to find that those nice maple-trees came on his side of the wire as to find they came on my side; and God helped me to make my words true. Now, if you can buy your stuff for less money, or, on account of freight, get it cheaper by purchasing near your home than to buy of us, I will in like manner try to be just as glad as if the order came here; and if I am not living up to what I profess in the above, may God help me in my *efforts* to live up to it.

Just a word in closing, in regard to the wisdom of putting any thing in print like

this extract from that journal. So far as we are concerned, if it hurts us, let it hurt. It will do us good in the end. But I fear it will hurt and damage the journal that gives it place. Ask the business men whom you know if they have ever seen a business built up by unkind flings at their rivals or those in the same kind of business. Is a business ever built up by tearing your neighbor down? I think the general verdict will be that the spirit of our text, to love even our *enemies*, if we have such, is by far the best policy; and those of us who have lived to see quite a number of bee-journals started, most of them to go down after a short existence, can well remember that unkind flings at the older journals have never seemed to recommend themselves to the bee-keepers who patronize periodicals devoted to our industry. May God be praised for the brotherly love, for the kind Christian courtesy, and for the good fellowship that seems to exist among the bee-keepers of our land, large and small, high or low, rich or poor; and may God help us in our efforts to have the journals representing our industry maintain this same Christian courtesy of peace and good will, that we may set the example before the younger ones, to love even our enemies, and to try to do good to those who hate us and despitefully use and persecute us.

Just as I finished dictating this Home paper the following came to hand from our good friend Frank McGlade. It seems to me it is very appropriate for any of us when we feel like criticising and finding fault with other people. If we could only have the grace to put ourselves right side by side with the sinner, it might be a little more hopeful for "earth" as well as "heaven." Friend McGlade says it came from the pen of Will Carleton originally.

Ah, me! it makes a sinner wondrous blue
To see so many other sinners too;
When I rake o'er my faults, and then
See just the same in other men.
It makes me much surprised and sad
That heaven should see earth turning out so bad.

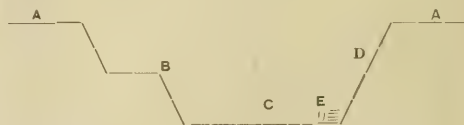


TILE DRAINAGE—A NEW KINK.

The kink may not be new to all of you, but it is new to me, and new so far as I know. The water had a fashion of getting into one corner of our cellar after severe rainstorms. After trying in vain to keep it out, and not succeeding, I decided that the corner of the cellar should have a special tile drain that would let the water out and keep it out; and as this drain had to be cut right

through our lawn, Mrs. Root and I greatly disliked to have a lot of clay mud thrown out and an unsightly disfigurement made in the lawn that would be visible even after the ditch was finished. We had had some experience of that kind before, and the memory of it was not pleasant. So I figured out a plan that has succeeded so well I want to tell you about it. I got one of our best men, an expert in handling a spade, especially under-draining-tools. He first stretched a line, and then with a very thin flat spade cut out squares of sod, say a foot long and 8 inches wide. After cutting all around the sod with his thin spade he took a tool that is used for cleaning out the bottom of ditches in laying tiles. This is bent so while standing up the blade lies pretty nearly flat or level on the ground. With this he cut into the squares of sod so as to lift them up and put them in regular order at one side of the ditch. This was all done with very little damage to the lawn. Then he commenced up near the cellar wall and dug down deep enough to get a four-inch tile under the wall and under the bottom of the cellar. To do this, of course quite a lot of dirt had to be piled up by the side of the ditch against the wall. Then after carefully grading the bottom of the ditch he put in two one-foot tiles besides the one that went under the wall. Now, when he came to dig out the dirt for the next two lengths of tile, instead of throwing it upon the bank as is usually done in draining, he threw it on top of the two lengths of tile. These had been carefully leveled with a spirit-level, using a level long enough to cover partly three lengths of tile. The dirt was tramped and pounded down on these tiles clear up to the surface; and then one of the squares of sod was put on top of the dirt, letting the sod stand an inch or two above the line to allow for settling. You see this saves handling the dirt twice. Instead of throwing it on the side of the ditch it is thrown on the tiles already laid; then two more lengths are put in, carefully leveled with a slight down grade, and dirt thrown over them as before.

The thing that was one of my happy surprises in this transaction, and the one that decided me to have it put in print, is that he dug the ditch and laid the tiles faster than I ever had anybody do it who threw the dirt outside of the ditch and then shoveled it back again. The diagram below will make it a little plainer.



Let the upper lines A A represent the surface of the ground. B is a shelf to stand on, made by slicing down one length of the tile-spade. C is the bottom of the ditch, part of it being covered with dirt. When shoveling on the dirt you always want to leave one end of the tile exposed; and when you put in

the next two lengths let your spirit-level rest on the end of E. D is the uneven surface of dirt piled on the tiles.

Now, some of you will object, saying you can not get a nice grade in this way. Well, we had four-inch tiles and a pretty good fall, so there was no difficulty in laying the tiles so they would work perfectly. In case you want something more exact, just stretch a line of wire or even very strong twine over your head, with just the amount of fall you want the bottom of the drain to have. This cord or wire should be high enough to clear your head while digging on the surface of the ground. When you have got it on just the incline you want it for the bottom of your ditch, cut a stick that will just reach from the top of the tile E to the wire overhead; or, if you choose, from the bottom of the ditch where the tile is to lie, to the wire overhead. Keep this stick right along with you while you dig, and you can easily tell when you have got the bottom just right. The wire overhead should be pulled very tight, and supported at frequent intervals. In order that the supports may be out of the way, drive two long stakes each side of your ditch, say three feet away on each side. This will make the stakes six feet apart. Now nail a cross-piece from one stake to the other, the exact height you want it. Wind the wire around this cross-piece and have these supports near enough so that, when you sight through from end to end of your wire, there is no visible sag. As a matter of course, when you get to the end of the ditch you will have some tiles uncovered, and the dirt that you threw out must be wheeled from the end where you started; or if your line of tiling is too long, get some more dirt from a nearby place.

It may be urged that, if a rainstorm comes on, your ditch will fill up with water and have no outlet. This can be obviated by commencing at the outlet instead of up to the wall of the house as we did. In that case, if your ditch gets deeper into the ground as you progress, you would have to leave little piles of surface dirt to be taken away or moved up to the point where you stop. Throw this dirt on some boards, an old door, or, better still, a piece of canvas, and then you can pick it all up quickly without disfigurement to your lawn or other grounds.

Now I submit the matter to those who have done a good deal of tile-laying. Is it not worth while to adopt a plan whereby the dirt may be handled *but once*? And then there is another thing: When you have the ridge of dirt piled up along your ditch, and a severe rainstorm comes on, it is a nasty mess to get back again. If you wait until it dries off, then it is a good deal more work to handle than to handle fresh dirt. If it is thrown on to grass or weeds it is still more difficult to get it all back into the ditch again. Of course, where you have a big job you can plow the dirt back with a team. I am familiar, I think, with most of the short cuts in tile drainage—not only those given in our own book, but by other authors—and I

have never seen my plan of moving the dirt but once (and having the job all finished, as you go along) mentioned. Once before when we were laying some 18-inch sewer-pipe I adopted the same plan—had the man who was digging throw the dirt on top of the two-foot piece that he had just placed in the bottom of the ditch.*

A couple of weeks have now passed, and we have had several good showers since the ditches were laid through our lawn; but the job was so well done that one can hardly find the place where the ditch was made through. In fact, no one would ever notice there had been any disfigurement unless you took pains to point out to him where the ditch had been cut through.

SELECTING YOUR SEED POTATOES AT DIGGING-TIME, TO BE PLANTED ANOTHER YEAR, ETC.

In our last issue I gave you a glimpse of what wonderful things have been accomplished by the use of better seed in planting corn. Our Ohio Experiment Station has issued a little bulletin, dated June 15, 1906, No. 58, on the early and late blight of potatoes, and how to combat them. Well, this circular strikes on doing the same thing with potatoes that Prof. Holden recommends for corn. In our potato-book I gave the results of selecting seed from certain hills that stayed green after all the rest were withered and dead. This seed, when planted, gave us entire rows of potatoes that remained green when all the rest were dead. Here is what the Experiment Station says in regard to it:

When dug and weighed it was found that the average total yield of the resistant rows was 25 per cent greater than of the non-resistant row, and the yield of marketable potatoes was 40 per cent greater.

Besides the selection of blight-resistant varieties, there is no doubt that much can be done in the way of building up varieties which will be resistant to the early blight by selecting seed from resistant hills. All of the extra labor necessary is to go over the rows, when most of the vines are badly blighted, and drive a stake at each hill which shows a resistant tendency, these hills to be dug by hand and saved for seed.

When digging, all hills which are poor in yield, even though they may have been very resistant to blight, should be thrown out. By planting the seed and saving all of the product to plant for seed another year, a sufficient quantity can be secured in two or three seasons to plant a considerable area. In the Station tests, the seed from resistant hills has retained that characteristic for three years.

HOW IT PAYS TO SPRAY FOR BLIGHT.

In regard to the benefit of spraying for blight, the same circular gives us the following:

Soon after the spraying of August 5th had been made, the vines on the unsprayed area were blighted very badly. The difference between the sprayed and the unsprayed vines became more marked each day until the first of September, when the unsprayed vines

*The steeper you pile the dirt on the line D, the less distance you will have to pitch it; and you could put in three tiles at a time instead of two if you do not object to throwing the dirt a little further. In the diagram, I have represented cutting down two steps in depth; and with good soil and a nice slender (20-in. blade) tiling-spade you could get down three feet by making only two steps. If you prefer, however, to make three it will do just as well, but you would have to throw the dirt a little further on the first spading.

were dead and the sprayed vines were blighting very little.

At digging-time it was not practicable to dig the sprayed and unsprayed area of each of the plots separately. Instead, a cross-section one rod long was marked off on the sprayed and unsprayed parts of each of nine plots, which were well distributed over the area. The potatoes in these sections were dug by hand, and weighed. The average gain of the sprayed over the unsprayed portion was 36 per cent, or 89 bushels per acre.

The Geneva (New York) Station has been conducting co-operative experiments with farmers in different parts of that State. The following is taken from the summary of Bulletin 264 of that Station:

"In fourteen farmers' business experiments, including 180 acres, the average gain due to spraying was 62½ bushels per acre; the average total cost for each spraying, 93 cents per acre; and the average net profit, based on the market price of potatoes at digging time, \$24.86 per acre."

GRASSHOPPERS.

On p. 874 Mr. J. A. Green asks what can be done with grasshoppers. J. C. Pratt, of Glenellyn, Ill., says try turkeys. Our friends who have read the tomato-book will remember Mrs. Cummins' flock of turkeys for tomato-worms. Well, a bee-keeper in Missouri some years ago told me he had a flock of turkeys that would rid a field of grasshoppers by spreading out a rod or less apart, and marching across the field in a systematic way; and it was my pleasure one afternoon to see them cross the field in just that way. Now, where grasshoppers are very plentiful, as I have seen them, it would take a big flock of turkeys to do the work; but turkeys are good property after they have gobbled up the grasshoppers. Can somebody tell us more about it?

COTTON'S CONTROLLABLE BEE-HIVE.

Our older readers will remember all about Mrs. Lizzie E. Cotton and her "Controllable" bee-hive, of West Gorham, Me. Well, in the past few months inquiries have come in regard to a bee-hive advertised to give wonderful results in yields of honey. It now comes from C. B. Cotton, of Gorham, Me. The price of drawings, specifications, measurements, etc., for making this wonderful hive is \$4.00. I sent the money as soon as I saw the advertisement; and after waiting quite a while they came to hand. Now, I do not wish to say any thing against any brother who claims to be a rival to our establishment in the manufacture of hives: but it seems to me \$4.00 is a very high price to charge for what can be printed on *two small sheets of paper*. Of course, a little book comes with the specifications; but this book has only 42 small pages; and \$4.00 ought to purchase quite a library of the best bee-books—yes, and a journal or two included. I judge friend Cotton does not succeed in finding many purchasers at \$4.00 for his meager instructions, for last June he reduced the price to \$2.00; and a letter containing various circulars has just been sent me, asking if I would advise sending *only \$1.00* for the whole outfit. A label is pasted on the circular, which reads as follows:

"Price reduced to \$1.00 for 30 days from July 18."

Now, the price might be reduced to ten cents and still make a profit—that is, if one has plenty of customers. Mr. Cotton does not advertise in any of the bee-journals. This of itself is a little significant. Another thing, whenever you think of going into a new industry—especially any thing pertaining to agriculture—by all means first subscribe to some of the standard journals regarding the business, or purchase some of the standard books that are offered at a fair price. The books and the journals will certainly contain every thing that is new and valuable in regard to any industry on the face of the earth.

Like Mr. Ficklin, Mr. Cotton claims that he has a new invention for preventing swarms from going off into the woods. This invention consists in taking a slab of hemlock or other wood, with the rough bark remaining on it. It is supported on two stakes driven into the ground, with the bark side down. He says if several of these slabs are placed 20 or 30 feet in front of the hives, the bees will not cluster on any thing else. Now, if this is true it may compensate me in part for the \$4.00 I sent. The drawings and specifications contain nothing that is not well known. The hive is simply a very large bee-hive containing a large number of section boxes above and at the sides of the hive. Even after having paid \$4.00 there is not a good picture of a finished bee-hive anywhere in the specifications or pamphlet. One of the secrets of getting great yields of honey is by heavy feeding until just before clover comes in, so that they will be ready to put the whole crop into the sections. He says, give a single colony from 5 to 10 lbs. every night for ten or twelve days. No doubt this sort of treatment, just before the yield from clover commences, would give a big yield of honey, but I should be afraid some of this hundred pounds or more of sugar *might* get into the boxes; but even this is no new thing.

Since the above was in type we find the following in the *American Issue*:

Every family that has a farm or garden can keep honey-bees in Controllable hives, and raise honey for family use or for market. One hundred dollars profit from one Controllable hive of bees in one year. Lots of honey and lots of money keeping bees. No stings. No trouble in swarming time. No loss in winter. Something new in bee management. For particulars, write C. B. COTTON, Gorham, Me.

Friend Cotton will surely not object to our giving his advertisement free of charge.

Now read the clipping below, which comes from Mrs. Cotton's circular printed just 27 years ago:

Drawings and illustrations, with printed directions for managing bees on my plan, with recipe for feed, every thing so plain as to be readily understood. All sent by mail to any part of the United States or Canada on receipt of four dollars.

MRS. LIZZIE E. COTTON, West Gorham, Me.

Dec. 1, 1879.

And yet the new advertisement says, "Something new in bee management." You will notice that the price then was \$4.00, just as it is now.

Temperance.

PROHIBITION KANSAS.

I take pleasure in giving the following, which I clipped from the *Medina Gazette*:

How is that in prohibition Kansas there are 33 counties without a poorhouse, and almost as many without a man in jail? In Ohio you can not name a county that has not a poorhouse and whose jails are empty. It is up to the young men of to-day. Stay away from liquor as you would from a deadly snake; and when you have grown up, fight it as hard as you can that our country may become clean. I hope to live to see that day.—*Congressman Webber.*

A good deal of fun has for years past been poked at prohibition Kansas; but may God speed the day when we shall have more States that can give us such a record as the above.

THE OUTLOOK FOR TEMPERANCE FROM THE STANDPOINT OF THE ENEMY.

We clip the following from the *American Issue*:

THE LIQUOR TRAFFIC SEES THE HANDWRITING ON THE WALL.

To be honest and not deceive ourselves, if we glance over this great country we find that prohibition, local option, high license, and unjust liquor restrictions are in the ascendancy, and growing more popular in the different States at the present time than ever before. Peer into every city, town, and hamlet; then read the city ordinances; visit the council chambers in the various cities; visit the different legislatures and halls of Congress of the United States; consult with your law-makers, and you will be astonished at the combinations arrayed against the traffic that we represent. The truth is, the enemy is gaining ground rapidly upon us, and we are being overpowered by the tremendous forces battling against us; and just as rapidly as they are gaining ground, just that rapidly we are going into decline, and being surrounded and hemmed in by these adverse forces.—*Recent address of President of National Liquor Dealers' Association at Pittsburg.*

Perhaps the speaker did not expect that we would give him so much publicity; but truth is mighty and will prevail, no matter where it comes from.

WHAT WHISKY DID FOR ONE OF THE BEE-KEEPERS.

The story below carries such a moral with it that it needs to be given publicity; but yet out of respect to the bereaved friends I omit names and address.

I have read several of A. I. Root's letters on temperance and will relate how my neighbor bee-keeper came to his death. He went to a certain man to borrow \$25 to send to Mr. Jenkins for bee-supplies. He was drunk while the money lasted. Then he met another man and asked him to lend him 50 cents to pay his fare home. The man told him to go to a certain place and get the 50 cents, and have it charged to him. He went and procured \$2.50 (instead of 50 cts.) and spent it for whisky. Then he walked home and got a lot of honey ready, took it to a neighboring city, and was drunk there three or four days. Then he took a boat for home, and by mistake landed at the wrong place with a quart bottle of whisky. On the road home he fell and struck his head on the stub of a pine log, and died right there. His body lay in the road about 24 hours before he was found. He had over 100 colonies of bees and plenty of honey. Whisky is the root of evil, I think. Mr. Root's letters are such a I enjoy reading.

Caswell, Ala.

With a fervent prayer that the above true story will prove to be a warning to other bee-keepers, even though they drink just a little, we send it out.

Special Notices by A. I. Root.

MODERN METHODS OF TESTING MILK AND MILK PRODUCTS.

The above is the title of a new book just published by the O. Judd Co. It contains over 200 pages fairly well illustrated, bound in cloth; price 75 cents postpaid. I looked it all through in hopes I should find something in regard to methods of preserving and caring for milk in the average home; but the purpose of the book seems to be mainly to head off all sorts of adulteration and swindling in the milk business. When we take into consideration the fact that the very lives of the little babes in our land depend on giving them pure unadulterated milk, you can see that the matter is one of vast importance, especially to those who live in cities, and are liable to be victims of these fiends in human shape who would rob these little ones of their lives in order to make a few more pennies.

The book not only treats of methods of detecting adulteration in milk, but considers also testing and detecting fraud in butter and cheese. It considers especially methods of deciding which is real butter and which is oleomargarine or any of the adulterants of dairy products. We can mail the book from this office.

ALL ABOUT CUCUMBERS.

Bulletin 254, from Washington, D. C., is all devoted to cucumbers. I was especially interested in the description of growing cucumbers for early market in cold-frames. The illustrations make me think of my chapter in the tomato-book on how to support a family on a quarter of an acre, and some of the suggestions I judge to be quite valuable. Forcing cucumbers in greenhouses is also considered and well illustrated. Under the directions for pollination by hand they state that "in large establishments where hand pollinating is out of the question, a colony of bees is put in the house to accomplish the work." And this reminds me that I saw a very successful cucumber greenhouse at our Ohio Experiment Station a few days ago. A colony of bees was placed up under the ridge, and they seemed to do the work very effectually in pollinating the blossoms. When the weather got to be warm enough they lost a good many bees by their going out of the ventilators. Of course, they would get back into their hive all right if the ventilators were open; but when they happened to be closed toward night some of the bees were lost. Everybody interested in the growing of cucumbers should have this cucumber bulletin. Address Secretary of Agriculture, Washington, D. C.

BATTERY-TESTERS.

Some time ago I mentioned a little instrument for testing the power of a dry battery, such as is used in automobiles, gasoline-boats, or gasoline-engines in general. The manufacturers told me they have received quite a good many orders for the little instruments, especially from the South, to be used on gasoline-launches. Well, there has been so much inquiry we have decided to keep them in stock. No two dry batteries hold out exactly alike. One may fail in a few weeks, and another may hold out for almost a year. Without a battery-tester you have no means of telling which are the weak ones; and a good many throw out the whole set and put in a new battery when the most of them may be still capable of doing a lot of work. I am well aware that ammeters costing four or five dollars are generally used for this purpose; but after carefully testing a good ammeter by the side of one of these cheap battery-testers, I very much prefer the latter, which cost only \$1.00 postpaid. It requires no instructions whatever. It can be carried in the vest pocket; and all that is necessary to test a weak battery is to make connection with the two poles. A good battery will make the little coil of platinum wire quite bright, like a little electric lamp. If the battery is weak, the wire will show just a little red; and if it does not get red-hot at all, you can throw the battery out. A cheap electric alarm-bell, costing only 25 cents, will answer somewhat the same purpose; but it is a good deal more cumbersome to carry about, and does not indicate the exact strength of the partially played-out battery. All who use dry batteries for running a gasoline-engine, or for any other purpose, for that matter, will save money by having one of these little testers. You see one battery with a tester is all you need to carry on a trip, in place of carrying a whole set.

FAIRS

Why not make the fairs you attend profitable as well as instructive? Make a good honey exhibit and secure awards. Then use your time to advantage soliciting subscriptions to **Gleanings in Bee Culture**.

Gleanings makes very liberal inducements in regular commissions besides large cash prizes. This matter is worth looking into.

County and State Fair Contest

Prizes, \$10, \$5, \$3, \$2.

To induce bee-keepers generally to enter our Fair Contest we make the following very liberal prizes over and above the regular commissions earned. For the party sending the largest list of subscribers, \$10; for the second largest, \$5; for third largest list, \$3; for the fourth largest list, \$2; fifth to tenth, a cloth-bound copy of the A B C of Bee Culture. Subject to the following

CONDITIONS

First.—That subscriptions entered in contest are obtained at the fair on dates named in application below, or obtained as results of work during fair.

Second.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, 6 mos.) are equivalent to one year's subscription.

Third.—That contest closes Nov. 15th, and announcement will be made in Dec. 1st GLEANINGS.

Fourth.—That only one agent will be appointed for any one fair.

Fifth.—That advertising matter sent is to be carefully distributed to best advantage.

CUT HERE

Date.....

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Fair Contest Department.

Please send agents' terms and enter my name as contestant in Fair Contest. Send to my address, at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions, and agree to them.

Date of Fair..... Name.....

Name of Fair..... P. O.....

I can use.....sample copies of Gleanings. State.....

GOLDEN Opportunities!

EXIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange-grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

J. W. WHITE

Gen. Indus. Agt., Portsmouth, Va.

Seaboard Air Line Railway

JOSEPH HORNE CO.

Pittsburgh, Penn.

A Note to Needleworkers!

Women who do fancy work will be interested in this news. Our Art Needlework Department is under the supervision of a lady who is known as an authority on needlework in this country—a graduate of a famous European Fancywork school.

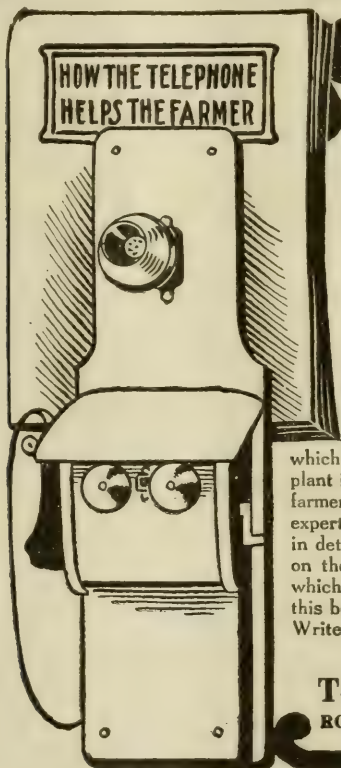
Consequently you can count upon our supplying you with every thing for fancywork, embroidery, and lace-making.

Ladies' Corset Covers, stamped for eyelet embroidery—on sheer nainsook—materials included for working—also paper pattern; 50c for outfit.

"Home Sweet Home" pillow-top—beautifully tinted on art ticking, ready to embroider, 25c.

Porch Cushion-covers and Pillow-tops—tinted ready for use; a large variety of designs—15c.

Address M. O. D. Department



You Want This Free Book

Of course you need a telephone. You need it for business, for the family, in sickness, in case of fire, or in danger of any kind. The question is—how can you get one on your farm? This little book which we send free the same day we get your request answers the question perfectly and tells you how to get the greatest convenience of the twentieth century so easily and cheaply that it becomes a positive saving and a money-maker, instead of an expense. It tells all about

Stromberg-Carlson Telephones

which are made in the largest independent telephone plant in the world. These are the best instruments for farmers' lines, because they have been constructed by experts for this particular purpose. They are described in detail in the booklet, together with full information on the organization of farmers' lines, the manner in which they are built, cost of material, etc. You want this book, F36 "How the Telephone Helps the Farmer." Write for it today.

**Stromberg-Carlson
Telephone Mfg. Company**
ROCHESTER, N. Y. CHICAGO, ILL.

Fire Sale Bee and Poultry Supplies

Come or send, and save 25 to 50 per cent on slightly damaged goods. NEW LEWIS GOODS at factory prices by return freight. Golden Italian or Red-clover queens by return mail. Untested, 75c; select untested, \$1.00; tested, \$1.25; select tested, \$2.25. Full colonies in up-to-date hives, and nuclei.

H. M. Arnd, Propr. York Honey & Bee Supply Co. (Not Inc.)
Long Distance Telephone, North 1559. 191 and 193 Superior St., Chicago, Ills

"If Goods are wanted quick, send to Pouder."

Established 1889

Bee-Keepers' Supplies

Distributor of Root's Goods from the best shipping-point in the Country. My prices are at all times identical with those of The A. I. Root Company, and I can save you money by way of transportation charges.

Special Notice!

During this month (September) I am offering a special discount of seven (7) per cent for cash orders for Bee-supplies for next season's use. After October 1st the discount will be six per cent.

**New Metal-spaced
Hoffman Frames
are Here in Stock**



**Headquarters for the
Danzenbaker
Hive**

**Dovetailed Hives, Section Honey-boxes,
Weed-process Comb Foundation,
Honey and Wax Extractors, Bee-smokers,
Bee-veils, Pouder Honey-jars, and,
in fact, Every Thing used by Bee-keepers.**

BEESWAX WANTED!

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight. Always be sure to attach name to package.

If you wish to secure finest grades of Honey with which to supply your neighbors, write for my market Quotations of the Indianapolis honey market, free.

Catalog Free

Walter S. Pouder
513-5 Massachusetts Av., Indianapolis, Ind.

Bee = keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

Good Goods, Low Prices and Prompt Shipments

are the **POINTS** in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

Page & Lyon Mfg. Co., New London, Wis.

Northwestern Bee-keepers!

We are headquarters for the **ROOT** supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company

H. G. ACKLIN, MANAGER

1024 Mississippi Street, St. Paul, Minn.

DO YOU KNOW

That the sale of Dittmer's Foundation has increased so much that we were forced to double our melting capacity in order to fill orders promptly?

There is a Reason for This

It is because Dittmer's Foundation is tough, clear, and transparent, and has the natural color of beeswax.

AGENTS FOR DITTMER'S FOUNDATION

W. D. Soper..... Jackson, Mich.
Bee and Honey Co..... Beeville, Texas
E. H. Taylor..... Welwyn Sta., Herts, Eng.
E. Grainger & Co..... Toronto, Ont., Can.

Our warehouse is well stocked with all kinds of bee-keepers' supplies.
Beeswax always wanted.

Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trester Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.



Michigan Distributors

—FOR—

**G. B. Lewis Co.'s Beeware,
Dadant's Foundation.**

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service.

ADVANCED BEE-VEIL. Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

A. G. Woodman Co., Grand Rapids, Mich.

Dear Sirs:—Your advanced bee-veil just arrived, and is, as advertised, the best on the market. Find enclosure for ten more veils. Platteville, Wis., April 14, 1906.

N. E. FRANCE.

**A. G. Woodman Co.,
Grand Rapids, Mich.**
Beeswax Wanted.

We Manufacture

the finest, whitest, no-drip basswood **SHIPPING-CASE** on the market to-day. Covers and bottoms are of **ONE PIECE**. Everything is **POLISHED** on both sides, and a better case can not be had at any price. We can furnish them in single or carload lots to fit any number or style of section. Large quantities of all the standard sizes on hand. . . . As a special offer we will sell you 25 cases to hold 24 sections, complete with **NAILS, PAPER, and GLASS** at \$4.00. Write for prices on larger quantities. Furnish corrugated paper if desired. We can furnish you with any thing you need in the apiary. Our catalog is free. . . . **PROMPT SHIPMENT and SATISFACTION GUARANTEED.**

Minnesota Bee-supply Company
Nicollet Island, No. 20, Minneapolis, Minnesota

Bee Supplies. **Lewis' Goods at
Factory Prices.**

Best of everything the bee-keeper needs. Large and complete stock. Fine Italian and Caucasian queens. Prompt service. Catalog free. Get our prices before ordering.

C. M. Scott & Co., Indianapolis, Indiana
1004 East Washington Street

BANKING BY MAIL

Depositors in all parts of the country find our method of sending deposits by mail satisfactory in every way, for the reason that they not only receive

4 PER CENT INTEREST

but they obtain the greatest safety by having their money in the care of a responsible and safe banking institution.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system. Write for the booklet to-day.

THE SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

BEE-KEEPERS OF NORTHERN NEW YORK

Buy your shipping-cases, etc., of

A. H. Reeves, Perch River, Jefferson Co., N. Y.

and save freight charges, and time. A complete stock on hand ready for shipment. Comb honey wanted in no-drip cases; also beeswax. . . .

CARNIOLANS our SPECIALTY

WE HAVE been breeding this wonderful race of bees for over twenty years, and during all this time we have been making very careful selections, and we now claim to have one of the best and purest races of Carniolan bees in this country.

They are very gentle, hardy, and prolific; the best of workers; they come out of winter quarters healthier and stronger in bees; they build up very rapidly in the spring, are great comb-builders, and their sealed combs are of snowy whiteness.

Also Breeders of Golden and Leather Italians

No foul brood or other bee-diseases here. Bees and queens guaranteed to arrive in good condition at your postoffice in the United States or Canada. Descriptive price list free.

PRICES.—Untested queen, 75c; six, \$3.90; doz., \$7.00. Tested, \$1.25. Best breeding, \$2.50. Best imported,

F. A. Lockhart & Co.,

10 per cent Discount During September!

In order to liven up business during the dull months we will give ten per cent off all supplies, in the catalog, wholesale or retail, during September for goods for next year.

Jobbers for Central : Pennsylvania — for — ROOT'S GOODS

Now's the time to save money on goods for next season. Send for catalog. Best shipping facilities in the State.

Frank W. Prothero
Dubois, : : : Pennsylvania

Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest one-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

\$4.00. One L.-frame nucleus, 75c; two-L.-frame nucleus, \$1.50; three-L.-frame nucleus, \$2.00. Add price of queen wanted to nucleus. Special prices quoted on large orders to dealers.

Banater Bees from Hungary

This wonderful new race of bees takes the lead over all other races, all points considered, that we have seen. The three colonies we are testing are strong in bees; do not offer to swarm; are great honey-gatherers; build snowy white combs, and are very gentle; in fact, no smoke is needed to handle them. They resemble the Carniolans in color, though somewhat darker. We have never seen a race of bees with so many desirable qualities. We shall breed a limited number of queens for sale, and have started a queen-rearing apiary five miles from other bees, and expect to have laying bees ready to mail by July 15. Price \$5.00 each. Pure mating and safe arrival guaranteed.

Lake George, New York

\$33.⁰⁰ to the Pacific Coast

From Chicago, every day from September 15 to October 31, inclusive. Only \$33, Chicago to San Francisco, Los Angeles, Portland, Seattle, Tacoma, and many other points on the Pacific Coast. \$30 to Ogden or Salt Lake City. Low rates to hundreds of other points. . . . Name your exact route—the

Chicago, Milwaukee & St. Paul and Union Pacific---Southern Pacific Line

Tickets good in through tourist sleeping-cars. Rate for double berth, Chicago to Pacific-coast points, only \$7. Through tourist-cars to California leave Union Station, Chicago, at 10:25 P.M. daily. For complete information (free) about rates, routes, tickets, and reservations write to-day to

**F. A. MILLER, General Passenger Agent,
CHICAGO.**

HONEY-JARS!

A neat package is a great help to the sale of your extracted honey. A glass jar is the favorite for many markets. Some retail trade demands one style and some another. We can supply you with what you want.

Simplex Honey-jars

This is a new jar with glass screw-top and rubber gasket fitted to the taper screw on jar, which seals absolutely airtight. We consider it the handsomest jar we sell for one pound of honey. Your honey in these jars is sure to attract attention and have a ready sale in any grocery.

We are now prepared to offer Simplex jars in partitioned cases of two dozen each, ready to reship, when filled, at \$1.00 per case; ten-case lots or over, at 95 cts.; fifty-case lots at 90 cts. We can ship either from Medina, Chicago, New York, Philadelphia, and, after Sept. 1, from Mechanic Falls, Me.



SIMPLEX JAR

No. 25 Jars

This is our standard jar—holding one pound of honey. We have sold this jar for years, and in larger quantities than any other honey-package we ever handled. It has opal cap with rubber ring and tin screw rim. Put up in re shipping-cases of two dozen. Prices same as Simplex jars quoted above.



NO. 25 JAR

Tip-top Honey-jars

This is a new-style jar sealed with a rubber ring under rim of a glass top held securely with spring-top fastener. This fastener is applied to a great variety of bottles and jars used for different purposes. We have selected two styles among them all as being most suitable for honey. The one and two pound square jars may be had with spring top fastening instead of cork at 75c per gross extra. We furnish in two sizes. Half-pound, 45c per dozen; gross, \$4.50. One-pound, 50c per dozen; gross, \$5.00.



TIP-TOP JAR

Tumblers

There seems to be an increasing demand for a cheap tumbler to put up a half-pound of honey to retail at 10 cts. We have secured a stock of such tumblers at a price which enables us to offer them at \$4.00 per barrel of 24 dozen. This is less than 1½ cts. apiece. For less than barrel lots we can not repack them for less than 25 cts. a dozen; or we will put them up 4 dozen to the case with partitions ready to reship when filled, at \$1.00 a case; 10-case lots at 95c.

Mason Fruit-jars

These are very largely used for canning fruit, and are often used for honey as well. As we buy them by the carload, we can make the following prices at Medina, all put up complete with porcelain-lined caps and rubbers, in cases of one dozen:

SIZE	Doz.	6 doz	12 doz
Pint	\$ 52	\$3 00	\$5 75
Quart	55	3 10	6 00
½-gallon	75	4 10	8 00

Triumph wrench for Mason caps, 15c each; by mail, 25 cts.

Ball's waxed rings, better than rubbers, 5c dozen; postage 3c.

Sample Mailing-blocks

Price each, 6c; by mail, 8c.

These are small wide-mouthed glass bottles, which hold ½ oz., with cork, put up in a mailing-block, with top which screws on and is easily removed.

Honey-labels

We print them in large and small lots; over fifty styles. Write for sample-book and prices.

Prompt Shipment

All of our branches and agents are well supplied. Write the one nearest you.

The A. I. Root Company, Medina, O.

BRANCH OFFICES IN THE UNITED STATES

44 Vesey St., New York City

144 East Erie St., Chicago

10 Vine St., Philadelphia, Pa.

Mechanic Falls, Me.

1100 Maryland Avenue, S. W., Washington, D. C.

1635 Genesee St., Syracuse, N. Y.

1024 Miss. St., St. Paul, Minn.

At St. Louis

A complete line of Root's Bee-keepers' Supplies. Unexcelled shipping facilities for reaching the Middle West.

ADDRESS

Blanke & Hauk Supply Co.

202-204 Market Street
St. Louis, Mo.

ALSO MANUFACTURER OF AND DEALER IN

Dairymen's and Poultrymen's Supplies

Low freight. . . Prompt shipments.
Factory prices. . . Write for catalog.

Send Us Your Order

Northeastern and New England BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

LEGAL ADVICE BY MAIL!

Two dollars our only fee. Right your wrongs. Understand your liabilities. Safeguard your property. Secure your interests. Protect your family. Relieve your mind of trouble, worry, uncertainty, doubt. Absolutely confidential. Advice under laws of any State. NATIONAL LEGAL BUREAU, 38 Court Sq., Boston.

Jelly-tumblers at Reduced Prices!

You can double your money from your honey crop by using **Jelly-tumblers of correct style**, as containers, and keeping your market supplied. No other glass so economical. Write for quotations.

OREL L. HERSHISER,
301 Huntington Av., Buffalo, N. Y.

BEEES and QUEENS

BY RETURN MAIL.

**The Three-banded
Long-tongued Strain
of Italians.**

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

Superior Qualities.

Honey-gathering, size of bees, non-swarming, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price

Quality Our Motto.

1300 colonies to select from.

Untested queens.....	75c; 6,	\$4.25; 12,	8.00
Select untested queens.....	1.00; 6,	5.00; 12,	9.90
Tested queens.....	1.00; 6,	6.00; 12,	11.50
Select tested queens.....	1.50.		
Breeding queens, \$3.00 to \$5.00.			

Yours for best service,

The Victor-Knolle Apiary Co.,
Hondo, Texas.

YEARLING QUEENS

of doubtful mating, J. P. Moore Red-clover strain, 35c each. Also single-comb Buff Orpington cockrels for sale at \$1.50, \$2.00, \$3.00. Root German wax-press, \$5.00.

A. H. Kanagy, - Milroy, Penn

DAUGHTERS from my famous \$100.00 Red-clover breeder, also Golden Italians, 50c; tested, \$1.00. H. A. Ross, 1709 Up. Second St., Evansville, Ind.

Queens from 50 Cents Up!

Bred from Root's Imported Italians.

Write for prices, stating wants. . .

C. M. Church, Arnold, Pa.

HONEY-JARS

No. 25, with burnished cap, heavy clear glass, per gross, \$5.00; 3 gross, \$13.50.
11-ounce nickel-cap jar, gross, \$4.00; 3 gross, \$11.00.
1-lb. square jar with cork, gross, \$5.00.
Heavy cartons, \$5.50 per M.
Italian queens, 75c. Catalog free.

I. J. Stringham
105 Park Place, N. Y. City
Apiaries at Glen Cove, L. I.

Better than an Island

This place is just as good as an island for breeding queens, for there are no other bees within five miles, and so pure mating is guaranteed. It is better than an island when you order queens, for the fastest trains stop here, and hence queens are not away from the colony long enough to impair their usefulness. Safe introduction is guaranteed if you follow my special directions. 🐝 🐝 🐝 The best bees known are the Banat Caucasians. The gentlest bees known are the Caucasians. The nicest bees known are the Golden Italians. Banat Caucasian queen, \$3.00; Caucasian queen, \$1.50; Golden Italian queen, 75 cts.

Dele Collins, Ph. D., Emporium, Pa.

Superior Queens!!!!

—Before June 15— —After June 15—

Italian and Carniolan

Untested..... 75c; \$8.00 per doz. 60c; \$6.50 per doz.
Tested..... \$1.00; 11.00 per doz. 75c; 8.00 per doz.
Select Tested... 1.25; 12.00 per doz. 1.00; 11.00 per doz.

Caucasian

Untested..... \$1.00; \$11.00 per doz. 75c; \$8.00 per doz.
Tested..... 1.50; 16.00 per doz. 1.00; 11.00 per doz.
Select Tested... 2.00; 20.00 per doz. 1.25; 12.00 per doz.

Write me a postal card for my circular.

Chas. Koeppen, Fredericksburg, Virginia

MOORE'S - STRAIN - OF - ITALIANS

as Red-clover Workers

W. T. Davison, Velpen, Ind., says: "When other bees are loafing, your bees go to work on red clover, and they seem to have a kind of get-up about them that the other bees don't have. They have never failed to work on red clover, and many times I have found them on it when there was plenty of white clover."

Untested queens, 75c each; six, \$4.00; dozen, \$7.50.

Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00.

Safe arrival and satisfaction guaranteed. Descriptive circular free.

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Ky.

IMPROVED

Red - clover Italians

for honey-gathering, hardiness, and non-swarming can not be surpassed. I breed for business the bees that will fill your hives with honey. Untested queens, 60 cents each. Safe arrival and satisfaction always guaranteed.

H. C. Clemons, - Boyd, Ky.

Queens - Italian - Queens

and bees from Root's Red-clover stock and Golden Italian queens. Better than ever.

Untested..... 60c each; six, \$3.50

Select untested..... 75c " " 4.00

Tested..... \$1.00 " " 5.00

Select tested..... 1.25 " " 5.00

Two-frame nuclei with untested queen. 2.00

Orders filled in rotation. Send orders to

E. A. Simmons, Greenville, Ala.

ITALIAN QUEENS

bred from best of honey-gatherers, either three or five banded or Golden races. Untested, 65c each, 3 for \$2.00, 6 for \$3.75, 12 for 7.25; tested, \$1.00 each, 6 for \$5.00, 12 for \$9.00; select tested, \$1.50 each; breeders, \$300 each.

J. W. Taylor, Beeville, Bee Co., Texas

Orders Filled Promptly by Return Mail

Queens from our fine strain of three-band Italians will not disappoint you. Bees are gentle and the best of honey-gatherers. Queens are large and prolific, and every one guaranteed. Untested, 50c; \$6.00 per dozen. Tested, \$1.00.

J. W. K. SHAW & CO.

Loreauville, Iberia Par., Louisiana

The Best Stock

Nice three-banded Italians that are guaranteed to please, or money refunded. The Robey queens now go to nearly all parts of the globe. They are being used by many of the largest honey-producers of this and other countries, who pronounce them to be very superior strain of bees. I have spent 21 years in building up this strain of bees. Warranted purely mated, in any quantity, 60 cts/each; selected warranted, 75 cts. each

L. H. Robey, Worthington, W. Va.

Untested Queens!

Golden Italian

75 cts. each; six for \$4.00; an extra fine one for \$1.00. Warranted purely mated and good queens. . . .

J. B. Case, Port Orange, Fla.

Italian and Caucasian QUEENS

A special discount is now offered on all queens and bees to be delivered before the close of the season of 1906. Pure stock, pure mating, and excellence of grade guaranteed. Address

Robert B. McCain, R. F. D., Yorkville, Ills.

DOOLITTLE & CLARK

will send CHOICE QUEENS the remainder of the season at the following prices:

Grade.	One	Three	Twelve
Untested.....	\$1.00	\$2.50	\$9.00
Select Tested.....	1.50	4.00	14.00
Tested (1905 rearing).....	2.50		
Select Breeding.....	5.00		
Extra Select Breeding.....	10.00		

Now is the Time to Requeen

Borodino, Onondaga Co., N. Y.

MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, 75c; six, \$4.00; twelve,

\$7.50. Tested, \$1.25; six, \$6.00. Twelve, \$11.00.

Best breeders, \$2.50. Safe arrival guaranteed.

W. H. Rails, - - - Orange, Calif.

Red-clover and Italian Queens!



Average untested, 65c; two for \$1.00. Select untested, 75c. Fine tested queens, \$1.00 each. Four-frame nuclei, fine queen, in painted hive, \$3.75. Remember we guarantee our queens to work red clover as well as white clover. Get my circular.

Queens sent in rotation; 50 and 100 at special prices.

G. Routzahn, Route 3, Biglerville, Penn.

QUEENS

By Return Mail at the Following Prices for the Balance of this Season Golden or Leather-colored Italian.

Our folks say that your queens are extra fine.

The A. I. Root Co., Medina, Ohio

We have good reports from your stock from time to time. George W. York & Co., Chicago, Ill.

On every hand I hear good words of Quirin's queens. B. S. K. Bennett, Los Angeles, Cal.

Your queens did finely. It was one I purchased last year that gave me over 600 pounds of honey.

J. L. Gandy, Humboldt, Neb.

The breeder is surely a very fine one; her daughters do grandly. Campbell & West, Hartstown, Pa.

I had a queen of your last year which produced bees that beat anything ever seen in this part of the country. E. L. Messenger, New Haven, Conn.

The nuclei you sent J. A. Adams did just splendidly. Each colony stored at least 75 pounds of honey. F. P. Merritt, 13 Breckenridge St., Lexington, Ky.

A few years ago I bought a queen from you which proved to be the best I had for years. H. C. Shirley, Cashier of Liberty Bank, Liberty, S. C.

I have had the pleasure of seeing the results of your queens at Mr. George W. Stanley's apiary, at Scuffletown, Ky., and that is why I am ordering this half-dozen. C. W. Brenner, Newburg, Ind.

I bought a queen from a neighbor last year who said he got her from you. She made me 193 sections of honey after July 4th—the best my other queens did was 64 sections. C. E. Woodington, St. Anne, Ill.

With great respect I write to you in regard to your dealing and queens. If you want any references you can refer to me, as I can't recommend you too highly. Your queens are the best I ever saw. I have one hive of bees among my 45 colonies containing a queen from you that \$50.00 will not buy.

Morris Coon, Route 2, Locke, N. Y.

The two-frame nucleus you sent me was put in a hive May 25th. In July I brushed a swarm; had a swarm in August, and took off 75 boxes of honey. I consider this a wonderful record. I had four nuclei from different parts of the country, and yours was far superior to any of them. They are very gentle, easy to handle, hustlers to work. All bees and queens needed by me will hereafter come from Quirin-the-queen-breeder, Bellevue, Pa.

S. A. Peck, Box 124, Northumberland, Pa.

	1	6	12
Select queens	75	\$4 00	\$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	
Straight five-band breeders	5 00		

Safe delivery and satisfaction guaranteed of all queens. Any queen not satisfactory may be returned any time inside of sixty days and another will be sent gratis.

Address all Orders to

Quirin-the-Queen-Breeder
Bellevue, Ohio.

Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:

Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

H. M. PARKER, Jr.

James Island, South Carolina

Same Old Place

is where you get the best of queens: untested. \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy-Lands, Italians.

The JENNIE ATCHLEY CO.,

Box 18, Beeville, Bee Co., Tex

Golden-All-Over

ITALIAN - QUEENS

I have a few choice untested Golden-all-over Italian queens, reared from Pratt stock, by Pratt's methods, and will be able to supply a limited demand for balance of the season at 75c each.

Wm. A. Shuff, Philadelphia, Pa.
4426 Osage Ave.

SUPERIOR STOCK.

I make a specialty of long-tongued Italian red-clover honey-queens. Untested queen, 75 cts. each; ½ doz., \$3.00; tested, \$1.00; ½ doz., \$5.00. Bees for business is my motto.

FRED. LEININGER, Ft. Jennings, O.

Yellow from Tip to Tip!!!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce golden queens and beautiful bees; non-swarmers, very gentle, and hustlers for honey. Each queen, \$1. Catalog ready.

H. ALLEY, - - Wenham, Mass.

When a Thing Needs Doing

NO W is the time to do it. How about those worthless queens? Will you tolerate them for another season, when the best of stock can be obtained so readily? Laws' bees and queens are bringing the best of reports. I could fill many pages of testimonials, but give you only one. Mr. T. P. Robinson, of Bartlett, Texas, says:

"Dear Sir.—The car of bees shipped June 20th are now all safely landed, and I have overhauled the entire lot. The bees are from 25 to 40 per cent better than contract, and you ought to hear my wife's exclamations of delight at seeing those fine yellow bees so quietly nestle between the combs at the very approach of smoke. I can certainly recommend you."

Leather and Golden Italians, Holy Lands, and Carniolans—single queen, \$1.00; six for \$5.00. Quantity lots, prices on application.

I also manufacture the Hoffman frames, both new and old style, at \$16.00 per M; single-story eight frame hive complete, 75c; 1½-story for extractor, \$1.00. Price list on application.

W. H. Laws, Beeville, Bee Co., Tex.

If You Wish

to get better results another season you should purchase some young queens and requeen all colonies that have old or poor queens. We are breeding some choice Red-clover and Leather-color Italian Queens, and would be pleased to supply you. Prices for September:

Grade	1	6	12
Untested.....	\$.65	\$3.75	\$7.00
Select Untested.....	.90	4.75	9.00
Warranted Purely Mated.....	.75	4.25	8.00
Select Warranted.....	1.00	5.25	10.00
Tested 1906 queens.....	1.25	7.00	
Select Tested.....	1.50	8.50	
Extra Select Tested.....	2.00	11.00	

All orders accompanied with cash are booked and filled in rotation. Safe arrival by mail guaranteed. Send for price list of bees and supplies.

W. W. Cary & Son, : : Lynnsville, Mass.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rate. This department is intended only for bona-fide exchanges. Exchange for cash or for price lists, or notices offering property for sale will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Bee supplies in exchange for 300 colonies bees. Ad. elsewhere. Manufacturers write if interested. LEO F. HANEGAN, Glenwood, Wis.

WANTED.—Photos for our third contest. For particulars see ad. on page 1143.

THE A. I. ROOT CO., Medina, Ohio.

WANTED.—To book your order for an untested clover queen (next spring delivery) and GLEANINGS one year for \$1.00. W. T. CRAWFORD, Hineson, La.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.

OREL L. HERSHISER,

301 Huntington Ave., Buffalo, N. Y.

WANTED.—To correspond with parties that will need a first-class man to handle bees the coming season.

J. LAWRENCE,

141 First Ave., Station B, Dallas, Texas.

WANTED.—To rent or sell good fruit and berry farm with or without apiary; good markets; soil unsurpassed and good location for bees.

A. E. WOODWARD, Rt. 1, Rexford Flats, N. Y.

WANTED.—To exchange a aid-up scholarship pin the electrical department of Scranton Correspondence School (I. C. S.) with drafting outfit, for bees, supplies, hives, etc.

W. D. K. DEUEL,

323 Adam St., Tonawanda, N. Y.

WANTED.—To exchange 50 new ten-frame hives, bodies complete with Hoffman frames, wired and nearly all full sheets foundation, for portrait camera and lens 8x10 or over, or offers in this line. Speak quick, as this will appear but once.

W. B. VAN GRAVEN, Box 604, Nampa, Idaho.

WANTED.—Sealed bids for any part of two carloads of hives and supplies located at San Antonio, Texas. The right reserved to reject any and all bids. If not sooner disposed of, the whole lot will be sold at auction, piece-meal, during the next session of the National Bee-keepers' Association, San Antonio, Nov. 8, 9, 10.

W. H. PUTNAM, River Falls, Wis.

For Sale.

FOR SALE.—400 acres choice citrus fruit land. ALBERT GUNN, Céspedes, Camaguey Prov., Cuba.

FOR SALE.—First-class second-hand 5-gallon honeycans, two in the case. OREL L. HERSHISER,

301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—My apiary complete in the great irrigated alfalfa belt; no failure yet. See GLEANINGS of Dec. 15, 1903, page 1051.

C. K. C., Lovelock, Nev.

FOR SALE.—Eight acres fruit and market garden; good house, buildings, and water; 15 colonies of bees.

J. HARRIOTT, Stamford, Ontario.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to

FRANK S. STEPHENS,

(Root's Goods.) Paden City, W. Va.

FOR SALE.—Seeds of honey-plants—seven-head turnips, motherwort, catnip at 5c a package, postpaid, still a few sections at reduced price; 24-lb. shipping-cases, complete, 14c.

H. S. DUBY, St. Anne, Ills.

FOR SALE.—A good bee-supply business in one of the largest cities of the Southwest. A fine opportunity for one who has from \$3000 to \$5000 to invest in a business already well developed. Address

T. S., care of GLEANINGS.

FOR SALE.—\$1000 annual income can be made from my two-acre strawberry and truck garden, with 35 colonies of bees in this city; a large house, extensive waterworks; an elegant home. Price \$5000.

J. NIPE, De Funiak Springs, Fla.

Bees and Queens.

FOR SALE.—Twenty hives of bees in Root's hives at \$5.00 each; very strong.

THE HORSESHOE APIARY, Horseshoe, N. Y.

FOR SALE.—400 colonies pure Italian bees in lots to suit. Write for prices.

F. A. GRAY,

Redwood Falls, Minn.

FOR SALE.—Queens. I breed a superior strain of fine golden-all-over Italians. Untested, 75c; tested, \$1.00.

T. L. McMURRAY, Ravenswood, W. Va.

FOR SALE.—50 full colonies of Italian bees in 10-frame Root Dovetailed Langstroth hives at \$3.00 each.

EARL BAKER, 3309 Monroe St., Sta. B, Toledo, O.

FOR SALE.—Queens; Northern imported stock; untested, 60c, or two for \$1.00; tested, \$1.00; breeders, \$3.00.

B. F. SCHMIDT, Rt. 1, No. Buena Vista, Ia.

FOR SALE.—As I am trying a new race of bees and doubling up my colonies, I offer fine Italian queens at 35c each; three queens for \$1.00.

C. A. HUFF, Clayton, Mich.

FOR SALE.—275 colonies of bees in good condition. Also can locate you on first-class homestead claim under Gunnison tunnel, one of Uncle Sam's biggest reclamation projects. Address Box 732, Montrose, Col.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season.

W. N. CANNON, Greenville, Ala.

FOR SALE.—225 colonies of bees in ten-frame two-story Langstroth hives in good condition; good location; can remain where they are; honey-house, tanks, extractors, and fixtures; \$3.50 per colony. I must go east.

MILO SMITH,

842 North Fair Oaks Ave., Pasadena, Cal.

FOR SALE.—About 300 strong colonies of Red-clover stock in ten-frame Dovetailed hives—mostly three bodies—with every thing needed for running same; good 16x16 honey-house; nice five-roomed dwelling-house, etc.; 20 acres of land; no disease, no failure yet; no better location anywhere; expect to make 40,000 lbs. this year. Reason for selling, can not get responsible help. Price \$3,000; if needed, more land at \$10 per acre.

R. M. McMRDO, Cauto, Cuba.

Poultry Offers.

FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free.

A. H. DUFF, Larned, Kan.

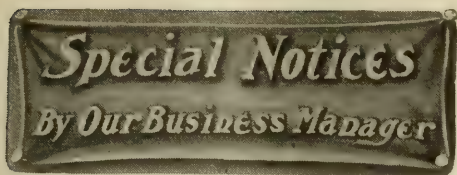
FOR SALE.—Alger's rose-comb Brown Leghorns hold the world's record; first at Chicago International, St. Louis World's Fair, exposition at Portland, Oregon. Italian bees—Root strain direct. Flemish Giant hares, very large. Red Belgians from 16-lb. buck. Get circulars.

FRED ALGER, Wauku, Wis.

Blacks and Hybrids.

FOR SALE.—At 25 cents each, mismatched Italian queens.

C. G. FENN, Washington, Conn.



HALF-POUND TUMBLERS.

After the notice in July GLEANINGS regarding these tumblers we found that it would make a much more symmetrical package to pack 4 dozen in a case instead of 3 dozen. Therefore we have not put up any 3 dozen to the case, as we at first proposed, but we put 2 dozen in a tier and two tiers to a case, making a package practically the same size as the case containing two dozen Simplex jars, and uniform in price with that. It also holds the same quantity of honey, and may be sold at the same price per case, filled. We include also parchment-paper disks of the right size to place over the tumbler before putting on the cover, which makes a tight seal. Price \$1.00 per case; 10 cases at 95 cts. for either the ½-lb. tumblers, Simplex, or No. 25 pound jars.

PRICES FOR THE COMING YEAR.

The cost of materials entering into bee-keepers' supplies has advanced during the past year from 5 to 20 per cent. The average advance is about 10 per cent. Compared with prices two years ago the advance is not quite so much on some lines. Pine lumber has never before reached as high a point as during the past eight months. For some of our stock we have paid 20 per cent more than a year ago, and the average advance is about 12 per cent.

Basswood lumber has been lower than it was two years ago, but the price is back up again, very nearly to where it was. The advance in tin plate and steel is about 10 per cent, while in pig tin, lead, and zinc the increase has been greater. Beeswax is a trifle higher than it was a year ago.

Last year we reduced the price of comb foundation two cents a pound, and gave a more liberal early-order discount than usual. This year we have already announced some reduced prices on honey-packages where we have a large surplus stock and have secured favorable prices on fresh supplies.

As we have a large surplus stock of No. 2 plain sections we have marked the price of these down 25 cts. per 1000. Aside from these few changes the same retail prices will be continued for the coming year. We may have to increase somewhat our wholesale and jobbing prices on some items to save us from loss in view of the increased cost of materials.

We reduce the early-order discount to what it was two years ago—namely, 7 per cent for cash order, before Oct. 1, and cutting off one per cent a month as the season advances.

EARLY-ORDER DISCOUNTS.

The discount for early cash orders this year will be:			
7	per cent	for cash with order before	Oct. 1.
6	"	"	Nov. 1.
5	"	"	Dec. 1.
4	"	"	Jan. 1.
3	"	"	Feb. 1.
2	"	"	March 1.
1	"	"	April 1.

The discount will not apply to tin and glass honey-packages, scales, glass, paint, bushel boxes, hot-bed sash, labels, printing, comb-foundation machines, books, and other special or miscellaneous goods except where a few such items not exceeding ten per cent of the entire order, are included in a general order. The discount is intended to apply to hives, frames, sections, comb foundation, section-holders, separators, extractors, smokers, shipping-cases, zinc, and miscellaneous implements used in bee-keeping ordered early for use the following season, and only when cash accompanies the order, or is paid before the dates named.

REVISED PRICE OF PLAIN SECTIONS.

For the coming season we will furnish 4¼x4¼x1½, 4x5x1½, and 3½x5x1½ plain, or no-beeway sections, as follows:

1000,	No. 1,	\$4.75;	No. 2,	\$4.00;
2000,	No. 1,	9.25;	No. 2,	7.75;
3000,	No. 1,	13.50;	No. 2,	11.25;
4000,	No. 1,	17.50;	No. 2,	14.50;
5000,	No. 1,	21.25;	No. 2,	17.50;
10,000,	No. 1,	40.00;	No. 2,	32.50.

Our No. 2 grade of sections is superior in workmanship to what any of our best sections were made 15 or 20 years ago, or to the best sections put out to-day in some factories where they lack skill and experience in this very delicate piece of workmanship. We will continue this reduced price on No. 2 only as long as we have a surplus stock of this grade; and if many who now use No. 1 realized how good these No. 2 grade sections are, the surplus stock would not last many months.

Convention Notices.

SIOUX CITY INTERSTATE FAIR.

Bee-keepers expecting to send an exhibit to the Interstate Fair (Iowa, Minnesota, South Dakota, and Nebraska) at Sioux City, Sept. 10-15, are requested to advise the superintendent of this department on or before Sept. 1.

On Thursday and Friday, Sept. 13, 14, there will be a bee-keepers' convention afternoon and evening of each day.

Vermilion, South Dak.

R. A. MORGAN, Supt.

The annual meeting of the Southern Bee-keepers' Association will be held in Atlanta, at the State Fair grounds, October 11 and 12. All interested are invited to attend. Further particulars may be had of the president, J. J. Wilder, Cordele, Ga.

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it six months on trial. Sample free.

The Southern Fruit Grower, Box 1, Chattanooga, Tenn.



CHOICEST FRUIT

and Ornamental Trees, Shrubs, Roses, Plants and Bulbs. Catalogue No. 1 free to purchasers of Fruit and Ornamental Trees. No. 3 free to buyers of Holland and other Bulbs, Hardy Plants and Vines, Roses, Ferns, Araucarias, Palms and Greenhouse Goods in General. Try us. Will give you a square deal and guarantee satisfaction. Correspondence solicited. 53 years; 44 greenhouses; 1200 acres.

THE STORRS & HARRISON CO.
Box 274, PAINESVILLE, OHIO.

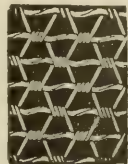
EGGS FROM BONE



Green cut bone doubles egg yield. More fertile eggs, vigorous chicks, early broilers, heavy fowls.

MANN'S LATEST MODEL BONE CUTTER

10 days free trial. No money in advance. Send it back at our expense if you don't like it. Cat'l free. F. W. MANN CO., Box 37, Milford, Mass.



FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 8 styles and heights of farm and poultry fences. It's free. Buy direct. Write today.

COILED SPRING FENCE CO.

Box 101 WINCHESTER, INDIANA.

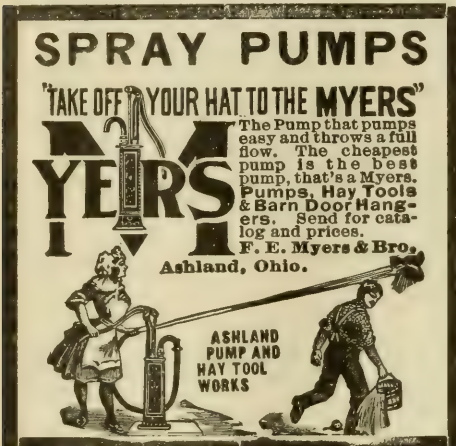
PATENTS.

Twenty-five Years' Practice.

PRINDLE & WILLIAMSON,

Second Nat'l Bank Bldg. Washington D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.



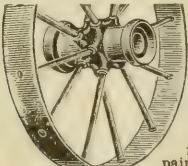
SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.
Ashland, Ohio.

ASHLAND PUMP AND HAY TOOL WORKS



STEEL WHEELS

with wide tires double the usefulness of the farm wagon. We furnish them any size to fit any axle. Cheaper than repairing old wheels. Catalogue free.

EMPIRE MFG. CO., Box 91A Quincy, Ill.



LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address **COILED SPRING FENCE CO., Box 448 Winchester, Ind.**

No. 602 Bee-keepers' Pocket-Knife Tool Kit.

Made in America



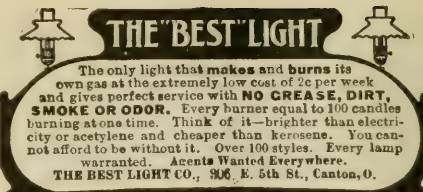
Every one has use for a Knife, Reamer, File, Saw, Chisel, or Screwdriver This outfit is practical, yet so small, being contained in a Leather Pocket-Book 4 1/4 x 3 3/4 inches, is, by carrying it in your pocket, always at hand for immediate use, whether Camping, Boating, Teaming, Driving, in the Shop, Factory, Office Store Warehouse, Automobile, on the Farm, Bicycle, or around the Home.

Any Tool firmly attached or detached to the Pocket-Knife in a second.

Sent postpaid on receipt of price, \$2.25.

Use it five days and if not satisfactory return it and I will refund your money

U. J. ULERY CO. W7 Warren St., New York, N. Y.



THE "BEST" LIGHT

The only light that makes and burns its own gas at the extremely low cost of 2c per week and gives perfect service with **NO GREASE, DIRT, SMOKE OR ODOR.** Every burner equal to 100 candles burning at one time. Think of it—brighter than electricity or acetylene and cheaper than kerosene. You cannot afford to be without it. Over 100 styles. Every lamp warranted. Agents Wanted Everywhere.

THE BEST LIGHT CO., 906 E. 5th St., Canton, O.



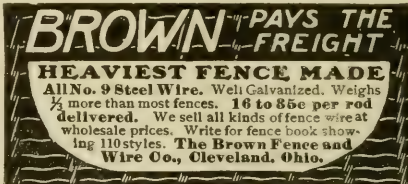
SAVE HALF YOUR FUEL

BY USING THE
Rochester Radiator

Fits any Stove or Furnace. Guaranteed to do all we claim or money refunded. Write for booklet on heating homes.

Rochester Radiator Co.,
50 Furnace St., Rochester, N. Y.

Price from \$2.00 to \$12.00
For hard or soft coal, wood or gas



BROWN PAYS THE FREIGHT

HEAVIEST FENCE MADE

All No. 9 Steel Wire. Well Galvanized. Weighs 1/2 more than most fences. 16 to 85c per rod delivered. We sell all kinds of fence wire at wholesale prices. Write for fence book showing 110 styles. **The Brown Fence and Wire Co., Cleveland, Ohio.**

You Need It.

If you have only a few chickens;
If you are at all interested in poultry;
If you are breeding for fancy points;
If you cater to the market trade;
If you are in the business on large scale, you need

Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. **AT HALF PRICE** a year, but we offer it to readers of Gleanings for a short time to introduce it to readers of Gleanings. Send 25 cts. and get it a year; or if you send us \$1 for a year's subscription to Gleanings in Bee Culture we will send you Ohio Poultry Journal for a year free. Address **Ohio Poultry Journal Dept. 14, Dayton, Ohio.**

\$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size 8x 11 1/4 inches) of valuable poultry, pigeon, and pet-stock reading, costing you thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

Poultry Item, Sellersville, Bucks Co., Pennsylvania

DO YOU RAISE CHICKENS?

If so, you will find the Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cents a year. If you have poultry to sell. The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb

Save Money on Your
BEE-SUPPLIES

I ship several cars of
the celebrated Root
goods to Kansas City

every year, and save hun-
dreds of dollars for our cus-
tomers in Kansas, Nebras-
ka, Missouri, etc. Let me
save you a few dollars on
your goods. Write me at
Main Office. Catalog, in-
formation, etc., sent free.

Carl F. Buck

Augusta - - - Kansas

Italian



Queens

Untested Queens, 75 cts. each; six for \$4.25.
Select Untested, \$1.00. . . Tested, \$1 00.
Breeding Queens, \$3.00.

**Bee-keepers'
Supplies**

Send for our new revised catalog,
Root's Supplies are what we handle.
A full line always on hand.
We give you prompt service.
Freight rates are reasonable.

John Nebel & Son Supply Co.

MR. TEXAS BEE-KEEPER

I would like to talk to you *personally*.

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's *better* in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you supplies with the utmost promptness.

Then, too, I have installed a complete Weed-Process Foundation factory. I can turn out 500-lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when at San Antonio. You are *always* welcome. I have fitted up my office with plenty of desks and chairs, with writing material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red-clover and Golden Italian queens promptly.

I am now paying 25c cash and 28c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein - San Antonio, Texas

1322 South Flores Street

The Best ^{is} Always The Cheapest

We have been furnishing bee-keepers all over the World with Supplies for over 25 YEARS, and no complaints.

Our PRICES are as low as any, while the QUALITY of our goods is HIGHEST. Catalog and price list free. We have for 16 years published THE AMERICAN BEE KEEPER, an illustrated 32-page monthly, edited by two of the most experienced bee-keepers in America. Fifty cents a year. Sample copy free.

The W. T. Falconer Mfg. Co., Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies: choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 124 West Liberty St., Savannah, Ga.

Dadant's Foundation

It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!
No sagging; no loss.
Twenty-eighth Year.
We Guarantee Satisfaction.
Wax Worked into Foundation.

Bee-supplies of All Kinds

Beeswax wanted at all times.
Send for Our 1906 Catalog.

Dadant & Sons, Hamilton, Ill.

Root Goods for the West

Send for my complete catalog. Write to-day. I have been in the business over twenty years, and carry the largest stock in the West. Many thousands of dollars' worth of goods now on hand ready for distribution. Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS. My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Jos. Nysewander, Des Moines, Iowa
565, 567 West Seventh Street

GLEANNINGS IN BEE CULTURE

VOL. 34

SEPT. 15, 1906

NO. 18



"A Boquet of Golden Rod"

THE A.I. ROOT CO.,
MEDINA — OHIO

BEE-KEEPERS

We carry the largest stock of goods in the Middle West. The low freight rates from

Toledo

will save you money. We will buy your HONEY and beeswax, and pay highest market price. It will pay you to correspond with us when your crop is ready to market. No shipment is too large for us. Carloads a specialty.

Queens! Queens!

We have a yard at Toledo with 100 colonies and over, which we use for queen-rearing only; besides several out-yards which we run for honey, also for extra bees and brood, and queens are mailed same day order is received.

Our 70-page Catalog

is sent free to any one asking for it. No matter whether you keep one colony or five hundred. We also handle a large line of poultry supplies, and sell eggs for hatching. Our 1906 mailing list is sent with every catalog. Don't buy until you have seen it.

Griggs Brothers

523 Monroe St. : Toledo, Ohio

BIENENZÜCHTER

von Deutschland, Schweiz, Oesterreich, u. s. w., schreiben Sie uns um unsere 1906 Preisliste für

Bienenwohnungen,
Walzwerke,
Honigschleider,
Rauchapparat,
Bienenschleier,
Handschuhe,
Futterkasten,
Bienenflucht "PORTER,"
Fluglochschieber für Kasten,
Koniginnenabsperrgitter,
Weiselhäuschen,
Schwarmfangbeutel,
Entdeckungsmesser,
Dampfwachsschmelzer,
Wabenentdeckungsapparat, und
alle anderen Artikel von.

The A. I. ROOT Company,

Der grösste Fabrik der Welt.

EMILE BONDONNEAU,

General Vertreter für Europa und Kolonien.
142 Faubourg Saint Denis. Paris, 10me.

CENTRAL AND NORTHERN PENNSYLVANIA

Distributor of Root's Goods from the
Best Shipping - point in this State.
WHOLESALE - AND - RETAIL

I sell at catalog prices, and, with the low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also rear Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

E. E. PRESSLER, WILLIAMSPORT, PENN.

C. H. W. Weber,

==== **Headquarters for** =====

Bee - Supplies.

"Root's Goods at Root's Factory Prices."

Honey Wanted.

White clover, extracted and comb. Mail sample, and state lowest price expected, delivered at Cincinnati. We pay cash on delivery.

Queens Now Ready to Supply by Return Mail.

Stock which can not be excelled Each variety bred in separate apiaries, from separate mothers; have proved their qualities as great honey-gatherers.

Golden Italians.

Have no superior, and few equals. Untested, 75c; six, \$4.00.

Red-clover Queens.

Which left all records behind in honey-gathering. Untested, 75c; six for \$4.00.

Carniolans.

They are so highly recommended, being more gentle than all others. Untested, 75c; six for \$4.00.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Markets.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain, or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

ST. LOUIS.—The situation in the honey market is practically unchanged in regard to prices. The receipts of comb honey, however, have been small, and the accumulated stock has decreased considerably. The demand is still limited. We quote fancy white comb honey at 14; No. 1, 12½ to 13; light amber, 12 to 13; dark and broken, 8 to 10; extracted honey, 6 to 6½ for light amber; California or Spanish needle, in cans; Southern new in barrels and half-barrels, scarce, and in good demand at 5 to 5½. Beeswax, prime, 28½; all impure and inferior less. **R. HARTMANN & CO.,**
Sept. 8. St. Louis, Mo.

PHILADELPHIA.—New comb honey has been arriving quite freely in the last ten days from different sections; but from all reports we are confident that the crop is much short of last year, and prices are going to be much higher. Some parties who are shipping are asking as high as 18 cts., and will not sell for less. We quote: Fancy white comb, 16 to 17; No. 1, 14 to 15; amber, 12 to 13; fancy white extracted honey, 7 to 8; light amber, 6 to 7. We are producers of honey, and do not handle on commission. **WM. A. SELSER,**
Sept. 10. 10 Vine St., Phila., Pa.

CHICAGO.—The receipts of comb honey are quite large, and there is also a good demand for it, so that prices are well maintained at 15 to 16 cts. for No. 1 to fancy grades; any thing short of these grades is not selling freely, and ranges from 1 to 3 cts. less per lb. Buckwheat, 12½; dark grades, 8 to 10; extracted, white, 6½ to 7½; amber, 6 to 7; dark, 5½ to 6. Beeswax, 30.
R. A. BURNETT & CO.,
Sept. 8. 199 So. Water St., Chicago, Ill.

KANSAS CITY.—Receipts of both comb and extracted honey are light, and the demand good. We are quoting No. 1, white comb, 24-section cases, \$3.00; No. 2 white comb 24-section cases, \$2.75; extracted, new, per lb., 6 to 6½. Beeswax, 25.
C. C. CLEMONS & SON,
Sept. 11. Kansas City, Mo.

BUFFALO.—New honey is coming in very slowly, owing to the crop being short. In some sections in York State honey is almost a failure. Prices are advancing here. Fancy white comb, 14½ to 15; No. 1, white comb, 14 to 14½; No. 2, white comb, 12 to 13; No. 1 dark, 12 to 12½; No. 2 dark, 11 to 12; extracted white, 7 to 8; extracted dark, 6 to 6½. Beeswax, 28 to 32.
W. C. TOWNSEND,
Sept. 12. Buffalo, N. Y.

SCHENECTADY.—White-clover honey has come forward quite freely, and finds a ready sale at 13 to 15, according to quality; not much buckwheat in sight yet; but as the working season for bees is now over, producers will be shipping as soon as they can get stock ready. We quote buckwheat, 11 to 12; extracted light, 6½ to 7½; dark, 5½ to 6.
C. MACCULLOCH,
Sept. 10. Schenectady, N. Y.

TOLEDO.—The market on comb honey remains firm. If any thing, prices have advanced. We are getting in a retail way for fancy and No. 1 comb honey, 17; No. 2, 16; white clover in barrels, 7½; cans, 8 to 8½. Beeswax, 26 and 28.
GRIGGS BROS.,
Sept. 8. Toledo, Ohio.

DETROIT.—Demand for honey is good, and prices steady, with a probability of little change for the next few weeks. Fancy and A No. 1 white comb honey brings 14½ to 15; No. 1, 13, 14. Very little dark honey offered yet. Extracted white clover, 7½ to 8. In most places in Southern Michigan, bee-keepers had a fair crop. Beeswax, 27 to 29.
M. H. HUNT & SON,
Sept. 10. Bell Branch, Mich.

BOSTON.—The demand for honey continues light, owing to the very warm weather, and prices are largely nominal. The fancy grades in cartons are 15 cts., and from that down to 12, according to quality.
BLAKE, SCOTT & LEE CO.,
Sept. 8. 31-33 Commercial St., Boston, Mass.

ST. PAUL.—The following are the prices on honey: Fancy white clover, 13; No. 1, 11; No. 2, 9½; amber, No. 1, 10; No. 2, 8.
W. H. PATTON,
Sept. 8. Sec. Bd. of Trade, St. Paul, Minn.

FOR SALE.—3000 lbs. of white-clover and locust honey, in 20-lb. no-drip cases. Fancy, 15c; No. 1, 13c.; f. o. b. Nice article.
H. W. BASS, Front Royal, Va.

FOR SALE.—Central Minnesota honey, from white clover and wild flowers, fine flavor; in five-gallon cans, \$.50 per can; more than one can, \$.45 per can; f. o. b. here. Sample if wanted.
E. S. ROE, Clarissa, Minn.

FOR SALE.—San Diego County honey. Nine tons of the finest honey in the world—98 cases of white and 59 cases of light amber. This honey is guaranteed to be absolutely pure, and will weigh more than 60 lbs. net to each five-gallon can. Prices must be f. o. b. **FRANCIS J. COLAHAN,** Bernardo, S. D. Co., Calif.

WANTED

FANCY COMB HONEY IN NO-DROP SHIPPING CASES, ALSO EXTRACTED HONEY. IF YOU HAVE ANY TO OFFER, QUOTE US YOUR ROCK BOTTOM CASH PRICE DELIVERED HERE, AND MAIL US A SMALL SAMPLE OF THE EXTRACTED HONEY. WE BUY EVERY TIME THE PRICE IS RIGHT, AND REMIT PROMPTLY.

THE FRED W. MUTH CO.

No. 51 WALNUT STREET,

CINCINNATI, OHIO.

WANTED.—Choice white comb and extracted honey; clover preferred. B. WALKER, Clyde, Ills.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—I have a good demand for fancy white comb honey. Those interested please correspond. A. H. DOOLITTLE, 180 Perry St., Buffalo, N. Y.

WANTED.—To buy for cash, fancy comb and extracted honey. ROBT. A. HOLEKAMP, 4263 Virginia Ave., St. Louis, Mo.

WANTED.—No. 1 and fancy white comb honey (unglassed), Danz. sections preferred. THE A. I. ROOT CO., Medina, Ohio.

WANTED.—Comb and extracted honey. State kind and lowest price. CHAS. KOEPPEN, Fredericksburg, Va.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. GRIGGS BROS., Toledo, O.

WANTED.—Extracted clover honey; highest price for the right article. C. G. TURNER, Mechanic Falls, Me.

WANTED.—Comb and extracted honey. State quality, quantity, and price. JUDSON HEARD & CO., Atlanta, Ga.

WANTED.—Well-ripened extracted basswood and clover honey, light in color; prompt payment on receipt; 7½¢ per lb., f. o. b. West Bend. H. C. AHLERS, West Bend, Wis.

WANTED.—Fancy white comb and extracted honey; must be partly from clover; also beeswax. Will pay in cash or bee-supplies, as preferred. E. W. PEIRCE, Zanesville, Ohio.

WANTED.—Beeswax. We will pay 30 cts. per pound for fancy pure yellow beeswax delivered in New York until further notice. CHAS. ISRAEL & BROS., 486 Canal St., New York City.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of. HILDRETH & SEGELEN, 265-267 Greenwich St., New York.

WANTED.—Honey, steadily from September 1 to April 1. Prices given on application. Suggestions and advice about packing and shipping honey cheerfully given from long experience, close study, and observation. H. R. WRIGHT, Albany, N. Y.

WANTED.—Beeswax. We are paying at this date for pure average beeswax delivered at Medina or any branch office named below, 27 cts. in cash or 30 cts. per lb. in exchange for bee-supplies, less transportation charges. We can not use old combs. Pack securely and address plainly. Be sure to send bill of lading when you make shipment, and advise us how much you send, net and gross weights. Ship to home office or nearest branch named below.

THE A. I. ROOT CO., Medina, Ohio.
Chicago, 144 East Erie St.; New York, 44 Vesey St.; Philadelphia, 10 Vine St.; Washington, 1100 Maryland Ave., S. W.

FOR SALE.—Fine alfalfa honey in large or small lots and at a very low price. Dealers and others wanting a fine table honey should write for free samples and prices to

THE DELTA APIARIES, Delta, Colo.

FOR SALE.—Light extracted honey, good quality; two 60-lb. cans, 8½¢ per lb., barrel at 7½¢; amber, 60-lb. cans at 7½¢, barrel at 6¢; sample, 10¢. We pay 20¢ for beeswax. I. J. STRINGHAM, 105 Park Pl., N. Y.

FOR SALE.—2500 lbs. of well-ripened fancy extracted raspberry and milkweed honey, in 60-lb. cans (2 in case) at 8 cts. in small lots, or 7½ for the lot.

P. W. SOWINSKI, Bellaire, Mich.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

A GOLD MEDAL

at the World's Fair,
St. Louis, 1904.



**UP-TO-DATE,
STRONGEST,
COOLEST,
CLEANEST.**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

N. E. FRANCE, Platteville, Wis.

SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, I can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel is all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker." GRANT STANLEY, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

F. DANZENBAKER, MIAMI, FLORIDA

EVANS & TURNER,

Columbus, Ohio,

are in the market for white comb honey, and especially want some fine stock from Wisconsin, Michigan, Indiana, and New York. They would also like to hear from Iowa producers. Write fully what you have; and if you care to name price, do so, stating about what time you will be ready to ship.

Chas. Israel & Brothers

486-490 Canal St., New York

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments Solicited. Established 1875.

FOR SALE.—Five tons of comb and extracted honey in lots to suit purchaser.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—Alfalfa honey in five-gallon cans, \$5.00 per can; more than one can, \$4.80 per can, f. o. b. here. VIRGIL SIRES, North Yakima, Wash.

FOR SALE.—5000 lbs. of well-ripened buckwheat honey put up in 60-lb. cans. Sample and price on application. Clover honey all sold.

G. A. BLEECH, Jerome, Mich.

FOR SALE.—15,000 lbs. clover and raspberry honey in 60-pound cans. Sample 5 cts.

JAMES McNEIL, Hudson, N. Y.

FOR SALE.—2700 lbs. fine white-clover comb honey. J. R. MARTZ, Grundy Center, Iowa.

FOR SALE.—Fancy and No. 1 comb honey.

NELSON DEWEY, Adrian, Mich.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

E. R. ROOT
Editor

A. I. ROOT
Editor Home Departments

H. H. ROOT
Asst. Editor

DR. C. C. MILLER,
LOUIS H. SCHOLL,

J. A. GREEN,

PROF. A. J. COOK,
G. M. DOOLITTLE,

J. E. CRANE,
W. P. ROOT.

J. T. CALVERT, Business Manager

A. L. BOYDEN, Advertising Manager

Circulation 30,000. Reaches every State and 60 foreign countries.
Established in 1873. Sixty-four pages. Semi-monthly.
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

Terms---\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.

Postage is Prepaid by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS., 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 6/-*
Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publisher.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY.....STATE.....

DATE.....

If you want Gleanings discontinued at expiration, check here ()

RASPBERRY HONEY!

I have produced a crop of extracted honey from the wild red raspberry of Northern Michigan. It would be an easy matter to send this entire crop in a lump to some dealer, but I prefer to give each of my friends an opportunity of supplying his table with this truly delicious honey—a honey with a flavor all its own—a flavor that smacks of the wild raspberry of the forest.

The honey is put up in 60-pound cans, two in a case, and a single case (120 pounds) will be sold at 8½ cents a pound (\$10.20 for a case) and larger orders will be

filled at 8 cents a pound (\$9.60 a case) but not less than that, even though the whole crop should be taken.

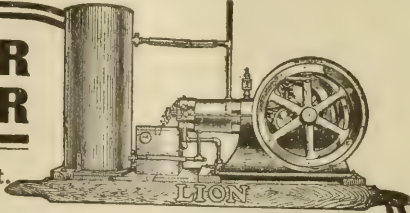
If you prefer to taste the honey before ordering, drop me a postal, and I'll mail you a generous sample—enough so that the neighbors, too, can have a taste, and perhaps will wish to join you in ordering a case, if you should not care to take that much yourself.

W. Z. HUTCHINSON, Flint, Michigan.

A READY POWER AT ANY HOUR

That's the kind of a power you want.

You do not have to wait for steam, or until the wind blows, before you can pump water, grind feed, saw wood or the hundred and one other jobs about the farm, if you have a **Lion Gas or Gasoline Engine**. Have you ever thought just what a saving of time, labor and money it would be to have such a practical power **always ready to operate** your various machines on the farm, in the shop, printing-office, or—anywhere?



The LION Engine

is such a power. It is **simple** in construction, **practical** in operation, and **economical** in the use of fuel. You do not require the services of an engineer, as anyone can operate it. We send the **Lion engine**

Direct From The Factory

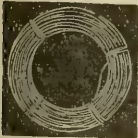
on a **ten days test trial** and give explicit instructions and directions for setting up and operating it. Write now, stating your power needs, for our easy payment plan. Remember, we send the **engine**, not the agent.

LYONS ENGINE CO.,

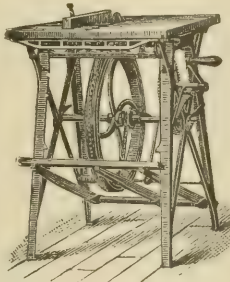
Lyons, Mich.



100 LBS. FENCE WIRE, \$1.25



No. 14 Gauge Painted Wire Shorts, 100 lbs., \$1.25; No. 14 Gauge Galvanized Wire Shorts, 100 lbs., \$1.40; Other sizes at proportionate prices. Galvanized Barb Wire 2 and 4 point, per 100 lbs., \$2.50; "B" Galvanized Phone Wire, per 100 lbs., \$2.40; Annealed Wire, per 100 lbs., \$1.90 Graduated Diamond Mesh Galvanized Fencing, 24 ins. high, per rod, 20c; Galvanized Poultry Netting, per 100 sq. ft., 40c; Indestructible Steel Fence Posts, the best manufactured, each, 55c. Everything in the line of Wire and Fencing for all purposes. Now is the time to buy. These prices are for immediate action. Ask for **Free 500-page Catalog**. No. B. A. 688 quotes lowest prices on staple farm supplies of every kind; also offers furniture and household goods from **'Sheriffs' and 'Receivers' Sales**. Chicago House Wrecking Co., 35th & Iron Sts., Chicago



BARNES' HAND AND FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

MACHINES ON TRIAL

Send for illustrated catalog and prices. Address **W. F. & JNO. BARNES CO.** 545 Ruby Street, ROCKFORD, ILLINOIS



FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at **factory prices on 30 days free trial**. We pay all freight. Catalog shows 8 styles and heights of farm and poultry fence. It's free. Buy direct. Write today **COILED SPRING FENCE CO.** Box 101 WINCHESTER, INDIANA

HUNT FARM JERSEYS (Est. 1893) are bred for business. Performance is our first consideration. Gertie of Glenlyn, Stoke Pogis, and Melia Ann blood combined. We now offer a very fine young bull—solid color, black points, and for dairy work can not be excelled. Price low. Dam Merry Moulton, 138325, with record of 19 lbs. 1 oz. butter from 348 lbs. milk in 7 days. Over 71,000 lbs. of milk in seven years. Perfect in teats, udder, and dairy conformation.

HUNT FARM, Hunt, N. Y.

CONTENTS OF THIS NUMBER.

MARKETS	1158	Doolittle Non-swarming System	1187
STRAWS	1167	Ripening Honey outside the Hives	1187
EDITORIAL	1169	Success with a Damp Cellar	1187
When to Sell the Crop	1169	Youngest Bee-keeper in Indiana	1188
Honey Puffs	1170	Preventing Robbing by Use of Glass Plates	1188
Grade and Scrape Your Sections	1170	Toads as Enemies of Bees	1188
Another Method of Subduing Bees	1170	Toothsome Graham Bread Using Honey	1189
Goldenrod	1170	Warning against the Alexander Method	1189
Bee-demonstration work at Detroit State Fair	1171	Alexander Method of Building up Colonies	1189
FANCIES AND FALLACIES	1172	Moving Colonies from Place to Place in Apiary	1190
CONVERSATIONS WITH DOOLITTLE	1173	Moses Quinby	1190
GENERAL CORRESPONDENCE	1175	Color of Alfalfa Honey	1190
Feeding Sugar Syrup	1175	Poultry and Bees	1190
Preserving Fruits in Honey	1175	Section Comb-leveler	1191
Facts to Support Theories	1176	How to Prevent and Stop Robbing	1191
Distinguishing Bees	1177	Clustering space for Bees on Side of Super	1191
Bee-keeping in Cuba	1178	Do Bees Sting Queens	1192
How to Build a Bee-cellar	1181	YEAR'S WORK IN AN OUT-APIARY	1192
Ferris System of Producing Comb Honey	1184	OUR HOMES	1194
Bees in House-aparies	1185	HEALTH NOTES	1196
HEADS OF GRAIN	1186	HIGH-PRESSURE GARDENING	1197
Another Family Eats Honey at Every Meal	1186	CONVENTION NOTICES	1199
Sixty Pounds of Honey a Month in One Family	1186	SPECIAL NOTICES	1211

INDEX TO ADVERTISEMENTS.

Banking by Mail.		Household Specialties.	
Savings Deposit Bank Co.	1204	Best Light Co.	1212
Bee-books.		Horne Co., Joseph.	1204
Swarthmore	1203	Rochester Radiator Co.	1212
Bee Smokers.		Ulery Co., U. J.	1204
Bingham, T. F.	1203	Machinery.	
Danzenbaker, F.	1159	Barnes, W. F. & Jno.	1161
Bee Supplies.		Lyons Engine Co.	1161
Blank, E. H.	1201	Myers & Bros., F. E.	1212
Cook, J. H. M.	1207	Miscellaneous.	
Falconer Mfg. Co.	Back Cover	Bird, F. W. & Son.	1205
Hershiser, Orel L.	1207	Chicago House-wrecking Co.	1161
Hilton, Geo. E.	1203	Hunt Farm Jerseys.	1161
Hunt & Son, M. H.	1164	Mann, F. W.	1212
Kretchner Mfg. Co.	1202	Prindle & Williamson.	1212
Lewis Co., G. B.	1166	Rice, A. L.	1212
Mason, J. E.	1207	Roesch, Lewis.	1204
Minnesota Bee Supply Co.	1202	Root Company.	1203
Pouder, Walter S.	1200	Standard Bone-cutter.	1212
Prothero, Frank W.	1201	Storrs & Harrison.	1204
Reeves, A. H.	1207	Publishers, Agricultural-paper.	
Root Co., Medina.	1206	Southern Fruit Grower.	1204
Root Co., Syracuse.	1164	Publishers, Bee-Journal	
Root Co., St. Paul.	1201	Falconer Mfg. Co.	Back Cover
Scott & Co., C. M.	1202	Root Co., The A. I.	1160, 1165
Soper, W. D.	1207	York & Co., Geo. W.	1165
Stringham, L. J.	1207	Publishers, Poultry-paper.	
Weber, C. H. W.	1158	Ohio Poultry Journal.	1212
Woodman Co., A. G.	1202	Poultry Gazette.	1212
York Honey & Bee Supply Co.	1205	Poultry Item.	1212
Bees and Queens.		Wants and Exchanges.	
Alley, H.	1208	See page.	1210
Atchley Co., The Jennie.	1208		
Case, J. B.	1209		
Clemons, H. C.	1209		
Church, C. M.	1204		
Collins, Ph. D., Dele.	1209		
Doolittle & Clark.	1209		
Fajen, J. S.	1208		
Kanagy, A. H.	1209		
Koeppen, Chas.	1209		
Laws, W. H.	1208		
Leininger, Fred.	1208		
Lockhart & Co., F. A.	1208		
McCain, Robert B.	1209		
Moore, J. P.	1209		
Parker, Jr., H. M.	1208		
Quirin-the-Queen-Breeder.	1208		
Rails, W. H.	1209		
Robey, L. H.	1209		
Ross, H. A.	1209		
Routzahn, G.	1209		
Shaw & Co., J. W. K.	1209		
Shuff, W. A.	1209		
Taylor, J. W.	1209		
Victor-Knolle Apiary Co.	1207		
Comb Foundation.			
Dadant & Son.	Back Cover		
Dittmer Gus.	1201		
Fences.			
Coiled Spring Fence Co.	1161, 1204		
Honey for Sale.			
Hutchinson, W. Z.	1161		
See page.	1159		
Honey-buyers.			
See pages.	1158, 1159		

ADVERTISING TALKS

BY THE AD. MAN.

A TALK WITH OUR SUBSCRIBERS.

We haven't taken space lately to talk with you as we should like; but so many matters come up, at this season of the year, on which we want your opinion, that we devote this page to the matter in this issue.

CONTINUING SUBSCRIPTIONS.

Some of our newer subscribers occasionally overlook our printed statement that we continue subscriptions until requested to discontinue. We are reminded of this by a card from Missouri:

I rec'd your circular letter notifying me that my subscription had expired, and from what you said I inferred if I did not tell you to continue you would discontinue; but one has been placed on my desk. I have not opened it; and as I am taking Leaby's paper, please discontinue.
J. L. FERGUSON.

Sweet Springs, Mo., Sept. 4.

Mr. Ferguson has probably been so busy this summer that he has not noticed the absence of the *Progressive Bee-keeper* for several months. We were advised lately that the paper had suspended publication, and the unexpired subscriptions would be filled with a poultry journal, to which paper the *Progressive* had sold its good will and subscription-list. Mr. F. misunderstood our letter. We continue to send GLEANINGS unless ordered discontinued, either when the order is sent or a request made later. A canvass of our list about a year ago showed about 80 per cent in favor of this plan. We are perfectly willing to follow the wishes of all subscribers, however, and promptly discontinue all subscriptions when so requested.

"EAT HONEY."

We have just issued a pamphlet by that title. It was written and designed especially for our exhibit at the Ohio State Fair, and you may depend upon it that we did the best we knew how. Just by changing the ad's on the covers it can be made to do for any one desiring to advertise in this manner. The cover design is a splendid half-tone, full size, of a 4x5 section of honey—very striking and unique. The body of the booklet is entirely devoted to telling why honey should be eaten. The story is given complete and in a readable style. In fact, the booklet was made to be valued by the recipient. It is away above the ordinary class of booklets.

PRICES.

With your name and address printed in red on cover, our general ad. appearing on back cover only: Per 50, \$1.00 postpaid; 100, \$1.90; 250, \$4.65.

By express or freight, not prepaid: 250, \$4.25; 500, \$8.50; 1000, \$17.00; 5000, \$30.00; 10,000, \$45.00.

If you desire an advertisement of your own on the inside cover page or either of the back cover pages, in place of ours, add 50 cts. per page for each thousand to the above prices. No change made in advertisements for less than a thousand copies. No name on cover when advertisements are changed unless 75 cts per thousand is added. We will gladly send any one interested a sample of this booklet.

CLASS ADVERTISING.

You can safely assume that all GLEANINGS subscribers are bee-keepers or directly interested in bee-keeping; hence if you have an article that interests bee-keepers, GLEANINGS is the best medium. There is no loss of circulation, every number going individually to one interested in your ad. Though GLEANINGS has not a circulation equal to some magazines, it's the best one to use, because no other paper reaches as many bee-keepers. But considering the number of bee-keepers in the United States, and the circulation of other papers of its class, GLEANINGS circulation is really phenomenal. One thousand subscribers to a class magazine means as much as ten thousand to one catering to everybody. However, general advertisers find GLEANINGS a splendid medium. Its rate per thousand circulation is no higher than that of many papers of general circulation. It is read by its subscribers as no other medium is, as it directly appeals to them.

Class mediums are receiving more and more the attention of general advertisers, as they by rights should.

PAROID ROOFING.

Not all of our readers are interested in the roofing question, but undoubtedly a large number are, judging by the advertising order which F. W. Bird & Son, 20 Mill St., E. Walpole, Mass., have sent us, which begins in this issue. It will pay you to turn to page 1205, and, whether interested or not in roofing just now, to send for their 48-page book of Farm Plans.

ADVERTISING - RATES

Twenty cents per agate line flat.
Classified columns—bonafide exchange or want ads.—15c a line, others 20c a line.
Discount for cash in advance, 5%; if paid in 10 days, 2%.
No objectionable advertising accepted.
Forms close 10th and 25th of each month.
Guaranteed circulation per issue, 30,000.

GLEANINGS IN BEE CULTURE
MEDINA, OHIO

Seasonable Goods!

Non-drip Cases

The kind we call "Root Quality"—none as good.

Glass and Tin Packages

for extracted honey. A neat package means a fancy price.

Honey-extractors

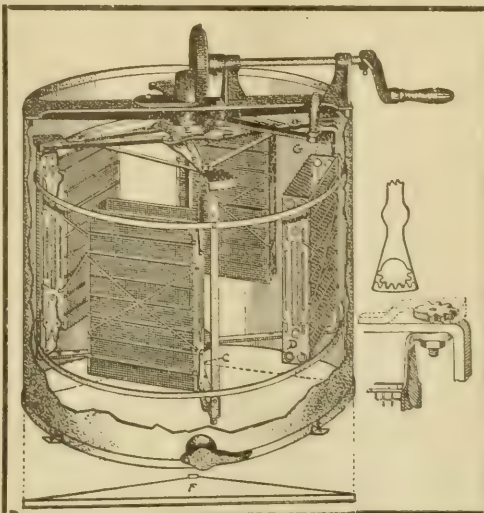
The Cowan No. 15 will give you years of honest service. You need one.

During this month (September) we are offering a special discount of seven (7) per cent for cash orders for Bee-supplies for next season's use. After October 1st the discount will be six per cent.

**We Have the
Largest Stock of Bee-supplies in Michigan
and all ROOT QUALITY**

**M. H. Hunt & Son, Bell Branch, Michigan
Wayne County**

The A. I. Root Company's Bee-keepers' Supplies



Illustrate the wisdom of paying enough to secure true economy. There are no better appliances at any price, and those sold for less eventually cost a great deal more. Our catalog tells all about them. Seven per cent discount in September.

The A. I. Root Company, Syracuse, N. Y.

SPECIAL OFFERS for Sept. and Oct. ONLY

Cloth-bound Dollar Books for 60 cents each



DR. MILLER



DOOLITTLE

ALSO

A 75c Book and a 75c Queen for 25c each
when taken with the American Bee Journal as
offered below :

(To either New or Renewal Subscribers.)

No. 1 The Bee Journal a year
with Dr. Miller's cloth-
bound "40 Years Among the Bees"
(book alone \$1)—both for \$1.60.

No. 2 The Bee Journal a year
with Doolittle's cloth-
bound "Scientific Queen-Rear-
ing" (book alone, \$1)—\$1.60.



No. 3 The Bee Journal a year
with Doolittle's leather-
ette-bound "Scientific Queen-
Rearing"—(book alone, 75c—\$1.25

No. 4 The Bee Journal a year
with a Standard-Bred
Italian Honey-Queen (Queen
alone, 75c)—\$1.25.

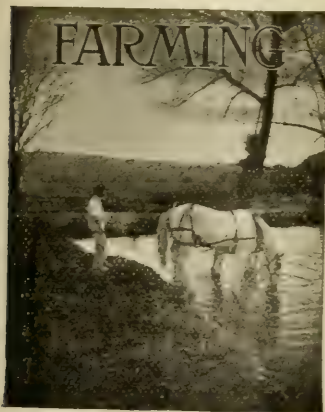
Remember, that each is a separate offer, and must be taken before Nov. 1, 1906,
if you want the advantage of these special prices.

If more of the same kind of Queens are wanted, order at these prices during September and Octo-
ber: 3 for \$2.00; 6 for \$3.75; 12 for \$7.00. Now is the time to re-queen.

A free sample of the Weekly American Bee Journal on request; or a "trial trip" of 3 months
(13 copies), sent for only 20 cents. Regular price is \$1 a year. Address,

GEORGE W. YORK & CO., 334 Dearborn St., Chicago, Ill.

All our Special Offers always apply only to the U. S. and its possessions, Canada, Mexico
and Cuba.



A Delightful Combination

GLEANINGS IN BEE CULTURE, \$1.00 per year.
FARMING MAGAZINE, \$1.00 per year.

PRICE FOR THE TWO, \$1.50.

*Nothing need be said about GLEANINGS. It is
the best publication of its class in the world; semi-
monthly, 72 to 80 pages, fully illustrated.

†FARMING is a new publication—a beautiful
journal for the man who produces from the soil. It
is edited and published by the Doubleday Page Co.,
the people who edit *Country Life*, *World's Work*,
and the *Garden Magazine*, a sufficient guarantee of
its merit. Larger than GLEANINGS—fully illustrat-
ed. Published monthly.

THIS OFFER IS GOOD, EITHER FOR NEW GLEANINGS SUB-
SCRIPTIONS OR RENEWALS, BUT MUST BE TAKEN ADVANTAGE
OF WITHOUT DELAY.

WE CAN ACCEPT SUBSCRIPTIONS FOR THIS COMBINATION AT
THIS SPECIAL RATE ONLY WHEN SENT DIRECT TO THE PUBLISH-
ERS OF GLEANINGS,

The A. I. Root Company, Medina, Ohio.

*Sample copies of either publication will be sent upon request.

†Publications will be sent to two different addresses if desired.

Why Waste Money

By waiting until next season before ordering your supplies? Order now—you know about what you will need—thereby making good interest on the money invested, and at the same time having your goods on hand ready for use when wanted. The following discounts will be allowed on all orders for Lewis Goods accompanied by cash: : :

During September, 7 per cent Discount

During October, 6 p. c.

During November, 5 p. c.

During December, 4 p. c.

During January, 3 p. c.

During February, 2 p. c.

During March, 1 p. c.

(On receipt of the names and addresses of five bee-keepers in your vicinity we will mail to any address, free of charge, postpaid, a copy of our little book, "Bee Pranks," which is a pamphlet compiled from newspaper clippings containing many laughable and interesting anecdotes which have actually happened in the life of the bee. Published only by G. B. Lewis Co., Watertown, Wis., U. S. A.

The Following are Distributing Points for Lewis' Goods:

ENGLAND—E. H. Taylor, Welwyn, Herts.
FRANCE—Raymond Gariel, 2 ter Quai de la
Megisserie, Paris.

CUBA—C. B. Stevens & Co., Havana.
C. B. Stevens & Co., Manzanillo.

CALIFORNIA—Chas. H. Lilly Co., San Francisco.
SOUTHERN CALIFORNIA—

Fletcher-Doyle Co., San Diego.
Fallbrook Co-operative Association, Fallbrook.
Paul Bachert, Lancaster.

COLORADO—R. C. Aikin, Loveland.
Arkansas Valley Honey-producers' Ass'n, Rocky
Ford.
Colorado Honey-producers' Association, Denver.
Fruit Growers' Association, Grand Junction.
Robert Halley, Montrose.

IOWA—Adam A. Clark, LeMars.

Louis Hansen's Son, Davenport.
ILLINOIS—York Honey & Bee Supply Co., 191-193
Superior St., Chicago.
Dadant & Son, Hamilton.

INDIANA—C. M. Scott & Co., Indianapolis.

MICHIGAN—A. G. Woodman Co., Grand Rapids.

MINNESOTA—Wisconsin Lumber Co., 432 Lumber
Exchange, Minneapolis.

MISSOURI—E. T. Abbott, St. Joseph.

OHIO—Norris & Anspach, Kenton.

OREGON—The Chas. H. Lilly Co., Portland.

PENNSYLVANIA—Cleaver & Green, Troy.

TEXAS—Southwestern Bee Co., San Antonio.

UTAH—Fred Foulger & Sons, Ogden.

WASHINGTON—The Chas. H. Lilly Co., Seattle.

G. B. LEWIS CO.

Manufacturers Bee-keepers' Supplies
WATERTOWN, WIS., U. S. A.

GLEANINGS

IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

SEPT. 15, 1906.

No 18



I FIND, Mr. Editor, that you are right, page 1107, about frequent cuttings killing sweet clover on a lawn, for I find that the lawnmower has killed a tuft on our lawn that faithfully bloomed the fore part of the season.

SMARTWEED is spoken of, p. 1111, as yielding honey at Medina. Nearly always, I think, when smartweed honey is spoken of, heartsease is meant. Which is it at Medina? As the two things are so different, a leaf of smartweed burning the mouth, and one of heartsease being as mild as a turnip, it would be well to use the term *smartweed*. [Smartweed here—not heartsease.—Ed.]

"I OFTEN WISH the top-bar of the frames were not quite so thick; for, the nearer you can get the section boxes to the brood-nest, the easier it is to get the bees to occupy them," page 1119. Right, friend Farrar; but by the side of every rose there is likely to be a thorn; for, the nearer the sections to the brood-nest, the easier for the bees to carry bits of black comb from brood-nest to section.

BUILDING UPWARD is considered a rarity by H. R. Richards, page 1120. I think you can nearly always get bees to build upward if you put over a strong colony a Langstroth hive-body without any frames in it. If the empty space be less deep, say 3 or 4 in., the bees will cluster at the top and build downward. Interesting to know just how much the space must be before the bees begin

building upward. It depends, of course, somewhat on strength of colony.

"JUNG-KLAUS," in *D. Imker*, endorses the Swiss leader, Kramer, when he says the man who introduces Carniolans does untold harm to himself and neighbors. For Swiss conditions he counts the brown Swiss bee the best in the world. [Apparently some of our friends across the water are meeting a problem similar to the one that confronts some of us in this country—whether or not it would be wise (to take a case in point) to introduce Caucasians in a locality where there were no bees but Italians.—Ed.]

YOUR SURMISE about the "pendulum act" of jarring bees off the combs, page 1108, Mr. Editor, is correct. I ought to have said that, when I let one end of the top-bar strike upon the ground, I still hold on to the other end. But, wait awhile and I'll try to send you pictures of it. [I will explain to our readers that I have sent Dr. Miller a special camera, with instructions to photograph this "pendulum act" of dislodging bees, as well as several other of his kinks or tricks of the trade. Dr. Miller will probably take quite a number of pictures, and we hope to give you ere long a peep into his yard, showing him and his assistants at work among the bees.—Ed.]

C. D. FARRAR is after the problem of getting outside frames filled with brood as well as other frames. Commendable, but rather will-o'-the-wispy in character. With 1½-inch spacing, there is ¼ inch between two brood-combs; and to have the outside frame as well protected as the others, there should be a blanket of more than ½ in. of bees between it and the side wall. When he tacks his strip of section on the side of the hive his blanket of bees will be only ⅜ in. thick; and if he makes the space larger he will have trouble with irregular building and bulging. Besides, the bees have a habit of filling the outside combs mostly with pollen, and they

don't need a thick blanket of bees to care for that. To a certain extent the outside comb is only a help to keep the other combs warm.

VERY INTERESTING is that array of figures, p. 1117, as to honey produced and consumed. After all it hardly proves that increase of bee-keepers has so very much to do with increasing the amount of honey used. Might there not be a good deal of honey consumed if there were no bee-keepers in the country? Is it not likely that, where most honey is consumed, most coffee is consumed? and surely the number of coffee-producers has nothing to do in the case. Some of the best outlets for honey, as in the large cities, are without bee-keepers. But Mr. Bennett is quite too modest in his estimate of sugar consumed. That 20 lbs. per capita is about 45 lbs. shy of the mark.

PRESIDENT ROOSEVELT has done many notable things for which he will be held in grateful remembrance, the latest, and not the least, being his order issued to Public Printer Stillings, "that hereafter all messages from the President, and all other documents emanating from the White House, shall be printed in accordance with the recommendation of the spelling-reform committee headed by Brander Matthews, professor of English at Columbia University." [The President is to be commended for the action he has taken; but I see by the papers that some lawyer has hunted up some old law by which he claims the order can not be carried into effect until such law is repealed.—ED.]

BRAINS of best quality, and not of small quantity, must have been used in getting up that last smoker. The bellows-valve will never get out of order, for there is no bellows-valve. The simple contrivance that locks the nuts, completely prevents the annoyance of having them work loose, threatening separation of barrel and bellows. The brace to prevent weak knees, and the wire handle allowing a hot cover to be handled with comfort, are good. The light bellows-spring is stiff enough to do its full work without needlessly tiring the hand with its extra stiffness. But the thing that excites my greatest admiration is the what-you-may-call-it that fastens the cover to the fire-box. It looks as if its adjustable springiness would warrant a perpetual fit of cover with any reasonable amount of care in keeping clean. In no-get-out-of-order qualities this smoker seems to have about reached the limit. [I would explain that we sent Dr. Miller a 1907 valveless Root smoker. These are not on the market yet, but we have been testing them in our own apiaries the entire season, and so far we find they are a success.—ED.]

DO BEES carry eggs? Rudolf Hora, says in *D. Imker*: Hive an after-swarm, cast in good season, upon foundation, which will be built out in four days. Then remove the queen, make sure no eggs are present, and leave the bees to their fate. Three days later many queen-cells will be found stocked with jelly, but containing no eggs. Now

place a frame of eggs and brood close to the queen-cells. Three days later the queen-cells will be found occupied. [I think there is no question now but that bees do transfer eggs from a worker-cell to a queen-cell. There have been not a few reports where absolutely queenless bees supplied one of their queen-cells with an egg, and therefrom developed a normal queen. We have had two instances of the same thing in our own yard. There could be no question that the two colonies were queenless, and had been for some time. Apparently in their desperation some one bee stole its way into another hive, and when once inside it could easily steal an egg and make off with it. A robber bee, for example, in a hive that was hopelessly queenless, very possibly would steal an egg for its colony before it would steal honey. There would be nothing to prevent its taking both. That bees may transfer eggs from one comb to another containing a queen-cell or perhaps two of them, can now scarcely be doubted. Any one who has raised a large number of queens has had proof enough of this.—ED.]

I TRIED outdoor feeding with cork chips. I filled a pail in the evening one-third full of syrup, equal parts sugar and water, and threw on a good lot of cork chips. Bees were slow about working upon it next morning; but by noon it was well covered. At 5 P.M. two bees were digging in the dry chips, and not a dead bee in the pail—certainly a success with me. I don't guarantee it for you. [I do not know, but I rather suspect, doctor, if you were to continue this method of feeding with the cork chips for a period of two or three weeks you would find your combs specked up with a lot of shiny black bees having more or less torn wings. We have been trying the perforated square can having perforations in the bottom, can elevated some 12 feet in the air; but we find that even this device, the best of any thing we have tried yet, does not prevent entirely the bees from struggling against each other, resulting in a premature wear-out; but I am not so sure that this wear-out is any worse than the wear-out of bees that go to a clover-field and die after a few weeks of hard labor. I should like to get reports from others who have tried the outdoor method in comparison with the in-hive plan. So far I am inclined to the opinion that the latter is more economical of bee-life and of syrup. But there is one thing in favor of the outdoor plan; and that is, it brings about a condition much like a natural honey-flow by which the bees in the apiary will permit of opening the hives and otherwise exposing sweets without robbing.—ED.]

ASTONISHING how far one can stray away from instructions when really trying to follow them, if one has a genius that way. In trying to follow your teaching as to having two queens in a nucleus at a time, Mr. Editor, I let the virgin out of the cage at the same time that I removed the laying queen. The virgins thus turned loose, as you may surmise, were killed. You straightened me

up on that, but now I find, on reading page 1109, that I've been off the track in another respect. You say that on the day No. 1 lays a frame of eggs the slide of the cage of No. 2 is slipped by (you don't say so, but of course you remove No. 1, don't you?), and then you emphasize the point that No. 2 is allowed sole possession until two days before laying. I didn't allow any *sole* business at all. When No. 1 was laying I removed her, and at the same time slipped the slide of No. 2, and also put in No. 3, caged, so that two queens were always in the nucleus. I never knew but that it worked all right. But perhaps your plan is better. What do you think? [Not so astonishing after all, doctor, that you did not follow out closely the instructions when it is understood that we varied our methods of practice from time to time; for we are constantly learning something new; and as often as we discovered an improvement in the method, we gave the variation. But in doing so perhaps I shall have to confess that I did not draw particular attention to the change in the method. Your understanding of our present processes is correct. Yes, on the day that No. 1 lays a frame of eggs she is removed, and at the same time the slide of cage No. 2 is slipped by. It follows, then, that No. 2 does not immediately have sole possession of the hive. Four or five hours, or even longer, may elapse before the bees eat out the candy and release her. This whole scheme of pre-introduction or dual introduction is an interesting one, for the reason that we find we can make quite a number of variations. I am not surprised that you succeeded in two or three of the cases described. But a method that works three times out of five can not ordinarily be called a success. Therefore we shall have to adopt the plan that will give at least 90 per cent of safe introduction. But that brings us to the point that what will succeed during the honey-flow may fail utterly immediately after the honey-flow has stopped and the bees are inclined to rob.—Ed.]

READING about automobiles at out-yards, page 1109, makes me sigh that I am not rich. One of the most wearing things about out-apiaries is the constant dread of accident from having a horse stung when taking a load to (and especially from) an out-apiary. To have a metal horse immune to stings is a big, big, *big* advantage. But then, keeping two horses costs me less than half what it would cost me to keep an automobile. [Can't have an automobile because you are not rich? Perhaps I did not make it clear; but one does not have to be "rich" in order to own one of these machines. We bought two second-hand ones that are giving good service to-day. By watching the market we found one machine, an electric, costing \$950 new. This we bought for about \$300. A \$1000 machine we bought for \$75; but after we had put in a set of new batteries and a volt-meter it had cost us about \$400. In looking over some of the prices on second-hand gasoline-machines I find very good ones offered from \$100 to \$300. The Gra-

ham Cycle Co., 601 West Madison St., Chicago, are offering quite an array of fine bargains. You see, it is this way: Some "rich fellow" buys a machine and gets the auto fever. It begins to rage. Soon he wants something faster and higher-priced. What does *he* care for the depreciation of 50 or 75 per cent on the second-hand? He has plenty of money, and is going to have what he wants. He goes to a dealer and makes a trade, sacrificing in the deal his second-hand machine. This the dealer offers at slightly above the price he allows on it for a new machine. A good many of these second-hand machines have not had 300 miles of run; but because they are second-hand they offered at a very low price. But the ordinary man who does not care about the latest style and high speed can get one of these machines at a fair bargain.

Perhaps you would say that even \$300 is too much for you to pay. Very possibly, at your age; but if you figure up the cost of a horse, a large barn, hay-storage room, his feed for half a year when you can not use him; his constant care every day in the year; his own depreciation; the depreciation of buggy and harness; his mileage limit; the danger of stings, etc., you will find that the cost per mile will far exceed the cost per mile of a \$300 automobile, if in good repair. But if one likes to run an auto recklessly, take chances, and has not very much idea of machinery, he had better stick to the old horse.

Do not buy a second-hand automobile at any garage or other place without taking some friend along who knows something about autos and their condition. Some machines offered cheap would be dear at one-fourth the price asked. So, look out.—Ed.]



ATTENTION is drawn to the leading article in this issue on winter food, where it is shown that honey does not give as good results as sugar syrup.

WHEN TO SELL THE CROP.

Do not make the mistake of keeping your honey too long. Comb honey especially should be sold before the holidays; extracted, especially that of a cheaper grade, may be held with less danger after the selling season.

The great trouble with many of our bee-keeping friends is that they do not get their honey on the market until they "get around to it," and this is often long after the holidays, when they have nothing else to do. When several thousand bee-keepers do this, there is pretty apt to be a slump in prices.

The best grades of table honey should by all means be sold early, or at least not later than Christmas or New Year's.

IN an early issue I expect to show how to make a concrete foundation or concrete walls for a bee-cellar, that will not cost half as much as a brick wall, and you can do the work yourself.

THERE will be a sort of foul-brood convention on the day before the opening of the National (Nov. 7), at San Antonio, Texas. For particulars, see page 1199. By the way, that reminds me that the editor of the *American Bee Journal* is getting up a carload of bee-keepers to go to San Antonio for the big National convention on Nov. 8, 9, 10. For particulars address Geo. W. York, 334 Dearborn St., Chicago, Ill.

GRADE AND SCRAPE YOUR SECTIONS.

Do not make the mistake of sending your section honey to market without grading or scraping. Take a little more time, as you will save a good many dollars by putting "fancy" in one lot, "No. 1" in another, and so on.

I have before stated that it almost makes me cry to see how carelessly some bee-keepers put up their honey. They send it to market in miserable cobbled-up cases without scraping the sections, and very poorly graded if at all. The dealer will be sure to knock off quite a little from the price; then he will proceed to grade and scrape it himself. Why should not the bee-keeper himself get the benefit of this?

HONEY PUFFS.

I HAVE just been eating some honey puffs for breakfast. They were made by the National Biscuit Co., and have only recently been put on the market. They are about the finest cake, in my opinion, that was ever sold; and I understand that the general public is taking hold of them very readily. It behooves every bee-keeper to go to his local grocers and inquire for "honey puffs." Keep on inquiring until they carry a stock. If our 30,000 subscribers will ask for honey puffs at every grocery it may be the means of introducing these new goods to 100,000 grocers. That will mean, if it means any thing, a larger output for a medium grade of honey. It might be well for those who travel to inquire for these puffs at hotels and restaurants.

ANOTHER METHOD OF SUBDUING BEES; GOING BACK TO ORIGINAL PRINCIPLES.

HANDLING bees inside of a cage at fairs has brought out some methods of subduing that perhaps are not utilized as much as they ought to be in ordinary bee-yard practice. Too many bee-keepers rely almost entirely on the smoker. Smoke is all right in its place; but if I wished to unite two belligerent colonies I would smoke them slightly, then

I would shake a frame of the one colony and a frame of the other into a deep dish-pan or box, and after I had done this with all the frames I would shake the bees up in the pan or box until I had them thoroughly demoralized or frightened. Then I would dump them in front of the hive, their permanent home, and allow them to crawl in. When once in I would carry them down cellar and keep them there 24 hours. When treated thus they will be pretty apt to stay in any place, and, so far as fighting is concerned, the general shake-up will take the belligerent spirit all out of them.

Of late years we have not practiced drumming enough on the hives to induce quiet. Our forefathers used to do a great deal more of this than we of to-day. There are some operations where the drumming business, especially in the matter of uniting, I fancy, could be practiced with very good results. I believe this pan-shaking will so demoralize them that one can do with them almost the same as he would with a natural swarm. They will not only be tractable, but I think if they be shaken up enough they will stay where they are put.

GOLDENROD (SEE FRONT COVER PAGE).

NOW is the season for goldenrod for most of the Northern States. It is one of the most important sources of honey during the fall months in many localities in the United States—important, not for any great amount of honey, for there is never enough so that it gets into the market, but important because it comes at a time of the year when it helps to keep the bees busy, and at the same time serves to make up for the loss in stores during the late summer.

There are something like 80 distinct species of goldenrod in the United States. Of these, some forty odd are found in the northern part of the country. All of the species have yellow flowers, save one, a slender wand-like plant (*S. bicolor*) that has whitish or silver-like flower-heads—a departure from the general family habit. This species seems to be comparatively rare, and even when discovered is not readily recognized as belonging to the genus *Solidago*, or goldenrod.

The number of species is so very large that botanists have made no attempt to classify all of them. Indeed, some of the species seem to merge so gradually from one into the other that it is difficult to distinguish them readily. Even botanists are confused.

But there are, nevertheless, pronounced differences in the appearance of some of them. There is one species that grows in this locality, *Solidago lanceolata*, that, while having the same general leaf-formation, has a different flower from that shown on the front cover. They are grouped in flat top clusters, unlike other members of the family, while the other species like that shown on the front cover (*Solidago Canadensis*), has flower-clusters that terminate in a point. This species is more common in our locality.

At the present time, Sept. 12, the bees are working on them more or less. That they are gathering any appreciable amount of honey is doubtful.

At one time there was considerable talk about making goldenrod the national flower, for the reason that the general family was found to be more widely scattered over the country than perhaps almost any other flower. Whether it was finally adopted or not I do not know.

BEE-DEMONSTRATION WORK AT THE DETROIT STATE FAIR; INCIDENTALLY, HOW TO SUBDUCE BEES SO THEY CAN BE HANDLED LIKE PEANUTS IN A PECK MEASURE; HOW TO ADVERTISE AND SELL YOUR OWN HONEY LOCALLY.

At the request of M. H. Hunt & Son, of Bell Branch, near Detroit, who were to have an exhibit of bee supplies and honey at the State fair, I agreed to do some demonstration work in a wire-cloth cage at that fair. Accordingly, when the time arrived I put in an appearance on Sept. 2d and 3d and was soon assigned my task.

I found that, as we had learned everywhere where live bees are handled by the handfuls, a crowd will soon gather. Unfortunately, Mr. Hunt's exhibit was inside of a building, where only a few people could get a view; but nevertheless some thousands saw how bees could be handled, and had it pounded into their heads at the same time that there is no such thing on the market as manufactured comb honey.

In this demonstration work at Detroit I gathered a few more "pointers" literally as well as metaphorically speaking. While it is true I did get some four or five stings during the day I was "on exhibition," the pointers to which I referred related merely to a method of subduing *any* bees so they can be handled like peanuts or popcorn in a popper.

The secret of handling bees in a cage is to demoralize or frighten them. One can do stunts in handling bees in an enclosure that he could not do out in the open; and I therefore believe that the crossiest colony imaginable could be handled in a cage after it had been "subdued."

Now, you ask, "How subdue?" Of course, I take a smoker inside of the cage; but after opening the hive it is not again used. I have a big dish-pan, and shake three or four frames of bees into the pan, and replace the combs. The very process of shaking, while it first arouses, very soon subdues the bees. To add to their demoralization, the pan is picked up and shaken like a corn-popper, the bees in the mean time rolling round in one great shapeless mass. The crowd, as it sees this large ball of bees dumped around promiscuously, trying to free themselves, are at once interested. The bees are now rolled into one hand or as many as it will hold. The next operation is to dump this handful on top of the head. The bees in the pan are put through the corn-popper act again. Then

another handful, picked up as before, is dumped on the head. In their state of perfect demoralization not one of the bees will sting unless pinched. They will fly one by one from the top of the head, bump against the wire cloth, and finally work over to the clustering-point. This is precisely what we want. As soon as a small cluster has formed, one hand is reached up among the bees, and very gently a handful is "scooped" off. This is dumped on the head. In the mean time a little one or two minute lecture on bees and on the genuineness of comb honey goes on. As the crowd shifts about every one or two minutes, the talk is repeated, varied somewhat by reference to bee-stings for rheumatism.

The onlookers will indulge in all kinds of comments, to the effect that "the bees have been hoodooed," or "that fellow has pulled out all their stings," or "he has put something on his hands so that they can not sting." Then follows a denial of some of the allegations. The crowd grows apace. More people crowd up, when one will say, "Oh! I know. Those bees hain't got any stings." This sally is met by the demonstrator with an invitation to the chap to step inside of the cage, when he will be "shown" that every one of the bees has a sting. He doesn't accept the "invitation." He is offered a dollar if he will come inside. "No, thanks," he responds. Then the crowd "has the laugh."

Many people will be interested in the demonstration; and as the crowd moves along an attendant outside shows the honey and offers free samples. Wooden spoons (little pieces of section sticks) are dipped into the beautiful liquid honey, when the crowd is invited to "sample." Sometimes this effects a sale, and sometimes it does not.

While the bees are being dumped on the head, the expression on the faces of some of the women is comical in the extreme. If one can read the countenance he sees a face that does not believe its own eyes. Then she goes off and tells her friends, and that is precisely what we want. Get a woman to telling about some "perfectly lovely" or "awful" thing at the fair, and she will do some advertising.

The fair season is not yet over, and I have given above briefly the method of procedure, showing what to do, and how to subdue the bees, or, as the fellow said, "hoodoo" them.

This is *just* the season of the year to advertise honey, and the small county fairs are just the place to do it. When the fairs are over, get permission to use a store-window of the leading grocer some Saturday afternoon, and if you don't find that this bee-demonstration work will be the means of your selling all your own honey, locally, unless you produce so many tons that you can more than supply the local market, I shall be surprised. But the average bee-keeper, with the average number of colonies, by a little advertising of this kind, can sell all his own honey at nearly double the price he can get in the city.



LENGTH OF BEE-FLIGHT—CONDITIONED UPON WHAT? NOT LONG TONGUES, BUT STRENGTH AND ENDURANCE.

It has been claimed by some most excellent authorities that bees will not fly, as a rule, more than one and a half to two miles to gather nectar from flowers, while Mr. Doolittle claims they will fly from three to six miles from choice. Here is certainly a great difference of opinion, honestly given. How can it be accounted for? It seems probable that, in part, it can be accounted for in the topography of the country, the season of year, and the scarcity or abundance of nectar near at hand or at a distance. It seems reasonable to suppose that it is no more exhausting to a bee to fly four miles and gather a load of honey from flowers yielding an abundance than to glean a sackful from flowers two miles from home where, perhaps, twenty or fifty times as many flowers have to be visited to secure a load. Yet Mr. Dadant claims that his bees failed to gather from flowers yielding abundantly on an island one end of which was within one and a half miles from his apiary.

I think no one would doubt that some bees under favorable conditions fly long distances. Some thirty years ago or more I met Mr. Harbison, of California. He said there were no bees in San Diego County till he moved his down there; and, very soon after, he found bees from ten to fifteen miles from his ranch. At five miles he said he found bees very abundant, while at ten miles there were a few, while at the greatest distance only now and then one could be found. In other words, while he found them fifteen miles in extremely limited numbers, they continued to increase as he came nearer to his yard.

These facts or illustrations have not been given to determine how far bees will fly to gather their stores, but, rather, to show that there is a great difference in their strength or ambition or endurance. If Mr. Doolittle's bees will readily fly four or five miles to gather nectar, why will not Mr. Dadant's fly just as far? And this brings me to the point I wished to make, viz., that strength and endurance are of the greatest importance in any strain or colony, or in individual bees. Doubtless we have all noticed the great difference in horses. Take two of equal age and weight, give each the same feed and care, and one will endure one and a half times or twice the hard work of the other, without any inconvenience. Of course, so great a difference would be greater than the average. We have also seen the great difference in the capacity as well as endurance

of different specimens of the genus *homo*. And have we not all seen two colonies of bees, so far as we could judge, of equal strength, equally prolific queen, and ample stores, one building up early in the season, while the other lagged far behind?

I remember very well some colonies that have attracted my attention. I found them weak in the spring, but thought by careful nursing they might become useful, and by the close of the honey season have succeeded in getting them into fair condition, but not soon enough to gather sufficient stores for winter use. The next season found them in the same pitiable condition as in the previous year. The more a man has of such bees the poorer he is; for they are far more profitable dead than alive, and can be made useful only by destroying their queens at the first convenient opportunity and giving them one whose offspring are more enterprising or capable of greater endurance.

I remember one colony in one of my yards that, while one queen was at the head of affairs, would insist on and succeed in getting more honey than any other colony, and this for three years in succession. It was not that they were stronger in numbers, but of greater vigor than other colonies. I remember one year they continued to work after the rest had come to a standstill in gathering honey from some unknown source, probably outside the range of flight of the other bees.

In no other way is the vigor and strength of constitution of different colonies better shown than in seasons or periods of scarcity. Some colonies will build up, storing some honey, and swarming, perhaps, while the weaker sisters wear out so fast as hardly to hold their own, and some will run down and die, or become worthless, in spite of our efforts in their behalf.

Some years ago I moved a yard of bees two-thirds of a mile to the east of its former location, only to find later that I had moved it away from the best part of my range, and the yield of honey was a good deal reduced. What was I to do? Move my bees back a mile to the west, and so much further from my present home, but nearer the best honey? I finally decided to let them remain where they were, but breed for stronger bees, such as would be able to reach the best of their former range; and I am led to believe from the increased yield in this yard that I have, to quite a degree, accomplished my purpose.

Another time in which the greater or less endurance shows itself is when a new swarm is placed in a new hive with no brood hatching for three weeks during the time the flowers are yielding honey freely; for greater endurance means longevity, and length of days in bees is of quite as much importance as length of tongues, and I do not wish to say anything derogatory to this most excellent quality.

But, say! Was it not amusing to see when, a few years ago, the subject of long tongues was discussed, how many queen-breeders were breeding queens that produced just such tongues? I have sometimes fancied that

Jonah's gourd would have blushed at its own slow growth compared with the tongues of our American-Italian bees for a year or two, could it have known about it; but this is only a fancy.

The longer I live and handle bees, the more I am convinced that constitution, strength, and endurance are of the utmost importance in bees, as in other domestic creatures. Let us have long tongues if we may, and all other good qualities; but all these will be of little value without the strength to use them. If we breed for constitution we may, if we breed wisely, secure most desirable results. If I were to say what would doubtless be most popular with a large number, I presume the majority of progressive bee-keepers, I should say that the darker shades of Italian bees are to be preferred.

Now, I do not believe that the quality of a bee depends on the color of its body alone; nevertheless, I believe that the darker shades of Italians in this country are, as a rule, stronger and more enduring than their lighter-colored sisters—not that the darker shade makes them stronger, or that the lighter color makes the others weaker, but that the darker ones have been bred for honey-gathering qualities, without much regard to color, while the lighter ones have been bred for color as a rule, without much regard for strength and endurance—some exceptions, doubtless.

That a strain of bees can be produced that will be of a light beautiful color, and at the same time most enduring, I have not the slightest doubt; indeed, the queen that I have thought has made the greatest improvement in my own bees has been one whose workers were, a large portion of them, five-banded golden bees; in fact, the lightest and handsomest I have ever handled. I like a handsome bee. It rests me to open a hive of beautiful bees. It ministers to our higher nature; but if we can not have both, let us make sure of strong, vigorous, enduring bees that will fill our supers, for this also is beautiful.

[In my travels among bee-keepers I find that the topography of the country has a great deal to do with the length of bee-flight. One fact I learn is that, so long as bees can gather stores within a mile and a half of the yard, they will not go beyond that range. I learned, also, that bees will fly further over valleys or water when there are no obstructing trees or shrubbery than they will over practically level land heavily wooded.

That some strains of bees in the same country will go further than others is a fact that we can not deny. This being true, it behooves us to pay considerable attention to the kind of stock we breed from. If one colony gathers more honey than another, it may be because those bees will fly further for the extra amount of honey than the average run in the yard; but when one colony or several of them by far outstrip others in the yard, and the only source is red clover, and that within a mile or two of the yard, one is

forced to believe there is something in the length of tongues. But I agree with you that altogether too much emphasis was put on this matter of long tongues. While we were the first ones to draw attention to a strain of bees having longer tongues than others, yet we saw that the matter was so liable to be abused that we stopped saying any more about it, notwithstanding that we still believe in the development of long tongues.—ED.]



COMB-BUILDING NEXT TO SEPARATORS;
UNITING IN THE BROOD FORM.

"What has been the honey-flow from buckwheat, Mr. Doolittle?"

"I can not tell, Mr. Smith, for certain, at this date."

"What! Have you not got your buckwheat honey off yet?"

"No. The farmers were very kind to the bee-keepers about here this year, so sowed their fields with buckwheat during a period of nearly a month, and in this way we had buckwheat beginning to yield nectar soon after the basswood bloom was over, and continuing to do so till the present time, September 1, just in accord as the weather was favorable to the secretion of nectar. In fact, we have fields of buckwheat between here and the out-apiary, some of which are brown and ready for the harvest, and from this to those which are as white as snow, with their blossoms in prime shape for the bees to work on; and farmers report that all are filled and filling with grain, so that a big yield will be the result."

"Well, that is fine, surely. But how about the favorable weather?"

"That has been 'off and on,' so that the section honey from buckwheat will mostly have a washboard appearance."

"Why such an appearance?"

"I supposed that all bee-keepers were aware that when honey comes in profusely the bees lengthen out the cells to their full extent, not sealing them till they are as long as the sides of the hive, the next comb, or the separators would allow, when giving a bee-space between; and when honey came in very slowly, or not at all, then the cells would be sealed at some distance from the separators or other combs. You were aware of this, were you not?"

"Yes. But what has that to do with your washboard?"

"Just this: When a good yield is on, the cells are lengthened out as near the separator as possible, when the bees are at work in

the sections, and when a slow flow of nectar comes then they are sealed 'shy' of the separator. Then comes another day or two of good yield when the cells are drawn out to their fullest length; then another few days of slow yield, and so on, thus giving the section a series of full-length cells capped over, and a series of cells capped over 'shy' of the separators, so that the 'face sides' of each section resemble, in a limited way, a washboard. Do you 'catch on'?"

"Yes, I do now; but I had never thought of the matter in that light."

"When the fence separators were first brought out, we had nearly the same thing, as the spaces between the slats were left too wide, which caused the bees to lengthen the comb out where these open spaces were, while they could not, where the slats prevented, thus giving the sections which were produced with these fences the same washboardly appearance. Don't you remember about this, when this matter was under discussion? The washboard part was no coming of mine."

"Yes, I think I do remember something about it now. I had forgotten. But I came over to have a little talk with you about uniting bees. I think you told us some time ago that you united bees in the brood form. I think that you gave the matter in GLEANINGS, but I can not tell just where. Now will you please tell me how many Langstroth frames of brood would form a colony that would be strong enough for wintering, where left on the summer stand, with the brood put together the fore part or September, and the bees fed up as soon as all the brood has emerged from their cells?"

"Uniting brood, or bees in the brood form, is better done during August, though it can be done as late as September 10th to 15th if brood enough is found to put together at the latter date."

"How many frames would you use early in August?"

"Three frames which are quite well filled with brood will do very well for this locality at that time, providing the rest of the hive is filled with empty combs or frames filled with comb foundation."

"How about a queen?"

"Of course, these combs of bees and brood are to have a queen with them, for the bees which are carried with them will not stay unless there is a queen with them, or some other precaution is taken. And, having a queen, she will, of course, go right on laying, so that by October you will have quite a strong colony where only three combs of bees and brood are used."

"How many combs should be used when the uniting is done now, Sept. 1st?"

"The last of August or the first of September you should have at least four or five frames from half to two-thirds full of brood, and in each case the queen should go on one of the frames, and the adhering bees on all of them."

"But will not the bees fight and kill each

other where brood and bees are taken from different hives?"

"By alternating the frames from different hives no quarreling will result, and the mixing of the bees causes them to mark better their location anew; and this to a greater extent where the colony is formed just at night, as should always be the case, when but few bees will return on the next day, or on their first flight after the colony is formed."

"Well, how many frames will be needed, should I wait as late as the middle of September?"

"If this uniting is to be done as late as the middle of September, then I should want at least six frames having brood in them. I have made many colonies the first week in September by taking five or six frames of brood, taking the same from as many nuclei which I had used during the summer for queen-rearing, and taking the queen from one of the nuclei on the frame of bees from her little colony, setting the whole six in an empty hive placed where I wished a colony to stand, when I would give four full frames of honey, putting said honey all on one side of the hive, so that, during winter, the bees would not eat their way to one side of the hive and starve with two frames of honey on the other side of the hive, and had the colonies thus formed make the very best for honey-gathering the next year."

"In thus uniting brood, is it necessary to form the colony on a separate stand?"

"No, not unless you wish to keep the nuclei, all of them, rearing queens as late as possible. Where you are willing to retrench in queen-rearing, then take five or six combs of brood from other nuclei, and set them in the hive containing the nucleus and queen you may have selected, alternating the frames as you would were the same put on a new stand."

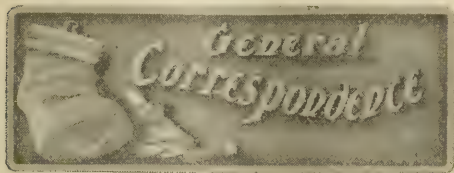
"By beginning in August you can get all the real good there is in all your queen-rearing colonies together by the middle of September, can you not?"

"Yes, and keep up rearing queens as late as can be done when no brood is taken, and the uniting done in the mature-bee form. Of course, there will be a very few bees that would be young enough for wintering in each nucleus, where this plan of uniting in the brood form is used, but only a very few. Nearly all that are of any value are gotten together in the united colonies; and the few old bees which remain after the last queens are sent away suffer less by being shaken off the combs on some freezing morning or night than they would should you try to winter them, and they die, one by one, as death by old age came on."

"I thank you for thus explaining. I think I will try the plan, as I have several weak colonies which I must get together for winter."

"Allow me to suggest that, if you have never done any such uniting, it is always well to go slow till you are perfectly familiar with the workings of the matter, after which

you can venture out more freely, with assurance of success."



FEEDING SUGAR SYRUP.

Some Interesting Experiments to Show the Small Increase in Weight as Compared with the Amount of Syrup Given; Honey vs. Sugar Syrup for a Winter Food; Cellar Wintering.

BY L. C. CLARK.

Last September I had ten colonies of bees entirely destitute of stores for winter. They were in eight-frame Dovetailed hives, and were fair average colonies of bees. October 1st each was given 20 lbs. of half-and-half sugar syrup placed in bread-pans in upper section-cases with green weeds for floats. The weather being warm, two nights were sufficient to take the 20 lbs. down and store it in combs. Oct. 15th, or two weeks after, they were all weighed, and weights marked on the back of the hive. It was found that they averaged only 40 lbs.—bees, hives, and stores. The eight-frame Dovetailed hive, with average empty combs, weighs 24 lbs.; estimating the bees and brood at 6 lbs. gives us 30 lbs. at commencement of feeding, and revealed the fact that, in storing 20 lbs. of syrup, together with two weeks' evaporating and feed, they had reduced the feed a half, or had only 10 lbs. of the 20 stored in the combs. This was discouraging to a beginner in feeding; but now having 65 cents' worth of feed invested in each colony it was determined to see them through, and so on Oct. 15th 10 lbs. more of $\frac{2}{3}$ sugar and $\frac{1}{3}$ water was given each colony, making the cost of feed \$1.00 per colony. The weather having turned cool, the last 10 lbs. was given by placing cases with feed below the hive, as we didn't wish to disturb the sealed covers that late. They were left upon their summer stands until Jan. 7, the weather being quite moderate, no severe cold, and comparatively few days warm enough for very many flights—ideal weather for outside wintering. They were now (Jan. 7) weighed again and placed in a dark vegetable-cellar with bottom-boards removed, covers sealed, upper hives over joint between two lower ones, and an old carpet hung down to prevent any disturbance from light of lamp. The weighing on Jan. 1 showed that they had consumed, from Oct. 15 to Jan. 1, 11 weeks, an average of 10 lbs. each, and but few of the figures of weights Oct. 15 on the back of the hive be-

fore giving the last 10 lbs. were changed, and none varied over 1 lb. They were very quiet in the cellar, and scarcely any signs of bees could be heard by putting the ear to the carpet over them. March 7 they were carefully placed on their summer stands, and weighed before they had any flight. The scales showed a loss in weight during the two months in the cellar of only $2\frac{1}{2}$ lbs. average per colony; most of them lost 2 and 3 lbs., but two lost only one pound, and one 4 lbs. They appeared to be in good condition, and flew without spotting their hives any; but several colonies with *all* honey for stores, and placed in the cellar at the same time, lost from 4 to 7 lbs., and appeared to be suffering for a flight, spotting their hives somewhat. One colony was missed at the first feeding, and was found, Oct. 15, to have only 1 to 2 lbs. of honey. It was decided to let them die, supposedly in a week or two; but, to our surprise, they held out for ten weeks, and died the last week in December. They were a fair-sized colony of *bees*; and did they economize because they did not have feed enough? The experience with this feeding and wintering seems to indicate that sugar syrup is a better winter feed than honey, and that it might be a good plan to give each colony about 10 lbs. of syrup late in October, even if they have stores of honey sufficient for winter. We know that, at that time, they have empty combs to hold it, and that it will be consumed *first* or during the severe part of the winter outdoors; or if, in cellar, would probably last till set out.

Hiawatha, Kan.

[It is astonishing how the feed will disappear with a colony short of stores fed in September. While, of course, a large percentage passes off in evaporation, some of it, undoubtedly, is used in brood-rearing. Whatever is used for that purpose must necessarily be a distinct gain to the colony. We very often find it necessary to give another feed along toward the last of October, in our locality; then the bees will have enough to carry them through up to May following, even when wintered outdoors.]

Your figures for the indoor consumption of stores are very interesting, and show, among other things, that you must have pretty nearly ideal conditions in your cellar.

It is not at all surprising that you found sugar syrup much better for wintering than honey. That experience has been duplicated time and time again. While we usually say it does not pay to extract honey and then feed sugar, yet with *some* honey, at least, such a procedure would undoubtedly be profitable.—Ed.]

PRESERVING FRUITS IN HONEY.

The Commercial Possibilities; a Collection of Data Bearing on the Subject.

BY FRANK M'GLADE.

Dear Sir:—Will you kindly advise me if you know anything about preserving fruits (currants, strawberries, etc.) in honey? These goods are put on the

market by French manufacturers. The most common is called Bar-le-Duc. I notice in the A B C many recipes for using honey in cooking, but none for preserves. A reply in GLEANINGS would be much appreciated.

Benson, Neb.

H. C. KING.

When the above letter was sent to me I wrote to the Sprague-Warner Company, Chicago, wholesale grocers, and received the following reply:

Dear Sir:—Your letter of the 17th, with inclosure, was duly received and referred to the writer; but owing to his absence from the city it was held in abeyance, awaiting his return. Referring to the use of honey in the preparation of preserves, it is not generally used in this country, we presume, partially owing to the higher price it brings on the market as compared with sugar. We presume that, as a preserving medium, it probably would add somewhat to the flavor of the goods in the composition of which it might be used, and possibly is so used by the housewife in her home cooking, but probably to a limited extent. We think this is largely due to the fact that honey is not generally obtainable for use in homes, except at a considerably higher price than other sweetening agents.

Bar-le-Duc is prepared in France and shipped to this country, being nothing more nor less than red or white currants preserved in honey. The seeds, however, are first extracted from the currants; consequently, as you probably know, it makes that item too high priced to be of general use, it being found only in the homes of the more wealthy class and more select clubs provided with restaurant facilities.

In our own business we prepare a white cherry, pitted, preserved in honey, for which there is a limited sale.

There is no doubt that, if the proper kind of missionary work were done, the use of honey as a preserving medium could be largely increased.

SPRAGUE-WARNER CO.,

by J. C. Puetz, Manager.

I also wrote to the Austin Nichols Co., wholesale grocers, New York, who replied as follows:

Dear Sir:—In answer to yours of the 17th we would refer you to the firm of G. B. Raffetto, 412 West Thirtieth St., as packers of Bar-le-Duc jelly. These people are importers and packers of various fruits, and can give you all the information you desire.

AUSTIN NICHOLS CO.,

per H. B. Coulter.

Upon receipt of the above I wrote to Mr. Raffetto, and received the following letter:

Dear Sir:—With reference to your favor of the 21st, I beg to state that Bar-le-Duc is not preserved with honey but with sugar only. I have been in France, and have visited some preserve-factories, but I have never heard of nor seen any honey used in manufacturing Bar-le-Duc. None of my other fruits are preserved with honey.

G. R. RAFFETTO.

Upon inquiry I found Bar-le-Duc at all the first-class groceries. It comes in a glass tumbler holding about four ounces, and retails at 25 cts., white and red, imported and domestic. One way of serving it is to pour it over Neuchatel cheese, for which a charge of 75 cts. is made. It certainly is fine eating, but its cost limits it to the class Mr. Puetz mentions.

With regard to the white cherry mentioned by Mr. Puetz, I had the good fortune to meet their "man" in Columbus, and sampled the goods, which were in a good state of preservation and of an elegant flavor. They were put up in plain clear glass jars, in two sizes—in pint and quart, and retail for 35 and 65 cts. respectively. I was told they were preserved by a firm in California, probably by "Bishop."

Our own experience here in our home has been very satisfactory in the use of honey in

canning and making preserves. Of course, we do nothing in a commercial way, but every year Mrs. McGlade puts up whatever fruits she desires, in honey—strawberries, currants, peaches, canned, preserved, and jellies. Strawberries preserved in honey are about as fine eating as I ever expect to get in this life. As to the keeping qualities we have them of various ages—two and three years old, and none spoil. The fruit is handled the same as when sugar is used. We have put the honey over the fruit and let it stand all night before cooking; again after the fruit is cooked the honey has been put in. Either way proved entirely satisfactory. We use about the same amount of honey as of sugar. If you can make preserves, jellies, and jams with sugar you can with honey. There certainly is an excellent field here for an enterprise in a commercial way which can not help yielding large returns. The people are willing to buy that of which they have the assurance of purity.

Hebron, O.

[About a year ago Mr. Frank McGlade called upon us and left in our office a couple of jars of peaches canned in honey by his wife. These got shoved over to one side, and were not discovered till recently; but I took them over home and tested the peaches. I am glad to say they were fine, having a distinct flavor of honey. As we are just now right in the midst of the canning season, I would suggest that our bee-keeping women test honey for this purpose.—ED.]

FACTS TO SUPPORT THEORIES.

Do Bees Hear?

BY D. C. LEACH.

I see the question, "Do bees hear?" is often referred to in GLEANINGS. I do not see how any person, familiar with the habits of bees, can doubt that they not only hear but that they have a keen sense of hearing. Here is an incident that seems to me to have a direct bearing on the question.

Some years ago, late in the spring, I found a colony of bees dead, and moved the hive to the storeroom. A few days later, when taking the frames from the hive I found a live queen. It occurred to me then that I had a colony which was queenless, in which a few bees were still alive. I took the queen to the queenless colony and removed the cover, and found less than half a dozen bees in sight. Two or three were standing together, and by them I placed the queen. Instantly they saluted her and raised their wings in a joyful sound. Immediately, from all parts of the hive, came the few scattered bees, every one on the run, and wings in rapid motion. In less time than it takes to write a dozen words, every bee in the hive stood near the queen, evidently in a perfectly blissful state. In no other way than by sound could they have been notified so quickly that their mother was found. Sure-

ly they not only *heard* but *understood* the language of those near the queen.

WOULD CANDY DO FOR STIMULATIVE FEEDING?

Here is another incident which revealed to me a fact of which I was before ignorant. Perhaps it may not be new to others more familiar with winter feeding of bees. The last of January I gave a few pounds of candy, made from granulated sugar, to a colony short of stores. A month later I opened the hive and found the candy nearly all gone. Lifting out a few frames I found considerable uncapped honey which was not there a month before. It had evidently been made from the solid candy. I had supposed they ate the candy without first changing it to honey and placing it in the combs. As they do thus change it, how would it answer to give them candy at the proper season to stimulate breeding? What say you, Mr. Editor?

HOW SWARMS LOCATE.

Another matter frequently referred to in bee literature relates to the time bees send out scouts to select a new home. Possibly this is sometimes deferred till after the swarm issues; but my observation convinces me that it is usually done some days before. I will briefly relate one or two instances when this was certainly done. One June day I discovered bees apparently briskly at work as I passed a large oak-tree. There was, some thirty feet up the tree, a knot larger than a half-bushel measure, which the bees seem to have made their home, and where they were very busy. I passed the tree daily, and for nearly a week the bees were active. Then all at once they were gone, and I saw them no more. A few weeks later a strong wind blew the knot off, and I had a chance to examine it. I found the hollow as smooth and clean as if scrubbed with a brush. Evidently the bees had cleaned it for occupancy; but when they swarmed they were doubtless hived by their owner, and were so well pleased with their new quarters that they abandoned the idea of removal.

In another case I found a bee-tree, as I supposed, and in a day or two I went to cut the tree and hive the bees. Only a few stray bees were in the tree. The hollow of the tree, as in the case of the one first mentioned, had been nicely prepared for house-keeping. Had I waited a few days I should probably have secured my bees unless they were domestics, and captured swarming-day by their owner.

The idea frequently advanced, that bees send out scouts after the swarm has issued; that these scouts find a home in an hour or two, and, returning at once, lead the swarm to the hastily selected home, seems to me very improbable and unreasonable. I am sure that observed facts point to a different conclusion.

Springfield, Mo.

[Whether the bees *heard* in the case you cite is not entirely proven. The odor of a queen will attract the attention of bees some

distance away, and almost instantly. Those that are queenless, and fairly crying for a queen, would almost instantly detect the smell of the thing for which they have been mourning.

Understand, I do not claim in this case that the bees did not hear her, but the signs of rejoicing might have come about through scent.

Yes, candy can be used for stimulative feeding; and when robbers are inclined to meddle, feed in the shape of candy is much better than syrup. When the bees can go to the field they can get water, and with the candy mix their own syrup. What you discovered in the combs was probably their own syrup which they had inverted.

There have been a number of reports like those you cite, of how bees a week or so ahead would send out scouts to select a new home in anticipation of accommodating the swarm. I do not remember that it has been claimed that scouts have been sent out within an hour or two of the swarm. The reports have generally shown that this scouting may be going on for a number of days; so that your observation is quite in line with that of others.—Ed.]

DISTINGUISHING BEES.

Can the Black Races be Distinguished from each other? Carniolans Adapted to Certain Conditions and Localities.

BY W. A. H. GILSTRAP.

Nothing in late issues of GLEANINGS has surprised me more than the article beginning on page 505, concerning the identity of bees of different varieties. The question of purity was raised concerning Italian bees many years ago, and A. I. Root had a cut made showing the three yellow bands of the bee, which should show when the bee was filled with honey and placed *on a window*. Langstroth's work, as revised by the Dadants, and perhaps other authorities, accept this Root test of Italian purity. It has been my custom for years to decide on the purity of bees of different races by their looks and actions on brood-combs.

Mr. Davis' scheme looks entertaining enough as a riddle; but to get any value from guessing on the identity of bees *in a cage*, dead or alive—well, I'll give it up. To place them on a window would certainly be a more reliable test.

The Dadants say in Langstroth's work that they did not raise Carniolans, because of the difficulty of detecting their cross with blacks from the pure stock. The only Carniolans I ever saw (pure stock) were from the Lockhart yards, and they are quite different from blacks when they have the liberty of the hive. Since I commenced breeding them many visitors have noted the striking difference in looks and actions.

Either the editor or myself am at sea about the requirements that the Department imposes. I think that the authorities want on-

ly pure stock of any race sold. How could that be done with Caucasians if all queens of that race are clipped and their drones confined by perforated metal? No, the object sought is to stock the locality with Caucasian drones, so only pure stock would be sold.

As to the great superiority of Italians, there has always been a question. Niver, Benton, Lockhart, and others have stoutly maintained that Carniolans are better. It is largely a question of locality and methods employed, perhaps.

In Central California we usually have light dashes of honey and unsettled weather so blended that bees breed up well and swarm freely. Late in May a honey-dearth sets in which lasts till the middle of June or possibly in July, when our honey season commences, and it ends in September or October. Mr. Alexander would probably feed through the dearth, and it might be the proper plan. With "millions of honey" in the hive, as Mr. Doolittle recommends, Italians will so weaken that they are in poor condition for the harvest when we get it. After Rambler had kept bees in New York and Southern, Northern, and Central California, he said Central California conditions were the most difficult that he had experienced. Both Holy Land and Carniolans have the reputation of keeping brood-rearing up during a dearth, which should relieve the difficulty largely; but the Holy Land bees which I bought from various breeders in the South were all too cross to be considered. I never saw a Caucasian bee, and do not know their nature; but I should not wonder if they would suit our own conditions better than Italians. I have no intention of trying them, however.

One serious drawback Italian bees have here is their persistency in crowding the brood-nest so it must be removed with the extractor. While Carniolans keep quiet on combs as do Italians, *they are easily shaken off*.

Ceres, Cal., May 3.

[I shall have to acknowledge that Mr. Gilstrap's point is well taken to the effect that it is very difficult to distinguish the identity of races of bees that look very much alike in a small queen-cage, where there can be only a dozen or so of bees; so that the "scheme" of Mr. Davis, after all, does not prove very much either way.

Since his article was published, I have carefully inspected the bees at the Department Apiary, Washington, D. C.; and the attendant in charge, Mr. Leslie Martin, very clearly showed that there was a difference. One who is an expert, I think, could readily tell one from the other, and yet it would be hard to describe the difference on paper.

I have since seen Carniolans and Caucasians side by side elsewhere, and have noted the same difference in appearance in the bees. Mr. Martin, at the Department apiary, showed the Banets and the Caucasians. These look more nearly alike than any two of the other races; and it is not to be won-

dered at, because the native habitats of the two strains are not far apart.

With regard to Carniolans, at the present time there is a tendency on the part of some bee-keepers, especially those running for extracted honey, and who are able to control swarming, to prefer Carniolans to Italians. From some things I have seen of Caucasians, I am inclined to think they are going to be a very desirable bee for comb honey—particularly so because the cappings are reported to be white.—ED.]

BEE-KEEPING IN CUBA.

Viewed by One who does Not Believe in Describing the Rosy Side Only.

BY FRANK REIMAN.

[This article was received last February; but owing to the great amount of copy on hand awaiting publication we have been unable to use it. The reader will do well to bear in mind that the first part of it was written in March, 1905, and the remainder in January, 1906, as explained.—ED.]

Very little is written or known about bee-keeping in Cuba or of Cuba generally. I had read various articles in bee-papers concerning immense crops in Cuba, and was much interested, and had a great desire to go into the bee-business there. I kept bees in Delaware for 20 years, from 100 to 500 hives, raising annually 10,000 to 20,000 lbs.; but, owing to great storms, in the entire district where I raised honey the banks broke and I was flooded, besides drowning 450 hives of bees. I sold and disposed of what I had left at the best prices I could get, and embarked for Cuba expecting to get bees on shares. I succeeded in getting an apiary with 200 hives in dilapidated condition, but in a good situation for honey, taking charge August 1, 1903.

Not being able to talk with any one, as only Spanish is spoken here, I took up my residence in the bee-yard and lived there for six months, learning little by little until now, after two years, I am able to talk Spanish fairly well. The bees had very poor attention before I got them, as there was not a super on, and some hives had 30 lbs. of honey below the hives. I worked about two months to get the bees in shape, and increased to 300 hives, and got 3 barrels of honey up to Sept. 15. Then trouble began. The dry season came on, and the ants started to eat the bees. I tried every known plan, but lost 50 colonies. About a million ants would gather on the porch of the entrance, and then also enter every crack or opening of the hives, get the bees by the wings or legs until they would swarm out, leaving the brood for the ants to eat, which they would remove entirely in two days.

In all bee-houses I make now I place the bees on benches two feet from the ground, with all the legs in water, to keep the ants from crawling up. I lost 150 hives of bees last year by ants. The honey season began the first year here in December, and lasted till May 10, in which time I took 30,000 lbs.

of comb honey, which I sold in Havana at 9 cts. per lb.

I had been in Cuba from August till May, and never saw rain. At night, May 15, it began to rain, and poured down all night. It rained all next day, all night too. I got afraid about the river rising. I was not too soon, for the river rose four feet in the bee-yard. There was two feet of water everywhere, and many hives afloat. I put the bees as high as possible, yet the water reached them, and I lost many, and many colonies were weakened. No more honey came after this storm, which was incessant for three days and nights, until August, when I got 1200 lbs. of section honey. After this, little honey came until December, when this past season, which was the poorest Cuba ever had, began.

After losing 150 colonies by ants I still had 500 left when the season began. In November it was cool; in December it was colder; and in January the thermometer went down to 34—never went above 52 all day, with the exception of a three-days' rain. This was the only day when the bees did not fly in Cuba in two years. However, I would say that in Havana the lowest recorded temperature was 55; yet the last nine days in February it was below 50, and as low as 43 several days.

In the United States you get the crop when the hives are full of bees, but not so here. The bees with the first cool nights in November fill the bottom with honey and crowd out the brood, leaving only three or four frames. These few bees, about a hatful, make from one to ten pounds a week, and many don't make a pound all winter. You wonder why it is necessary to keep from one to five thousand colonies here. For the reason that a hive contains only about a fourth of a good swarm in the honey season, which lasts about six months here. The remaining six months the colonies are kept weak, as they need feeding. Up to this writing I have taken only 15,000 lbs., and I think the season is nearly over, though in my locality I have a honey-flow nearly all the year and never feed. The entire output of comb honey in Cuba was only 60,000 lbs. this year, and about 100,000 lbs. last year.

Next year I think I shall be the only comb-honey producer on the island. All the rest are preparing for extracted; and I don't know but extracted, where there is any dark honey, pays the better. I have dark honey only in October, and not much then. The honey I raise now is as light as water, and capped as white as snow.

Cuban honey is said to be inferior in flavor. I would say that it is like the different honeys in the United States. In Felton, Del., I raised comb honey that could not be eaten, on account of its bitter and nasty flavor. When near Smyrna the honey all had a fine flavor, though no better than any honey I raise in this district.

After the late war, when every thing was grown up in weeds and vines, large crops were possible; but now when the ground is

being cleared up for cane you can not expect much honey except where it is impossible for white men to live.

Large crops from single hives are impossible here. In Delaware I extracted every other day for 30 days, and got 300 lbs. from one hive in that time. It will take fully a year here for a colony to do that. The very best I knew a colony to do here was an average of 15 lbs. of comb honey a week for two months, many others not making one pound a week. If you average a pound a day of comb honey you do very well. In New York I got 50 lbs. of comb honey in one week from one hive having two supers on. Here I never have more than one super on at a time. The bees will not work in two supers—in fact, they will, most of the time, work in only four or five sections at a time, complete them, and work in others.

There will be many bee-keepers dropping by the wayside in Cuba this year, for I do not see how they can feed 1000 lbs. a day when one man's entire output from 2000 colonies was only 3000 lbs. of comb honey.

Help must be kept in Cuba, if for no other purpose than to watch the yard to keep the honey from being stolen, and any thing that can be laid hands on. Last January I had 200 lbs. of comb honey stolen in less than two weeks, besides many other things. In two yards I have men all the time, and the other yard I run myself, having 200 colonies in each yard. My thermometer has been stolen lately, which is of no value to Cubans, as they use those on the Centigrade scale. I have use for Spaniards only from Galicia to work for me. Cubans are not trustworthy. In the war time the Cubans learned to steal, and they have not yet forgotten the art.

Cuba has two seasons—rainy and dry. We had not a drop of rain from October to March 15, and now we shall have rain every day till October—no rain such as you have in the United States, but showers lasting from a few minutes to four hours. I have seen six inches of rain fall here in as many hours. Now our ground is water-soaked all the time, and all this water gathers in low places or goes into natural holes in the ground which do not exist in the United States. Here whole rivers disappear in the ground, and you hardly know where, as the stones are all full of holes made by insects.

The mud in Cuba is like putty, and it is almost impossible to walk in it. The horses get sore feet from the water and mud, and you are compelled to walk sometimes. I have lived in town now for a year and a half, finding it impossible to live in the country on account of mosquitoes. In the town the fleas nearly eat me up. I can not sleep at night without sprinkling the bed with coal oil. I would say that coal oil costs 60 cents a gallon here.

Fleas and mosquitoes are not the only bad things. You will have live worms and living bugs in your feet. There are tarantulas and scorpions, snakes of all sizes, lizards and chameleons. The living here I have found almost unendurable. I know that

things I eat here I would walk over in the United States. My natural weight in the United States was 165 lbs.; but here I very seldom weigh 135—only two meals a day, and very poor ones at that. The Cubans have a habit of drinking strong coffee to stop appetite, and it does it. A tin can like a corn-can is filled half full of ground coffee, and filled with water, and then boiled down half, then that is good coffee. It always made me sick, and now I refuse it always.

Later.—The above was written in March, last year; and as I can see nothing to change in this time I will let it go. Last season I got 40,000 lbs. of comb honey in all, and increased to 800 colonies by June 1. I would say that 40,000 lbs. of comb honey did not nearly pay expenses. I lost money. My crop should have been 100,000 lbs. Help in carting, living expenses, freight, etc., cut a very high figure here. In this district where I kept bees every thing is being put into sugar-cane, and I was compelled to move my bees twelve miles away, which cost \$200, and I lost about 300 colonies in moving. One cartload of 60 hives went into the river at one time, barely saving the six oxen. I thought I could save some; but when a comb is wet the bees will not stay on it, and I had to melt all the combs in two days, as the bees were robbing.

After the bees were moved, Aug. 15 the honey stopped coming entirely, owing to dry weather, it not having rained since April, and the remaining honey in the hives was consumed in a short time. Not being able to feed 1000 lbs. a day, as some say they do in Cuba, I lost by swarming out, from poor queens, ravages of worms, etc., until Jan. 15, when I had only 350 colonies left out of 800 June 1.

This season has been the poorest of all. Up to this writing, Jan. 25, I have shipped only four carriers and one barrel of honey; but the prospects are very good now. I get more honey either in March, April, or May, than I do from October to March 1.

I shall discontinue the comb-honey business entirely as soon as I get my sections filled which I have on hand, as I am not able to do business with the only comb-honey buyer we have in Cuba; and, besides, extracted honey at 40 cts. a gallon pays better than comb honey at 10 cts. per lb. In Cuba the present price of comb is only 9 cts. for fancy, and from that all the way down, as this only buyer chooses to grade the honey. Of course, there is no trouble in finding fault with comb honey, especially where the bees fill a super in from 30 to 100 days.

I observe that, occasionally, some one wants to try Cuba for honey. My advice is, if he can find any place in the United States where he can raise an average of 25 lbs. of comb honey to the hive, and get 10 cts. per lb. for it, to stay where he is. The wonderful reports from Cuba are fakes. Some one has foul-broody bees he wants to sell. The average for Cuba is about 7 gallons of extracted or 50 lbs. of comb honey to the hive.

For that reason it is necessary to have many bees to make a living here. I do not believe that there are ten specialists in Cuba. Nearly all who have bees have also farms or sugar-cane, which pays far better than bees in Cuba. Havana is the only place for white people to live here. It has a climate tempered by the Gulf Stream. It never goes below 55 nor above 93. In my district the thermometer went down to 43 the first winter; 34 the second, and this winter it has not been as low as 55 yet, but we may yet get it. The prevailing wind here is east; but in the winter we get the northwesterners from the United States, which cause the thermometer to tumble from 85 at noon to 45 at six next morning; and by noon it will be in the 80's again.

Now, please don't think that 45 is warm weather, for I use the same amount of covering on the bed that I did in York State with 30 below zero; and I stay in bed until the sun shines. Nine-tenths of the people in Cuba die of consumption from cold they get on these days.

In another article I will give an estimate of the crop in Cuba. So far there has been very little. I will also give my method of managing bees, and a description of the hive I use. I was a student in James Heddon's class in 1883, and have been a specialist ever since.

Nueva Paz, Cuba, Jan. 31, 1906.

SWEET CLOVER; LET BEE-KEEPERS GET BUSY
AND SHOW THAT IT IS NOT A
NOXIOUS WEED.

I am feeding our horse on sweet-clover hay that, with permission of section foreman, I gathered off from a railroad right of way week before last, after the track men had cut it down several days before. When I hauled it into the barn the horse would not eat it; but after it lay in the barn a week he took readily to it. I saved a quarter to half a ton, and wish I had saved more. I have saved sweet-clover hay for years for horse. I think that, if bee-keepers would take more pains to use it as it is cut down along the railroads and highways, they would find it well worth saving, and sweet clover soon would be more popular with the farmers. If bee-keepers would experiment more in curing and using it, more farmers would be planting it. In one instance a former road-master took lots of pains to dig up and destroy a little of it along the street, at the same time saying lots against it. I circulated word among his neighbors that I would give the first one ten dollars who would show me an instance where it damaged a farmer any, and no one came after the money. The plant is condemned through ignorance and through thoughtlessness. Considerable good but coarse hay is left to waste that would save some one some money as a feed for horses and cows. Every bee-keeper who is a farmer can experiment.

Bedford, Ohio.

ED. HAINS.

HOW TO BUILD A BEE-CELLAR.

How to Winter Bees in a Cellar.

BY N. D. WEST.

[This is the first of a series of articles on how to build a bee-cellar. The writer, Mr. West, is one of the extensive as well as the successful bee-keepers of his State. As he is well posted on this particular subject his suggestions will be found to be valuable. He prefers to adopt the Doolittle conversational style, as will be seen.—ED.]

"Good morning, Mr. West. I came over to have a little bee chat with you for my benefit."

"All right, Mr. Jones. What is it?"

"The fact is, Mr. West, I want to build a bee-cellar. I have not been so successful in wintering my bees as you have been; and, knowing that you have had the experience for many years of wintering your bees in five or more different cellars, I think you will be able to tell me how to build a good bee-cellar, and to explain some of the requirements necessary to the successful wintering of bees indoors. How would you build a bee-cellar?"

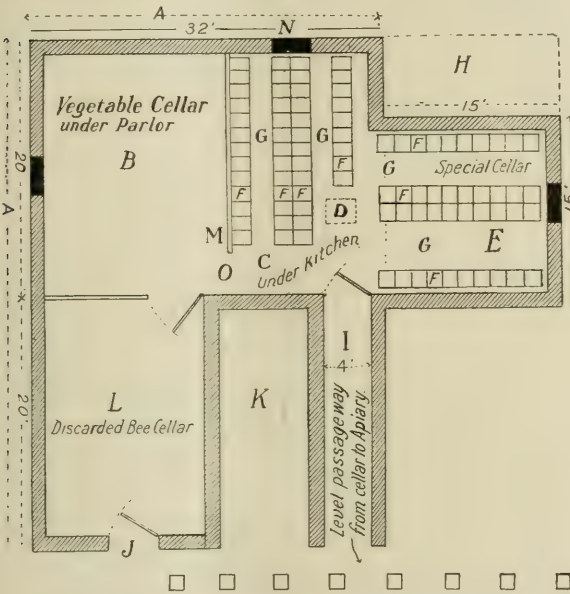


FIG. 1.—PLAN OF N. D. WEST'S BEE-CELLAR UNDER HIS DWELLING-HOUSE.

"Mr. Jones, that depends very much on circumstances. I have made several cellars for wintering bees, but all of them have been made under a dwelling-house. Three times I have built a wing on a dwelling-house for the purpose of getting more cellar room for the bees, and, at the same time, add convenience to the house as well. I will now give you a sketch of my cellar on the farm where I have lived and wintered bees for thirty years. However, my son David is living there now, but we winter bees there just the same.

"C is that part of the main cellar under the kitchen where bees are wintered.

"D is the place under the kitchen stove.

"E is a special cellar made on purpose for bees, and is under the sitting-room, 15×16, which does not often have fire in it, and winters bees finely.

"F shows the place where the rows of hives are piled up in the cellar.

"H is the ground under the porch in front of the sitting-room.

"The space shown at K is filled in with dirt to form a level yard between the alley I and the cellar L.

"The northwest end wall of L has five feet of wall exposed above the ground, which makes it too cold and damp. I could not control the temperature, and do not winter in this part of the cellar any more.

"M is a board partition between the vegetable-room and the bee-room.

"O. The doorway between these rooms is closed when necessary by hanging up a piece of carpet; but it is better left open most of the time."

"Mr. West, why is it better to leave the door open most of the time between the vegetable-room and the bee-room?"

"Because it gives better ventilation, and no draft in the bee-apartment."

"Do you give any outside ventilation?"

"Yes, I do; but in as large a cellar as this you will not have much trouble about that. At the window N I have a small ventilator which is made of boards about 8 inches wide and 3½ feet long. It is so made that it forms an elbow; one part goes level into the cellar window, and has a trap-door for a dumper, while the other end stands up perpendicularly outside and close to the house. I make a cap to cover the ventilator to keep out the rain and snow.

"Fig. 2, A, is a picture of the ventilator that is used in the window.

"Fig. 4, A, shows where the ventilator is placed in the window."

"Mr. West, how do you make the window dark where the ventilator is in place?"

"Well, you see my window-sash is hung with hinges from the upper side; so I open the window, and with a hook fasten it open from the inside of the cellar. I then make a board just large enough to fill the window hole, and cut out a hole 8×8 for the ventilator, Fig. 4, A. When all is in place I bank the window with sawdust as high as the sills to the house, to keep all dark and warm."

"How do you place your bees in the cellar?"

"Well, Mr. Jones, I will now show you this picture, Fig. 3. You see how the plat-



FIG. 2.—OUTSIDE VIEW ILLUSTRATING MR. N. D. WEST'S METHOD OF PLACING COLONIES ON A PLANK IN THE CELLAR.

form is made with a plank about 18 inches wide. It rests about 4 inches from the cellar wall: then you see the 2×4 joist on the back edge of the platform. That is to raise the back end of the hive two inches higher than the front end. Then I set one hive on the platform and then lay across the top of the hive two sticks 1×2 inches, and as long as the hive is wide: next set another hive on top of these sticks; but because the hives slant forward, you see I set the hives back a little so as to keep the pile perpendicular. Then you see by the sketch, Fig. 3, the middle platform is made just double width, so I make four tiers of hives four or five hives high and nine hives long, with

two alleys, so I can go to any hive in the cellar."

"Mr. West, why do you have your hives slant forward?"

"You see, my bottom-boards are fast to the hives when I put them in the cellar, and this slant helps the bees to rid the hives of dead bees; and if any moisture should accumulate, the water will run off at the entrance. Mr. Jones, I fill up this part of the cellar under the wing E, as seen in Fig. 1, which holds 150 colonies or more: then when this apartment is properly filled with bees, see Fig. 1, E, I hang up old carpets to make it dark. Then I open all the entrances to the hives. Next I fill the apartment G, Fig. 1. Then when all are in, and the hives open, and the bees become quiet, I remove the carpet partition and leave the outside doors open day and night for some time; or, to tell it just as it is, with



FIG. 4.—N. D. WEST'S RESIDENCE, SHOWING THE WING OVER THE IDEAL BEE-CELLAR AND THE VENTILATOR ON THE OTHER SIDE.

my home cellar I have a screen-door so made as to give much or little ventilation. However, in cellars away from home I do not leave the outside doors open at any time when there are no people there to see to it. In Fig. 4 you will see the wing end of my house, which I built on purpose to get more house room, and especially to cover my ideal cellar for wintering bees in, which is very satisfactory. The cellar plan of this is shown at E, Fig. 1. Mr. Jones, I am also wintering bees in farmers' cellars, and I find that almost any cellar that is good to winter vegetables in is a good cellar to

floor in the cellar that people walk on when going into the cellar for vegetables, etc. I want the cellar warm enough not to freeze during the winter, and then I should prefer the end furthest from the outside cellar-door for the bees, so that this door can be used to ventilate the cellar, and it will furnish all the ventilation needed. I should also prefer that the kitchen stove be not over the bee-apartment. In the early winter I leave the cellar-door open a good deal of the time; and in the spring, when necessary to quiet the bees, I leave the cellar-door open nights.

"I pile my bees up in rows, in all cellars

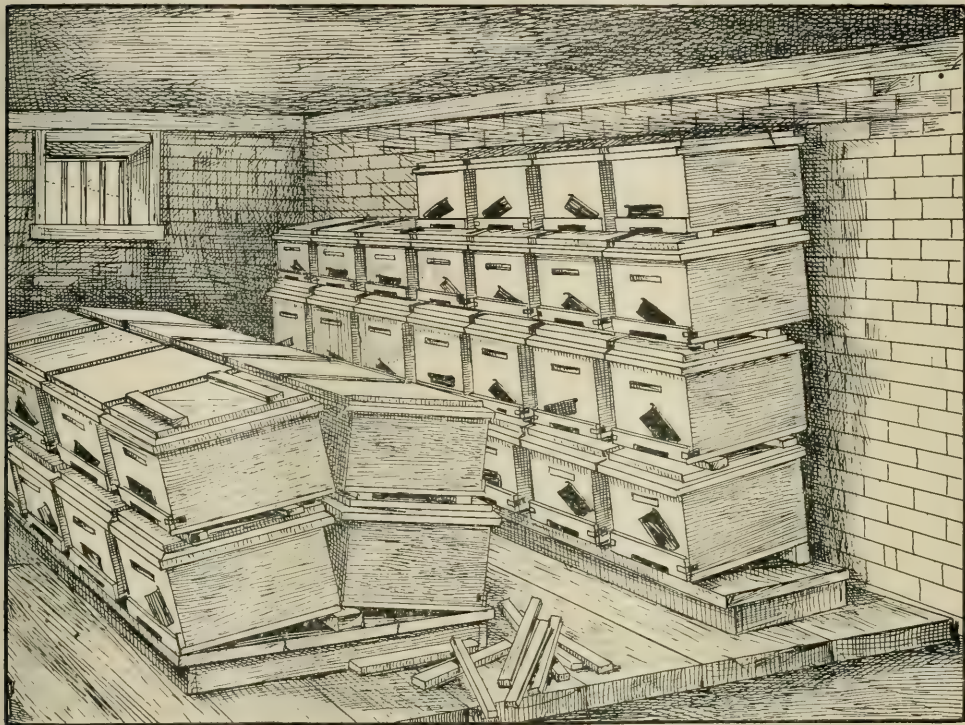


FIG. 3. HOW N. D. WEST ARRANGES HIS HIVES IN THE CELLAR.

winter bees in. The farmers' cellars as I find them are usually about 17×28 feet, inside measure. I make a partition of boards, or hang up old carpets across one end of the cellar, making a room 12×17 feet for 100 stands of bees. I can put in 160 colonies if necessary. I leave a four-foot doorway open between the bee-room and the vegetable-room, so that the bees can have the benefit of the whole cellar for ventilation. I close this doorway with a piece of carpet when necessary. If a board partition is made it should not touch the floor above, because people walking on the floor above will jar the bees below. If the cellar is a damp ground floor, then I make a board floor about four inches above the cellar bottom. This floor should not be connected with any other

as seen in Fig. 3. This gives an excellent opportunity for me to walk in the alley between the rows at any time during the winter, and know the exact condition of the bees. If any hive entrance should get clogged up with dead bees I can, with a wire hook, rake them out. I also sweep the floor between the rows twice during the winter. When bees are packed away in such a cellar very close without these alleyways they will winter well when the weather is continuously cold up to the time you want to set the bees out; but when an exceptionally warm winter occurs, especially the latter part of the winter, the bees become uneasy and waste rapidly, and then you can not take the advantage of cooling off the cellar by a thorough ventilation or by setting pails of ice or

snow in the alleyways between the rows of bees."

To be continued.

THE FERRIS SYSTEM OF PRODUCING COMB HONEY, AND SWARM CONTROL.

A Cheaper Comb-honey Device.

BY A. K. FERRIS.

Before concluding this series of articles on the two-queen system I wish to call attention to two other comb-honey attachments. The wire-cloth attachment is expensive and difficult of manufacture, and, therefore, high in price; yet, taking this all into consideration, it is much cheaper than the common single-depth super.

In Fig. 21 we have illustrated the comb-honey attachment as described before, but using glued wood separators. The slats, $\frac{3}{4}$ inch wide, are separated a bee-space apart. This still retains the four-mesh-to-the-inch wire cloth on the sides next to the brood where the greatest tendency to bulging occurs, and also retains the greatest possible comb-building influence obtained from the comb of brood. In Fig. 22 we have a still cheaper form of attachment taking glued wood separators and outside slats $\frac{3}{4}$ inch wide, separated by a bee-space. This makes an exceedingly cheap comb-honey device; and, being mostly glued, is very easily and quickly made. In most cases this will do as well as the wire-cloth attachment; but where you have a market for *extra-fancy* honey this can be produced better by the use of the wire-cloth attachment. The all-wire-cloth device costs more, and is the thing for the man who is willing to put forth a little effort in order

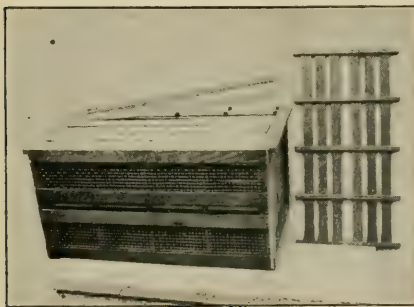


FIG. 21.

to produce the fanciest of fancy comb honey, and the largest amount of it. But with the average bee-keeper the cheaper form is the one to use.

A point I wish to emphasize is that the attachment should not be given till the flow is on, as there is more of a tendency to travel-stain where brood is used in connection with comb honey, either above or by the side of it. But by a little care this difficulty is en-

tirely overcome; for with the two-queen system the colonies are so large and strong that, with any kind of flow at all, it is only a very few days before every thing is full, and ready to be either tiered up or removed altogether—at least that is my experience.

CONCLUSION.

Let us now take a backward glance and see what is really accomplished by the two-queen system. In the first place, we build

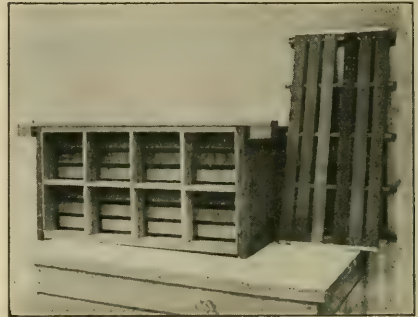


FIG. 22.

up a mammoth colony, and all our hives are extra strong when the flow comes on clover or raspberries. In the second place, we turn this mammoth colony to producing either comb or extracted honey without loss by swarming or sulking, either of which means much loss of honey. Third, the comb honey is produced without the great expense generally entailed in fitting up for it. Fourth, the queens are reared and tested at a time when it can be done the easiest, and all queens are young and vigorous for early spring brood-rearing; and last, and best of all, these large colonies are so easily operated that bee-keeping is a real pleasure as well as very profitable financially.

LATER.

We have now had a heavy flow on raspberries and white clover; and with honey coming in like rain I find that comb-building goes on so fast that, even in a very heavy flow, comb in sections is kept way ahead of what is needed. I am now more enthusiastic in saying that as many pounds of comb honey can be produced as can be produced from the same colony, provided the honey is allowed to be capped over before removing from the hive, and at the same time swarming is completely controlled.

Rockmont, Wis., July 6, 1906.

COLONY USED FOR DEMONSTRATION NOT INJURED.

It may be interesting to note that the colony of bees that I used for demonstration (see page 356) last fall wintered well, though they had no more brood or young bees hatching at the time, being enclosed in cage, and mauled over for nine days. L. F. WAHL.

Chili Center, N. Y., May 23.



BEES IN HOUSE-APIARIES.

BEES IN HOUSE-APIARIES.

A Windmill for Power.

BY ADOLPH SUKSDORF.

Mr. Root:—I send you two photographs of my home and apiary. The building with the windmill on is my power-house or tank-house. I make hives with this mill for myself and neighbors, and it does good work. I have a combined circle saw with which to do the work. The others, besides myself, in the picture are my wife and two boys, seven and nine years old. Back of the bee-house is an orchard of five acres just leafing out, and some of the trees are in bloom. I have all of my bees in the two houses. The two together will hold 30 stands of bees. I have 25 strong stands. I like the house-apiary. I think bees do not swarm so badly in a house as they do when they stand out in the sun. All my neighbors' bees are swarming, and have been swarming some time, while mine show no signs of doing so.

I think we have a good bee country here. Last year I had some colonies that gave me 110 lbs. of honey, comb and extracted, as I

have both on one hive. We have had fine weather for the bees this spring. White clover is just beginning to bloom. Our main honey crop comes from white clover. Sometimes we get lots of honey from wheat stubble.

Spangle, Wash., May 23, 1906.

[Your house-apiary has a very fine appearance. Many producers, however, after having tried the house-apiary with the regular outdoor plan prefer the latter for reasons that have been given before in these columns. —ED.]



RESIDENCE AND APIARY OF ADOLPH SUKSDORF, SPANGLE, WASH.



ANOTHER FAMILY THAT EATS HONEY AT EVERY MEAL.

Dear Friends:—It is 27 or 28 years that I have been a reader of GLEANINGS. Since you want photos of families who always use honey at their table, I send you one of my family. We have five children; none of them is afraid of bees. They go among them as if they were chickens. The oldest, 13 years, weighs 116 lbs., and stands at my side; the youngest is 14 months old, and weighs 25 lbs., and sits at the side of her mother. Good food will make healthy children, and honey is one of these good foods.

Bechtelsville, Pa.

H. M. MOYER.

[We doubt whether it would be possible to find a picture of a more healthy-looking fam-

ily. On all sides there are proofs of the food value of honey, and it is natural then to give the advice, "Eat honey."—Ed.]

60 POUNDS OF HONEY IN A MONTH, THE RECORD OF ONE FAMILY: FOUL BROOD.

On page 96 you express surprise that a family of five should probably eat 300 pounds of honey in a year. We should not like to be limited to that amount. Last winter we ate a 60-pound can in one month. At the time, our family consisted of six members, four being small children. Now we have another hearty honey-consumer which must be reckoned with. Some months we may considerably exceed the above rate; but it is seldom convenient, when producing honey by the ton, to know just how much a family does eat.

I am much interested in the Alexander method of curing black brood; but, seriously, I doubt its being a reliable cure for *foul* brood. A cousin of mine, W. Hayden Gilstrap, had an apiary of 140 colonies last spring in which nearly or quite every colony



ANOTHER HONEY-EATING FAMILY.

had been infected by open-air feeding of diseased honey, and in six weeks the apiary was cured, ready for the honey-flow, and the combs melted for market, *and the apiary stayed cured*. Much of that success was due to Mr. E. Tomlin, now of Modesto, Cal., who did most of the work. The number of stocks was somewhat reduced by uniting, as little honey was coming in at the time, and healthy brood was lacking, which should have been used in connection with the diseased stock in effecting a cure. Since July or August it seems foul brood has been entirely cured in this part of the country. If the Alexander method would work we could have saved many combs and much work.

Ceres, Cal.

W. A. H. GILSTRAP.

[I believe I stated that any one who could equal the record on page 96, or beat it, would be entitled to five years' subscription to GLEANINGS free. As you get GLEANINGS regularly, being one of our correspondents, you are hereby invited to make any selection of bees or supplies that you may desire, to the amount of \$5.00. No, I am not going to pay a premium on eating honey in large quantities to see how much it is physically possible for some families to consume, but I desire to get a record of what has been done in order that we may collect particulars showing that, while ordinary sweets eaten in large quantities are harmful, honey may be taken in some instances as a regular article of diet, without injury.—ED.]

THE DOOLITTLE NON-SWARMING SYSTEM: THE DIFFICULTY IN GETTING QUEENS.

Doolittle's method of handling bees, as described this spring, doesn't work with me. So far it is all right to commence with, but when I hived them in the upper chamber on combs with honey they restricted the queen from laying, completely filled the brood-nest with honey, and then prepared to swarm. Only one colony entered the super, filled one, and swarmed day before yesterday. Each colony treated had one super filled with bait combs. The same time I changed the brood-nest *a la* Doolittle I shook one colony on to full sheets of foundation, and they have given me two supers already, and no intention of swarming.

I think queen-breeders ought to be more careful to come up to their advertisements. Last April 18th, I sent for a queen to a prominent breeder in the South, and got her two weeks after. May 31 I sent \$5.00 for queens to another breeder, and up to date (June 9) I have not heard from him. Both times I selected them because they advertised in GLEANINGS that queens would be sent by return mail.

Of course, a queen-breeder might at any time get so many orders that he runs out of queens; but in that case he ought to send notice to that effect by return mail, and state at what time he can ship.

To go every day for a week or more three miles before one gets his queen will cause a

man next time to send to somebody else or prepare to raise his own. L. H. WILLMER.
Napoleon, Mo.

[Your suggestion in your next to the last paragraph is no more than reasonable and right. It often happens that a queen-breeder runs out of queens. The weather is unfavorable for perhaps two or three weeks, during which time very few of the queens will mate. In all such cases a breeder should notify his customers that he will not be able to make delivery immediately, explaining the cause. In the case under consideration it is very possible and even probable that the queen-breeder was overrun with orders and overrun with work. It is possible, too, that he kept expecting every day he would be able to fill the order, only to be disappointed. As I told one queen-breeder recently, nothing builds up a queen-rearing business so substantially as promptness in filling orders; and whenever in any case it is not possible to make a reasonably prompt delivery, send a card explaining, saying that the money will be returned in case the customer can not wait. In telling what a queen-breeder *ought* to do we realize that we have not always ourselves lived up to the standard of our own preaching. When we fail to do so, and a customer complains, we feel it *our* duty to make amends in some way.—ED.]

RIPENING HONEY OUTSIDE THE HIVES.

It was not without some gratification that I saw in one of Mr. Alexander's articles that he has been practicing with success the same method for ripening his honey outside the hive that I commenced and followed with the greatest satisfaction 23 years ago. The Government Bulletin I now forward with this shows I was advocating the method before his articles were published. The immense saving in time, labor, and expense, by the plan given, should induce those who have been so strong in favor of ripening in the hive to give it a trial.

I. HOPKINS.

Government Apiarist.

Auckland, N. Z.

SUCCESS WITH A DAMP CELLAR.

Having read considerable in the journals concerning the condition of cellars so as to give the best results in wintering bees, I thought perhaps you might like to know my success during the past winter. I put a cellar under my house last summer; and by doing the work myself I did not get it finished until freezing weather had set in. In fact, some of the cement froze as soon as put in the planks, but afterward thawed out and then set. By this you will see that I had a damp cellar. My 18 colonies which I set in the cellar about the 10th of December I took all out again the 3d of April in prime condition. At no time was the thermometer above 40 degrees, and it ranged all the way to 33, and a good part of March it held close to the 33 degrees. I had them raised at the back

about $\frac{3}{4}$ inch, and a chaff cushion on top, of 6 inches, to absorb the moisture. This, I believe, was a great help. L. BEAUPRE.
Simcoe, Ont.

[The fact that you were able to winter your bees successfully in a damp cellar does not prove that dampness is a good thing for wintering. As a rule, an excess of moisture in a bee-cellar does harm; and in the majority of cases it causes disastrous results. The drier and the better ventilated one can have his bee-cellar, the better will his wintering be.—Ed.]

THE YOUNGEST BEE-KEEPER IN INDIANA.

Mr. Root:—I inclose you a picture of Eugene Nutting, and I think I am safe in saying he is the youngest bee-keeper in the county, if not in Indiana. He would rather watch or work with the bees than play. It is remarkable the interest he takes in the science. He reads every thing that he can find on the subject. Though he is only fif-



EUGENE NUTTING, PROBABLY THE YOUNGEST BEE-KEEPER IN INDIANA.

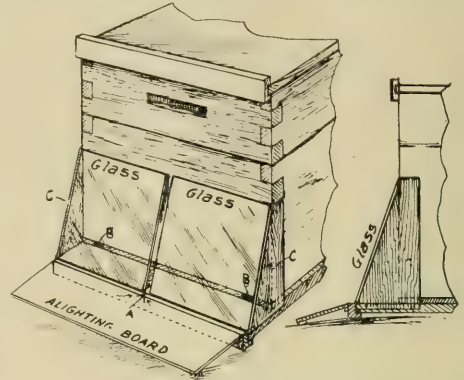
teen years of age, we have so much confidence in him that we will leave our apiary in his care while we are absent the next month. MRS. FRED O. JACKSON.

Muncie, Ind., July 12.

[Well begun is half done. This young bee-keeper has surely made a good beginning, and so his success in bee-keeping is already more than half realized. We admire especially his interest in the current literature, and to encourage him we are sending him a new Root smoker, with all the latest improvements.—Ed.]

PREVENTING ROBBING BY THE USE OF GLASS PLATES.

I think I can give a better remedy for robbing than I ever saw in print. I have used it for many years, and I never saw it fail except once, and that was when the colony had entirely given up. Of course, after they have given up, nothing is better than cover-



ing them with a cloth. I use old photographic negative glasses, cleaned with potash. Set them close against the front, leaving room for only one bee to pass between the glasses in the middle. If a portico hive is used, all right; if not, the sides must be blocked up. Leave a small opening on each side of the hive-entrance, one inch or more. As soon as a robber gets through the slot between the glasses he seems to realize that he is trapped, and is frantic to get out. I have transferred a number of hives this year in robber time; and by glassing them I have no trouble. IRVING LONG.

Marceline, Mo.

[Something like this has been suggested before. Like it, did I say? Well, not quite; for the thing described in our back numbers consisted of only two sheets of glass leaning up against the front of the hive; but it failed because the robbers could get around the sides. This plan here shown prevents this. Not having tried it, it seems to me to be excellent; in fact, I am sure it would so disconcert the thieves that robbing would very soon be broken up in that hive.—Ed.]

TOADS AS ENEMIES OF BEES.

I have seen some discussion of late concerning toads. They nearly spoiled four colonies for me last year. I put my bees up ten inches from the ground, and put a board from the ground up for the bees to crawl up, and I noticed four strong colonies decrease rapidly. I went out just at dark with a lantern, and found a large toad had crawled up the board, and was catching bees faster than I could count. I took a stick and knocked him over, and then went to the other and found the toads hiding under the boards after getting their supper. The bees were all right after that; but I killed every toad I could find. To-night I found another had

taken up its residence under a board, but he soon moved out.

G. W. INGERSOLL.
Remsen, N. Y.

[We have had reports before of how toads would eat bees, and in some rare instances actually depopulate a fair-sized colony. Of course, the only thing to do under such circumstances is to make away with the animals. But if one's sense of humanity is such that he does not feel like killing them, he should bag them and carry them away two or three miles and let them kill insects, because toads are the farmer's friend.—ED.]

TOOTHsome GRAHAM BREAD USING HONEY.

The finest recipe for graham bread we have ever seen, recently came into our family; and since it is so good, moreover containing honey, we wish to pass it on to our bee-keeping and honey-loving friends. Brother E. R. has been allowed to sample it, so we give him permission to add a footnote to his fancy.

Take one pint sweet milk, half a cup extracted honey, one-third cup sugar, one teaspoonful soda; salt; $2\frac{1}{2}$ cups graham flour. Stir all into a batter in a vessel in which it shall be steamed for three hours, then remove from the steamer and place in the oven to bake half an hour. It will not last long in the pantry if known to be there by one or two members of the family.

Sylvania, Pa.

RICHARD SIMMONS.

[I gladly testify to the toothsome qualities of the graham-bread recipe here given. I requested Mr. Simmons to send us the recipe, which he has now done. I should be glad to have our readers, especially those of the feminine persuasion, test it and report.—ED.]

A WARNING TO THOSE WHO EXPECT TO TRY THE ALEXANDER METHOD OF BUILDING UP WEAK COLONIES.

It is not often I write anything about bees; but in this case I feel it my duty to say a few words in warning to bee-keepers, and would say to any one who expects to try the Alexander plan of uniting or putting weak colonies on top of strong ones, for the purpose of benefiting the weak colonies by securing the extra heat from below, and I presume the assistance of some of the lower bees to help take care of the brood in the light or upper hive, that I tried this plan with three of my light colonies, and followed Mr. A.'s directions just as he gave them, and in a week I looked for the light colonies, but they were gone. I think the bees from the strong or under hive came up and killed the queen of the weak colony, and the bees that were not also killed in the upper colony joined the robbers in the lower colony. Anyhow, all three of the colonies I tried were served the same way. The lower colonies made a clean sweep; and why shouldn't they do so? It is natural. Bees nearly always kill strange queens when they have a queen that suits them. All the reason the bees in the upper colony didn't kill the lower queen

is because there was a larger army of bees below to defend their queen.

While I think there may be a few that would be benefited by Mr. A.'s plan, I think 75 per cent of all who try it will lose their queens in the weak colony, and lots of the bees, which are killed in defending. There are many people who know things and write them down that are not a fact; but any one who will stop to think would know Mr. A.'s plan in this case is not practical.

Now I will be a "smart Alec," and tell you something that *is* so; i. e., a goose or turkey wing is the best bee-brush out. They kill no bees; and, another thing, to keep your foundation from buckling leaves the wires slack and don't let foundation touch the bottom of the frame by $\frac{1}{2}$ inch.

Kearny, Neb.

A. J. SNOWDEN.

[You are a little hard on Mr. Alexander when you say, "There are many people who know things and write them down that are not a fact; but any one who will stop to think would know Mr. A.'s plan in this case is not practical." As Mr. Alexander is at present a sick man, and scarcely able to do any writing, I will take upon myself the responsibility of defending him against the charge of not knowing what he is writing about. In the first place, let me draw attention to the fact that I have been in his yard, and have seen the "proof of the pudding," and *know* that he is not theorizing or guessing about this method of strengthening weak colonies. You probably have not failed to notice in GLEANINGS a number of favorable reports from those who have tested this plan, and you have probably read other reports where it seemed to be a failure. It failed with us on the first few nuclei we tried it on. When Mr. Alexander talks about strong colonies he means those that are fairly boiling over with bees. Perhaps your estimate of what a strong colony should be is not the same as that of Mr. Alexander. As soon as he is able he will take up this matter of strengthening weak colonies, in a later issue. In the mean time we hope our friends will defer criticism until he can go over the matter, pointing out the cause of failure.—ED.]

THE ALEXANDER METHOD OF BUILDING UP WEAK COLONIES; A CASE WHERE THE WEAK COLONIES ON TOP ONLY BECAME WEAKER.

I was really enthusiastic, and believed that I could see success and some really valuable features in the Alexander method of uniting weak colonies with strong ones; so upon removing the bees from the cellar I had several four-frame nuclei with young queens. Then I selected out of 150 colonies at my home yard one dozen of the strongest ones that had an abundance of honey, and placed a dozen of those nuclei on top of them over queen-excluders; and, to make them as warm as possible, I tacked heavy paper over all cracks; but instead of the nuclei drawing from the strong colonies, the strong colonies

sapped the nuclei, and they slowly dwindled. Not satisfied with this, the last of April I selected six more strong colonies and six weak ones, and treated them the same, save that I left in some of them a small entrance above the queen-excluder; but later I closed them, owing to a tendency to rob. The results were the same; and out of the 18 weak colonies the queen in one of the first lot, with a handful of faithful workers, succeeded in holding the fort, and are now, May 28, receiving help from below, and are breeding up very nicely.

So much for the weak colonies; but how about the strong ones? Of course, I don't have three or four queens doing business in so many upper stories as to have bumper-strong colonies, but I have some practically strong colonies, and I selected the strongest of them; and of those, some actually became weak, and they all are far behind others not thus treated. The reason for this is simple—too much room to keep warm, and a failure of queen No. 2 to render assistance in brood-rearing.

I have been unable to make this thing work; but it is not the first time that I have failed to make a really good idea materialize, and have later seen in it a glowing success. Often unseen causes or a failure to observe essential details stands just in front of success, and I should like to have some of those who have made this work tell us more about it.

HENRY STEWART.

Prophetstown, Ill.

[See answer to A. J. Snowden, above.—ED.]

MOVING COLONIES FROM PLACE TO PLACE IN AN APIARY.

Mr. Alexander's articles are far ahead of any other thing in the way of bee management. There is, however, one point that I do not understand well. How does he move his hives from one spot to another in the same yard? I should greatly enjoy it if I could find this point explained in GLEANINGS, and probably others would also.

Marseilles, France.

L. SIBILLE.

[Mr. Alexander does not move any of his colonies, if I remember correctly, except when taking them out of the cellar and putting them in again, or shortly after taking them out of the cellar unites a weak colony with a strong one over perforated zinc.—ED.]

MOSES QUINBY; WHAT HE COULD DO WITH BEES IN THE WAY OF ATTRACT- ING ATTENTION.

I see in GLEANINGS you speak about stunts with bees. I think it was some time in between 1860 and 1867 when Moses Quinby showed what he could do with bees at a fair in Toledo. He had a tall white hat that ran to a peak, and it had a swarm of bees in it. At the top there was a round hole for bees to pass in and out. This hat he wore on his head. He would talk bees, and there would gather around him a big crowd—so much so

that the police would make him move from one place to another. He would, when the crowd was too big, take hold of the top of his hat and give it a whirl, and throw the bees all over the crowd, and it was laughable to see them tumble over each other to get out of the way. Then he would put the hat on, and the bees came right back and crawled into the hole at top. I suppose he had the queen caged in it. There may be some one living who remembers this man and his tricks with bees.

R. L. MCCOLLEY.

Sorrento, Fla.

[I have heard my father speak of this stunt of Mr. Quinby, of years ago. Soon others took up the same idea. The fact is, more bee-demonstration work was done at county fairs in the early 60's than there has been of late years.—ED.]

THE COLOR OF ALFALFA HONEY; WHY IT VARIES.

Noting your discussion on the color of alfalfa honey, and why it should vary at times and places, causes me to write my experience. For the past fifteen years I have been engaged in handling honey, and collecting it from over this entire valley, which is about 100 miles wide by 300 long. In this valley we produce from 40 to 80 carloads a year, and it is mostly from alfalfa; but in places the honey is amber, other places it is a fancy light amber, while at still other points it is white. I am also familiar with the honey from Nevada and Utah, and in places where I am familiar with the conditions of the soil relative to water (not moisture) I can judge pretty well the color of your honey—that is, if it is alfalfa. The way I tell is this: If the land is sandy so that the water, when irrigated, will go down through, and not allowed to fill up the ground, the honey will be white; but if the land is of the nature of some portions of this valley, and the water stands within four to eight feet of the surface, so the alfalfa roots go to the water, you can not get white honey; in other words, the freer from water your alfalfa is, the whiter will be the honey it yields.

Hanford, Cal.

F. E. BROWN.

[Mr. Brown undoubtedly gives the causes that make alfalfa honey dark in some localities and light in others. He has had abundant opportunity for observation, and I should conclude that he is probably right.—ED.]

POULTRY AND BEES: BOTH FOUND PROFIT- ABLE.

I see that there is quite a discussion in GLEANINGS in reference to the comparative profits of poultry and bees. I have the single-comb Rhode Island Red chickens, a general-purpose fowl, and last year cleared \$200 net from an average of 80 hens. I sold quite a lot of eggs for hatching, at \$1.00 for 13. If I had sold all the eggs at market prices I should have made about \$1.75 per hen.

From five hives of bees, spring count, I re-tailed over \$49 worth of extracted honey. I

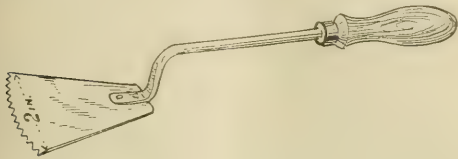
am employed in a clerical capacity; leave home at 7:30 A.M., and get back at 5:30 P.M. I have about two-thirds of an acre of ground. Raising chickens and bees is my recreation. I can not say which I should prefer if I had to make a choice between poultry and bees. I expect to have 25 hives this year, and 120 laying hens.

G. H. MOHLER.

Holmes, Pa., March 9, 1906.

A SECTION COMB-LEVELER.

This tool, though simple, is very effective as an instrument for cutting down uneven comb in sections. The one here represented is made from a common pancake-turner, by cutting the sides as represented on a slant toward the stem, leaving the front edge two inches wide. The reason for cutting the sides as represented will become obvious on attempting to use it with parallel sides or edges. The front of the blade should be ground sharp with the bevel on top of the blade; then fine teeth filed, as shown, with an oval front. The stem should be bent at the junction of the blade, so that, when the stem rests on the edge of the section, the blade may appear parallel with the section edge. The stem should be fastened to the top of the blade so that the under surface



shall be smooth. I send you a sample of the work which the one I have constructed does, by simply vibrating it much as the reaper-sickle is used in cutting grain. It leaves the comb very smooth; does the work quickly, and I like it much better than the hot-plate comb-leveler which I have sometimes used. Patent not applied for, but good all the same.

WM. M. WHITNEY.

Lake Geneva, Wis., June 5.

[I know Mr. W. M. Whitney well enough to know that any thing he recommends is probably good. Although I have not tried the tool described above, I should be inclined to regard it with favor.—ED.]

HOW TO PREVENT AND STOP ROBBING.

Last fall or summer, after the honey-flow was over, I left a super of filled extracting-combs on one of my hives. Some parties at the house were speaking of the bees, so I took them out to show them how I got the extracted honey. The next day, when I came home my wife told me there seemed to be some excitement among the bees. I knew at once I had left the top of the hive partly off. I went and found the super cleaned out, and the bees hanging around the super, trying to get in at the entrance, and I decided to try what I had been using for mosquitoes, to see how it would affect the bees;

so I put some on my hand and rubbed it on the super, and in pouring it on my hand five or six drops fell on the alighting-board. In two or three minutes there was not a bee about the hive. I then put some on my hand, and went to a hive where there were a great many bees hanging out, and put my hand near them and drove them into the hive. I then took an extracting-comb filled with honey and set it down in the bee-yard until it was covered with bees. I then poured five or six drops of this oil (oil of citronella) on the frame. In a few minutes the bees had left it. I tried it on weak colonies having a young queen that they were trying to get in, and stopped them in a few minutes from that. I am confident that the oil of citronella will stop robbing; and by using it on the hands it will prevent stings to a great extent. Since using it I haven't the least fear of robbing. I should like some of the Southern bee-keepers to give it a good trial before the season opens up north. It will not affect the bees in the hives—only drives them away from the front.

Baltimore, Md.

J. D. WILLIAMSON.

[Some twenty years ago there was sold in England a liquid called "apifuge." As the name indicates, the substance was designed to drive bees from the object smeared with it. By anointing the hands with it, it was observable that the bees were less inclined to get on the hands; but I found by experience that it would not stop a direct onslaught when the bees were badly stirred up.

The drug here referred to by our correspondent may be of the same nature. I should judge that it would answer a very excellent purpose sometimes. I have tried carbolic acid—a weak solution. While it is offensive to bees it is not enough so to keep them from robbing a comb or robbing a hive. Perhaps the oil of citronella would be more effective. We should be glad to get reports from others.—ED.]

A CLUSTERING SPACE FOR BEES ON EACH SIDE OF A SUPER; FEEDING AND WINTERING.

I am getting a lot of fences with the idea of taking out a section-holder on each side of the super and filling in with the fences, to see if it will not result in sections being finished up even, and also to give a little storage room for bees. If for any reason you know this to be impracticable, please let me know. As the fences are somewhat shorter than the sections, thus allowing more than a bee-space at the top, it may result in their filling in with burr-comb.

The Alexander feeders are a complete success. I made three rough ones after reading his description in GLEANINGS, and it is now no trouble at all to feed the bees. And here is something I have discovered—they are just the thing for supplying bees with water. I let the bees hustle for whatever they can find during the day, and feed them in the evening, so keeping them at it day and night. In the morning I put half a cup or a cup of

water in the feeder, and it seems to suit them first rate.

I wintered by Vernon Burt's method, minus the super, and wish to indorse it. No cellars for me. Let them seal the cover down—pile four or five inches of chaff directly on top of it; then fold 15 or 20 thicknesses of newspapers securely all about the hive; tie, and slip over all a Quaker-oats box covered with some water-tight material. I used tarred paper. They came through strong. In the spring the papers will have become fitted to the inside of the box, where they can be tacked and left, making fine super-protectors for cold nights, and all ready for the next winter.

Of course, I have only a few swarms, and so can't speak from much experience, as I began only last July; but I am looking for the simplest and most satisfactory devices, and feel like indorsing them when found.

Mr. Alexander's articles have interested me more than any thing else this spring. They are practical, apparently. Now, can't you have him give us his method—he must have one—of securing a crop *without* increase? His method of increase I consider the most practical and the simplest of any I have read.

By the looks of my bottom-boards this spring, somewhat warped, I think they would be much better if painted on both sides, and I am so doing, giving them as nearly as possible a water-tight coat all around.

Albany, N. Y.

CHAS. B. LOOMIS.

[The modern fence super has an extra fence between each outside row and the side of the super. Perhaps it might be an advantage to put in two or three more fences in order to make a heavier wall of bees; but if a super is properly protected by an outer case, as it should be, in my opinion, the extra number of fences will hardly be necessary.—Ed.]

DO BEES STING QUEENS? A CASE IN POINT.

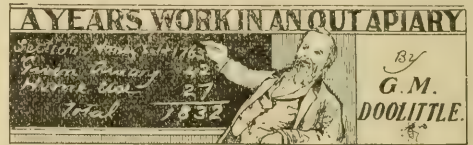
They do in Indiana. As proof of this I mail to the editor of GLEANINGS a queen which can speak for herself, even if she is dead. In the thorax just under the left wing will be found the sting still adhering, as it was found after performing its deadly mission. It happened after this fashion: In looking through a colony one day I found a queen which had just mated, the drone organs still attached. Four days after, I thought to change position of two hives—this one and another. I did so, and then thought I would clip the queen, expecting she would be laying. I found the queen and set the frame outside the hive while I looked for eggs before clipping. I found none; and when I went to put the frame back, there was no queen. I immediately guessed she had flown back to the old stand into the strange hive. I opened that hive, and there found as interesting a ball game as I ever saw. They were in a scrimmage. It was the first down, and the visitor seemed to be defeated. Acting

as umpire I called the players off and found the queen knocked out as stated. The poison-sac was still contracting; and after a few convulsions the queen was dead.

Vincennes, Ind.

JAY SMITH.

[The queen came duly to hand, and showed unmistakably the sting in the side of her body. We have had other reports of the same nature. But the matter has special significance just now because Dr. C. C. Miller raised the question whether or not a ball of bees would ever sting a queen, giving it as his belief that, if given time enough, they would suffocate her. It is probable that such a bunch of bees will at times smother and at other times sting the queen.—Ed.]



CHAPTER XIII.

CLOSING WORDS; FURTHER SUGGESTIONS TO THE PLANS GIVEN IN THE PRECEDING CHAPTERS.

After using what has been given in the previous visits, both in the home yard and out-apiary (for the plan is equally good for the home apiary) in its different stages of growth, as it developed during the ten years between 1889 and 1900, and pretty much entirely for the past five years, I wish to say that I believe it ahead of any and all other plans used up to the present time, in that it gives the largest possible number of bees at the right time for the harvest, with little or no disposition to swarm; controls swarming perfectly, puts *all* honey not needed for the rearing of bees or winter stores in the sections, and that with the least possible work that can be used when working for section honey. Doing this it is of great value in the home apiary, and an actual necessity for an out-apiary worked for section honey. An additional value that attaches itself to the plan is that the sealing or cappings of the honey in the sections are nearly or quite as white as those where honey is built by new swarms where they are hived in contracted brood-chambers having only frames with starters in them below, which all know is of a whiteness heretofore secured in no other way. This fact alone would be of sufficient value to pay any bee-keeper for adopting it, even if it were not "head and shoulders" above any thing else in securing a big crop of section honey without any swarming.

The cause for this white capping, as I view it, comes from the bees fully cleaning, perfecting, and partly or wholly filling the combs along their tops, with honey, which,

later on, after the "shook" swarming has taken place, become their brood-nest; or when these combs are occupied for their brood-nest proper, none of this cleaning of old combs is indulged in, or cappings from over emerging young bees, handled, to carry bits of old comb or travel stain into the sections while they are being capped, as is the case with all other ways of using old combs. I have noticed for years that, when bees are cleaning old combs, or where much brood is emerging near the top-bars to the frames just under the sections, more or less of this refuse matter is worked into the cappings to our section honey. Even where new swarms, hived on starters, put brood next to the top-bars to the frames under the sections, the cappings to such sections as are sealed after this brood begins to emerge are not nearly so white as it was previous to this—especially along the comb in the sections near the bottom.

Then the labor part in producing section honey by the plan as here outlined is much less than with any of the other plans recommended in our bee books and papers, so far as I have tried them, and I have tried nearly all. A man of usual working ability should be able to work five out-apiaries, in connection with the one at home, with little if any help except, perhaps, a few days when he is making swarms and setting the bees in and out of the cellars. Were I from 25 to 40 years old, and free from the rheumatism which I now enjoy (?), I should not hesitate to undertake the working of six yards containing from 50 to 75 colonies each, including the home yard. But my age, and rheumatism in back and knees, to an extent which makes it very difficult to "get to going" every morning, and often with only pain and weariness during the whole day, prohibit me from taking a very active part in these matters much longer.

After preparing, crating, and marketing the honey produced by the sixteen colonies at the out-apiary, worked as has been given on the preceding pages, I summed up the product and found it as follows:

Section honey sold,	1763 pounds.
Given to neighbors,	42 "
Kept for home use,	27 "

Total, 1832 "

This divided by 16, the number of colonies worked for section honey, gives the average product of each colony as 114½ pounds, and that in a season when my bee-keeping neighbors report but very indifferent success. Had the season been good during the bloom of only one of the honey-producing flora this could easily have been 150 to 175 pounds, while good honey weather during all of the bloom would doubtless have chronicled an average of 250 to 300 pounds. There is also about 500 pounds stored in the reserve combs, ready for turning into bees, etc., next spring, which is fully as much as was on hand a year ago, besides an increase of nine good colonies.

As I see it, this yield of 114½ pounds per

colony in a poor season came from three reasons. First, the great number of bees in each hive at the commencement of the harvest. A careful estimate of the emerging bees in hives worked on this plan in the home yard, where I could more certainly verify these things by opening a hive or two set apart for such work, every day or often-er, if I thought it necessary, would give 76,431 bees on the stage of action at the time of the first "shook swarming," barring accidents. Then should we allow 16,431 for these accidental deaths, which would be a greater loss than I would think possible, we would still have 60,000 bees as the number to commence work in the harvest from white clover, which is a mighty army, sure.

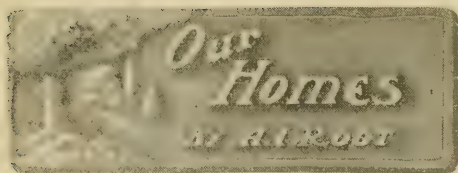
The second reason was, that these 60,000 bees had no desire to swarm, so they worked with great energy on every and all occasions, when there was a day or hour, even, when it was suitable for a bee to go out, or for the secretion of nectar.

The third reason was, the giving of super room enough, and in such a way that it encouraged them to the greatest activity, kept them from contracting the swarming fever, and at the same time did not, at any point, discourage them from entering this room nor cause them to retreat from any of the room which they had commenced to work in. This giving of storage room, in a way advantageous for the best work, either in a light or heavy flow of nectar, both before and after our "shook" swarming is done, is an item which has not sufficiently entered into the plans of the past. By this plan the bees are at work in a second hive of combs before they hardly know it; and at the time of our making them swarm, the whole of that "mighty host" are ready to take immediate possession of the sections through their previous occupation of a "super hive," which *now* becomes their "richly endowed" home or brood-nest.

The plan of coaxing bees to an early work in the sections, and at the same time retarding swarming by giving an extracting-super for a short period before the opening of the honey harvest, and on the advent of such harvest taking off this super and putting on the sections (this causing the bees to enter readily the sections from having previously worked in the extracting-super) was originated some years ago. But that plan did not place the honey stored in this extracting-super in the sections, nor prevent the swarming of the colonies so treated, later on; but generally right in the height of the honey harvest, when swarming is the most injurious to the prospect of a crop of section honey, hence was only a step in advance of the older ways of working.

To emphasize a little: The beauty of the plan I have now given is, it puts *all* honey, not *actually used* by the bees in the sections, and that with no swarming during the honey harvest, or previous thereto, and that with the *largest possible* force of bees in a colony, consistent with working for section honey.

Concluded in next issue.



This short sermon is by our old friend and correspondent, Rev. Frank McGlade. A. I. Root is away at present, but he left word that, in case he should not return in time, this appropriate talk on "Our Homes" should be used. It is needless to say that he most emphatically endorses every word.—E. R. R.

Go home to thy friends, and tell them how great things the Lord hath done for thee.—MARK 5:19.

When Jesus was in the world he was not *trying* to do good. Omnipotence never tries. He *does*. "God was in Christ," who "went about *doing* good."

Having done good to this poor mortal, and finding him "sitting, and clothed, and in his right mind," he directs him to "go home." H-o-m-e—a word of only four letters, but the dearest one in the world. There is no place like it, no power like it. It extends its influence unto all the creatures which God has made. The dumb brutes have it, and know it. "The foxes have holes, and the birds have nests;" and your horses out there, should they get loose and not be hindered, would "go home."

You need no admonition to "go home." You do it naturally, instinctively. Home is the best place in the world. You can do things and say things there, not allowed anywhere else. Home! I don't believe a person can fully realize what it is who has never been "homesick." There is no cry so plaintive and mournful as the wail of the lost child, "*I want to go home!*"

Then to be homeless—no place to call home, as was true of him who let that love-song, "Home, Sweet Home," "fly from its nest in his heart." It is said he wandered the streets of London homeless, and listened to the sounds of his song from the homes of the rich, and "never till he died had a home of his own."

There our best friends, our kindred, dwell. There's where father dwells—the one who has provided for us all these years; who has spent his best days and strength to make and keep a home for us. I have not forgotten the day my father was buried. Upon entering the house after the funeral I thought, "This is the first time in all my life I ever went home and father was not there to provide a meal for me." Young man, has God spared *your* father? If so, thank him for it, and be kind to him. He may seem stern, severe, or queer, and all that; but remember he is your father, and that one of these days he will be gone from the fireside, gone from the farm, and gone from the neighborhood, and you will regret every unkindness shown him. Be kind to him now, to-day.

Home is the place where mother dwells—

the dearest, sweetest soul in the world. There is no love like a mother's. We can always go to mother and find sympathy and a welcome. Mother! A few years ago a man was imprisoned here for a capital crime. I was down in an adjoining State. One morning I had a visit from a woman 71 years old, who, hearing of my presence in the country, had ridden thirteen miles on horseback to see me and ask me to go and see her boy and tell him I had seen her. I asked her if she was his mother. She replied, "Yes, Jeff's my baby."

I thought, "Oh, the power of a mother's love!" Prison walls and iron bars couldn't shut it out; the stain of crime could not blight it; floods can not drown it nor fires burn it.

Down yonder in the southern part of this State lives my mother. She is old and wrinkled and gray. I can remember when she was young, but I can not remember when she was unkind to me. I'm always sure of a royal welcome whenever I go home. She always wants me to stay longer and come oftener, and I *know she means it*.

Young lady, is your mother living? If so, bless the dear Lord and put your arms about her; kiss her on the cheek; she may be old and queer, and say and do funny things; but she's your mother, all the one you will ever have. God can give us but one mother. Be kind to her. When you go away tell her where you are going and when you will return. She has a right to know, for her eyes will refuse to close in sleep until she hears you come home, hears your step upon the stair, hears you enter your room, and then, only then, will she close her eyes to catch the much-needed rest tired nature requires that she may, on the morrow, be able to do something more for you. Be kind to her, for some day when you stand in the room with nothing but the picture of the dear face upon the wall you would give the world to have her back that you might do the things you neglected when she was here. No child can ever do enough to repay one-tenth of a mother's love and devotion. She does it not for pay. If all the silver in the world were offered it would be utterly contemned. Mother's chair is sacred. It's a low chair, with rockers. Pa fixed it one rainy day; but she liked it, and we children have learned to revere mother's chair.

You may have your family reunions and birthday surprises, and bring the fine chairs from town; but after you are all gone away mother will edge around to the old low rocking-chair. It's got loose, and "knocks;" but every knock tells her of the times she kept it going all night when you were sick and likely to die.

Home is the place of husband and wife—that strange mysterious relationship, a symbol of Christ and his church—the bride, the Lamb's wife. "Husbands, love your wives, even as Christ also loved the church, and gave himself for it," for there is nothing better in this world than to live peaceably with the wife of thy bosom all the days of this

life. Let me tell you, some day, when you come into dinner, and it is not ready, the baby cross, or wife ill, instead of scolding or even looking sour, just smile, and go up to her and put your arms around her and kiss her, right in the mouth, just as you used to do when you courted her. Nothing will brush away the clouds like that. It will do her more good than any thing else in the world. I regard my wife as my equal in all things, and my superior in many. I would not have married any other kind; and to-day, as I see the signs of failure appearing, the best thing I can say to her is that, after all these years, if I had the opportunity I would do the same thing—i. e., marry her. Yes, sir! I'd do it again, and pay the preacher a double fee—if she'd have me. I used to wonder if she would have me, and now I wonder why she did.

Wives, be in obedience unto your husbands—that is, be not gad-about, or peddlers of cheap gossip of the neighborhood, but take delight in learning to make good bread and apple dumplings.

There is an evil I would cry out against, and I don't know of any meaner name to call it than "nagging." It is a grievous evil that has wrecked many a home. One day I was in a station waiting for a train. There was a young husband and his wife, and two "fool" girls who brought all their powers of flattery to bear upon the fellow until he was really foolish. The wife bore it all in silence till the train came. He took a last long lingering look after them, and then turned to his wife and said, "That girl asked me to call on her." The wife replied, "You can have her if you can get her." But what it cost her to say that, the twitching of the lips and the expression of the eye only hinted at. Don't nag each other—don't. Husband and wife, listen.

The time will come when one of you shall harken

In vain to hear a voice for ever dumb;

Morns will fade, noons pale, and shadows darken,

While sad eyes watch in vain for feet that never come.

One of you two will some time face existence

Alone, with memories that but sharpen pain,

And these sweet days will shine back in the distance

Like dreams of summer dawns in nights of rain.

Let me tell you, never talk loud to each other except when the house is on fire, and don't set it on fire to get a chance to "holer."

Then there is another thing found in the home we must not forget or pass by—the babies. Bless their dear souls! those sweet armfuls of soft little balls of love that bind us all together—there never come too many that coo away the days and grow up until the mother wonders where they have gone.

But, to get back to the text, "Go home!" This is nearly Christmas time, and a custom has gained to make that time a season of home-coming. How or when it came to be that way, I don't know; but often when traveling on the cars I ask the train men, "Where are you going to spend Christmas?" They say, "I'm going home to see father and mother. I haven't seen them for a year or

two years." This, somehow, makes me feel good. There are hundreds of fine, manly, big-hearted young men employed on the railroads, and I would say to you, "Boys, go home and see your parents every time you can. You will never regret it. They talk of you in the day time and dream of you at night. Go home and spend Christmas every year so long as they live.

Now I'll soon be done. Some will say this is a domestic sermon. I know it is; and the only life worth living is the domestic life. Christ had more to say about the domestic life than any other. It is the only real life; all others are merely "shams."

The foundation of this republic rests upon the domestic life, and there is enough domestic for it to rest upon. That which made the late lamented McKinley great was his devotion to his afflicted wife; and to-day the whole nation feels best and sleeps soundest when they know that Mr. Roosevelt goes out and plays on the lawn with Quinten. *We know he's at home.*

"THE CALIFORNIA COLD PROCESS;" "COMPOUND EXTRACT OF SALYX."

Mr. A. I. Root:—For years I have placed a good deal of reliance on your judgment. Now will you please tell me if I can place any reliance on the enclosed circulars; also please tell me what the compound extract of salyx is. I took GLEANINGS until I ran out of bees—that is, almost out. I have seven stands, but no honey. Every thing is dried up here.

Panama, N. H.

J. R. CASSELMAN.

For several years past all of our agricultural papers have been cautioning people against investing money in the California cold process, etc. Let me repeat: There is no such thing as "compound extract of salyx." It can not be bought anywhere but of these swindlers, and they know it. The same thing has been trotted out from various localities for years past. The stuff they send you for your money has been several times pronounced injurious to the health; and, if I remember correctly, the Department of Agriculture, at Washington, issued a bulletin some years ago, cautioning people in regard to using any such chemical preservatives.

"THE ART OF ATTRACTING AND CATCHING SWARMS."

You might say in GLEANINGS that, if the people who live on the prairie where timber is scarce, will nail boxes up in trees with a small opening in the box, they can catch lots of stray swarms. I know a man who nailed up empty hives and caught 16 swarms one summer. A man on the South Loup River nailed up three boxes and got a swarm in each the first week. He got one swarm the next day after he put up his box. The Illinois man is a fakir, and the government should stop his mail.

Miller, Neb.

T. J. QUAIL.

Friend Q., we are very glad to get the above, because it makes it very plain indeed how Bryan, of Ficklin, Ill., gets his testimonials (and his dollars) from unsuspecting people. Boxes put up, such as he describes, will catch runaway swarms just as well without the red rag or the perfume of anise. See pages 752, June 1, and 897, July 1.



UNCOOKED FOOD.

It is now just about three months since I visited friend Terry and talked to you about uncooked foods. My health at present is about as good as it ever was in my life, and yet I am pretty close on to 67 years of age. I can do any work, physical or mental, about as well as I ever could. While I have not adhered *strictly* to uncooked food I have used more or less of grains, nuts, and fruit, at every meal. Let me tell you once more how simple a matter it is. I always find beside my plate a pretty little bowl that will hold perhaps two or three teacupfuls of grains and nuts. In this bowl there is always first Pettijohn's rolled wheat, uncooked; then there is the same quantity of what we buy as puffed rice, and about as much of salted peanuts. The rice and nuts are, of course, cooked; but they are not cooked by the good wife. She has no cooking whatever to do in preparing this simple meal. The bowl containing my grains and nuts does not even need to be washed at every meal. The spoon I use, and a cup in which I have about half a cupful of milk, are all. Now, this milk is not to be used to soften up the grains. You are to chew the nuts and grains dry, letting nature furnish saliva for the purpose. This is the most important matter of all, I think. Chew them until they are like cream and can be swallowed easily, taking plenty of time. I would take my milk mostly with my fruit. The fruit part of this "balanced ration" may be any fruit that comes handy; but I think I like nice ripe mellow apples better than any thing else. Just now I am having Early Harvest, Yellow Transparent, and Red Astrakhan. The latter are rather tart, and I think I like the Yellow Transparent best of all. They grew on some young trees that have just begun bearing. You do not know how I enjoy seeing them grow and gradually ripen up; and I do not think I ever enjoyed any of God's gifts in the way of food as I enjoy my fruits. The greater part of my lifetime I had a notion I could not eat bananas: but after my grains and nuts, a good-sized ripe banana seems to suit nature's craving better than almost any thing else. I generally drink my milk while eating my banana; and as the rest of the family have regular cooked meals I frequently eat some other things with the rest. But pie and cake always make trouble more or less, and so does any thing else that contains sugar. A little honey occasionally does very well; but when nature admonishes me to cut off all sweets I am obliged to heed it; and I am rejoiced to

know that my appetite for sugar and sweet things is pretty nearly gone. When I had apple-sauce (as I was obliged to have before the apples were ripe enough to be eaten raw) Mrs. Root made some for me without any sugar whatever. The sugar not only disagreed with me, but it utterly spoiled it for my taste—that is, after I had been in the habit of getting along without sugar. Now, some of you may think I am making a lot of fuss, and may be wasting a lot of paper by having so much in print in regard to this matter of diet; but I tell you, friends, it is a matter of *tremendous* importance—not only because it will help you to get back to your youthful strength and vigor, but because it saves the good wife and other women-folks a mountain of hard work, especially in hot summer time.

One more point: If you have not discovered it already, you can easily find it out for yourself, that good health depends very much on *regular* habits and regular hours. If you listen to Nature's promptings you will very soon see that she keeps *pleading* for regular habits. If you change the hour of your meals, good old Dame Nature will be put out a little at first. Pretty soon she will seem to say, "Oh! this fellow wants us to get used to having breakfast at 8 o'clock instead of 6. All right. If we only know what to depend on we can arrange our affairs so as to have it that way."

It sometimes takes quite a little spell for the good old dame to fix her plans and calculations; but when she does it, be careful how you needlessly upset them. Now, then, when it comes to traveling it is almost unavoidable that your meals be either earlier or later; but with my plan you can accommodate Nature by taking your nourishment right on the dot. A stout paper bag will hold your wheat, rice, and nuts, and you can almost put the ration for a meal in your vest pocket. You can carry along the fruit in your coat pockets or in a very small hand-bag, or you can buy them of the fruit-boy on the train. This will keep you in good health, and you will save dollars that otherwise might go to the dining-car. In our recent trip across Lake Erie, when it came dinner-time I found out there were no meals served for less than 75 cents each. Well, each of the boys had some money of his own—money he had earned. I went and sat down by them and said:

"Boys, it is dinner-time. We are all hungry. I shall have to confess to you that I entirely forgot to get a lunch this morning before we boarded the steamer. Now, if you want to pay 75 cents apiece for dinner out of your own money, all right. I will do as you do. But I will tell you what I propose. You know when we left the cabin there was some bread and butter left. In my valise there are four slices of bread and butter. At the news-stand on the boat there are bananas and salted peanuts. Now, I can make a very good dinner of one piece of bread and butter, some peanuts, and a couple of bananas. What do you say?"

They adopted my plan, and I think we all felt just as well as (to say nothing about a great deal better) if we had paid 75 cents apiece for an elaborate dinner. Of course, I could have paid for the boys' dinners, and perhaps given them a little treat. But the lesson in *economy* and *health* that this incident helped to give them, I think was worth more than any treat that could be given by the free use of money.

DOCTORING WITHOUT MEDICINE—LEMONS.

I have been sick ever since last April, until I read the article (see p. 675, May 15) in regard to taking lemons; am happy to say that I have tried the lemons, and went to the highest number (nine) mentioned, for one day, then decreased. Now I average five or six a week, and it keeps me feeling pretty well.

W. IRVING ADAMS.

South Granville, N. Y., Aug. 12.



THE GOVERNMENT FREE-SEED DISTRIBUTION.

It is estimated that the total number of packets of seed used in the United States is 120,000,000. Now, the government gives away 40,000,000 packets, and the seed-dealers sell 80,000,000. If these seeds were new and valuable varieties, and distributed for the first time among the farmers and gardeners of the United States, there might be some consistency in the whole matter; but, as everybody knows, they are now and have been for years sending out the commonest varieties known, and poor seed at that. We have tested them repeatedly year after year, and we are satisfied it would be money in the pocket of every person to buy first-class seeds of a reliable seedsman rather than to take these government seeds free of charge. A relative recently said to me that if the government had given him a dollar along with a five-cent package of tomato seeds he would have been out of pocket then. For five cents he could have bought a sufficient supply of seeds to have had a stand of good plants—all he wanted in his garden. But the government packet gave him the poorest-shaped tomatoes that anybody ever saw—something away behind the times. After all their pains in taking care of their plants they had a lot of tomatoes that were not fit to use. We are putting down the grafts and grafters at a pretty good rate just now. Why in the world not get rid of this old-time graft?

VETCH AS A HONEY-PLANT.

Mr. A. I. Root:—On page 636 of the *American Bee Journal* for August 9 there is a statement in regard to the value of vetch as a honey-plant. I believe you

have had some experience with vetches. Now let us know all about it.

J. W. SHAW.

Yorktown, Va., Aug. 15.

In reply to the above I would say that we have been watching for some time to find out just how much vetch is worth to the bee-keeper. From the article referred to in the *American Bee Journal* we make the following extracts:

Vetch has been in bloom for the past four weeks, and the bees have plenty to work on. They were hard at work on vetch when the picture was taken. There is over a thousand acres of it within a radius of two miles of my bees, and it is in bloom now, April 25.

Augusta, Ga.

J. L. PATTERSON.

May 7, Mr. P. writes again:

This year's vetch crop is the best in twelve years. On account of that, all the bee-keepers in the South, where they have vetch, ought not to complain about not having any honey this year. Those who do not get honey are lazy bee-keepers that do not look after their bees. The trouble is, they do not take enough interest in them, nor do they read the *American Bee Journal*. If they followed its teachings they would have success.

July 2, Mr. Patterson adds:

From the first hive on the top row I have taken 73 lbs. of the finest honey I ever ate. I get 12½ cents a pound for it. I shall get later, when I take off honey again, 127 lbs. all together from this same colony. Every one to whom I have sold honey says that my bees produce the best honey they have ever eaten. I helped two other bee-keepers take off their honey, and it is not as good as mine. Probably the *American Bee Journal* helps me produce better honey. The *Journal* is the only friend I have had since I started keeping bees.

Mr. York adds, "It would be interesting to know how far north vetch will grow successfully and produce honey."

From what experience I have had with vetch I am inclined to think it can be sown almost any time. On my place in Northern Michigan it came up after we dug our potatoes, and made sufficient growth to stand the winter. This latter point is not strange, however, because the soil is so well protected by heavy snow that many plants stand the winter there that will not here. Well, when I came to plant potatoes again on the same ground in June, some single plants of vetch were so full of bloom, and so large, that they would make nearly a wheelbarrow load. We have a leaflet for free distribution in regard to the plant. The *Country Gentleman* thinks that, if sown in drills, one peck will be ample; and the way the plant spreads out, not only in Michigan but here in Medina, I should think half a peck would be enough. We should be glad to get more reports in regard to its value for honey. The seed can be had at almost any of the large seedstores. The price should be from \$5.00 to \$7.00 per bushel.

A WONDERFUL HONEY-PLANT

is the century plant (maguey) just outside my bedroom window. The bees swarm on it early in the morning as soon as they can see, and for about two hours they get the nectar that gathers during the night, and then a few keep at it all day long, some staying over night. I have pumped a few of the blossoms this morning, having covered them to keep the bees off during the early morning hours. The amount secreted over night (12 hours) was an average of ¼ drachm (15 min.) to each bud just opened, and there are 200 such buds to each branch, and 35 branches on the stalk of one plant which continues in bloom for about

two months, beginning at the bottom branches, a few buds at a time, each bud furnishing nectar for ten days or two weeks, depending on the weather; if cloudy they last longer. Before all the buds on a branch are open, the first ones are done with, and before the top ones are open the bottom branches have their seed-pods formed.

Once pumping 7000 buds would bring one gallon and one pint of nectar, which reduced to honey, and 435 plants to the acre (at ten feet apart), would be about 34 cases (two tons) to the acre (of honey). I think I had better set out fifteen or twenty acres.

Escondido, Cal., July 21.

JAS. A. NELSON.

Very good, friend N. Your letter corroborates what has been said before in regard to the great value of the century-plant for honey; but how about the fact that it blossoms only once in fifteen or twenty years? Wouldn't that be waiting a good while for a crop? It is true that some of them would perhaps bloom every year; but, notwithstanding, I hardly think it would pay to grow century-plants for honey alone. If they are worth something for making rope, or something in that line, your speculation might be a good one.

A CALIFORNIA TREE THAT GREW 33 FEET IN 55 DAYS.

Mr. Root:—I send you a photograph of a century-plant we had a few years ago. The blossom-stalk began to shoot up April 7, and June 1 it had about reached its greatest height, which was 41 feet from the ground to tip, 33 feet in 55 days, the plant being 8 feet high to where the blossom-stalk started, the branches starting at about 16 feet from the ground. They bloom at from 16 to 20 years from the slip set out, and die outright as soon as they mature their seeds. In the meantime there are 50 or more small plants shooting up all around the roots of the old one. I also send with this a sample of the nectar for you to see the color, flavor, etc. The pollen is a light yellow.

Escondido, Cal., July 27.

JAS. A. NELSON.

Well, friends, you see the above statement puts my pawlonia tree away back in the shade; but the pawlonia (now 9 feet high, to-day, Aug. 7) is to make a real hard-wood tree that stands over winter, while the century-plant dies down to the ground after it blossoms. We have many of the century-plants in Florida; but I have never seen any thing like the height mentioned above. Both trees yield honey; but the sample of nectar from the century-plant was so thin that it soured on the way. When I took the cork out it came out with a pop, and foamed like beer; so I did not have a chance to tell you the quality of the nectar. I have been told that one century plant or tree furnishes a large amount of honey when full grown.

Later.—The pawlonia-tree is now, Aug. 20, 12 feet high, and many of the leaves are fully a yard across. Even if it should not live over winter, it is worth all it cost as a tropical-looking plant during summer time.

LITTLE CHESTNUT-TREES.

While passing through the grounds of our Ohio Experiment Station a few days ago I saw a little chestnut-tree, not taller than a currant-bush, just loaded with burrs. In fact, it was a comical sight to see such a little tree bearing such a burden of nuts. Prof. Wade, who was showing me around, could not just then give me the name of the variety; but it settled the fact to my satisfaction that

there are varieties of chestnuts where little bits of trees bear great crops. I have about a dozen around my cabin in the woods, but none of them have commenced to bear as yet. These little trees would look very pretty among the other dwarf fruit-trees.

POULTRY-KEEPING IN FLORIDA.

Mr. Root:—I spent last winter in Florida, and we found many obstacles in the way of poultry-keeping. I should like to ask, how did Mr. S. get rid of the hawks, owls, ticks, jiggers, and lice on the chickens? We had nine hens, and got eight or nine eggs every day. We were thinking of starting a poultry-plant there, but decided, after thorough investigation, it would not be profitable. We were located near Tavares, Lake Co.

West Milford, W. Va.

IRISSA BARTLETT.

Friend B., as nearly as I can find out Mr. Shumard brought on to the island, for his first stock, poultry entirely free from lice, jiggers, etc.; and being constantly in the open air, without any fixed-up roost, they kept entirely clean, and free from insects. Neither hawks nor owls troubled them when I was there; but perhaps they were exterminated like the four-footed enemies, with his unerring shotgun. The point I made in regard to poultry in Florida was to choose an island where their enemies can be banished, and kept away without very much labor. Eight or nine eggs a day from nine hens ought to satisfy any poultry-keeper.

CAN ANYBODY ON THE FACE OF THE EARTH MAKE IT RAIN OR STOP RAINING?

Here comes something in regard to the matter, quite unexpectedly:

It is generally known that the winds which blow daily from the Pacific Ocean are laden with moisture; but because of the lack of cool winds to precipitate the moisture it is carried mostly over the Coast Range and deposited on the top of the Cascades.

A company have been making an experiment of their theory with complete success, so that now a shower or a soaking rain may be had at five minutes' notice, and over an area of two rods square up to forty rods square—a shower that will continue for a minute, an hour, a day, or a week at the will of the operator.

A cylindrical tube six feet in diameter, built from sheet steel, and insulated with asbestos and mineral wool, has been laid from the foot of Mt. Lowe to the summit. Near each end of this tube, large air-fans—such as are used to force air to the bottom of mines—are placed so as to force the cold air from the summit of the mountain to the plain below. These fans are run by gasoline-engines. At the foot of the tunnel the air is separated into ten smaller tubes which spread over a surface of two acres. The cold air coming from the snow-covered summit of Mt. Lowe, striking against the warm moisture-laden air from the Pacific, precipitates the moisture to a fine rain. A trial test of fifteen minutes resulted in a rainfall of two inches.

The people are jubilant, as they see the end of the extortionate rates charged by the irrigation companies.

The above is from the *Evening News*, of Petoskey, Mich; but it is dated Feb. 13, 1906. Now, if this is all true, why has not somebody heard of it before, and called *A. I. Root's* attention to it before something like six months have gone by? Our Mr. Boyden has just returned from a trip to California, and he visited the locality mentioned; but he never heard a word of the new scheme of

rain-making. Can any of the California friends tell us something more about it? If the story is true I would gladly make a trip just to see it, and I would take the very first train at that.

Convention Notices.

The annual meeting of the Southern Bee-keepers' Association will be held in Atlanta, at the State Fair grounds, October 11 and 12. All interested are invited to attend. Further particulars may be had of the president, J. J. Wilder, Cordele, Ga.

The fall meeting of the Connecticut Bee-keepers' Association will be held Friday, October 12, 1906, in room 50 of the capitol building, Hartford, beginning at 10:30 A. M. Members will please note that the date is earlier this year. As a special effort is being made to get into touch with the 2500, or more, bee-keepers that it is believed are scattered over the State, it is earnestly desired that every member and friend of the association not only arrange to attend the forthcoming meeting, but send list of bee-keepers to the secretary at once, to enable him to extend a personal invitation to as many as possible.

J. ARTHUR SMITH, Sec.

Box 38, Hartford, Conn.

The annual meeting of the Missouri State Bee-keepers' Association will be held at the court-house, Marshall, Missouri, October 2 and 3, 1906. Elaborate preparations are being made by the Saline County Bee-keepers' Club for the reception and accommodation of bee-keepers. Hotel accommodations can be had at from one to two dollars, or board and lodging can be secured at fifty or seventy-five cents per day in private boarding-houses for those who will write to Mr. M. E. Tribble, at Marshall, Secretary Saline County Bee-keepers' Club, asking him to arrange for them.

Badges are being prepared, and will be mailed to those applying for them to Mr. Tribble. These badges are to be worn by bee-keepers when arriving on trains to assist the reception committee, members of which will meet each incoming train, to recognize the visitors.

It is the intention of the association to introduce a foul-brood bill at the next session of our legislature, and preparations for the work of canvassing the State in the interest of this bill are to be made at this meeting. It is, therefore, of great importance that we have a large attendance. All bee-keepers are invited to attend and join our association.

ROBERT A. HOLEKAMP, Sec.

4263 Virginia Av., St. Louis.

A CONVENTION OF BEE-DISEASE INSPECTORS AND OTHERS INTERESTED.

The following letter, just received from Dr. E. F. Phillips, of the United States Department of Agriculture, will explain itself:

Mr. E. R. Root:—I herewith enclose a circular letter which was sent out some time ago, and which will explain itself.

After hearing from a number of inspectors who agree to be present, it has been decided that this meeting will be held in San Antonio, Texas, November 6, 1906, the day preceding the first session of the National Bee-keepers' Association meeting. A number of persons prominent in bee-disease work will be present, and a good meeting will result.

To this meeting all persons interested in work on bee diseases are invited. The attention of persons interested in having bee-disease laws passed is particularly called to this gathering, and such persons are urged to attend. It is, of course, to be understood that discussion of subjects foreign to bee disease will not be allowed, nor will any one be permitted to occupy the time of the meeting in riding a hobby. This meeting is no part of National Bee-keepers' Association meeting, nor is it in any way connected with it. The proceedings will probably be published, so that the discussions will be available to those not present.

E. F. PHILLIPS,

Acting in Charge of Apiculture.

To the Bee-disease Inspectors:—As you are well aware, the brood diseases of bees are a serious thing to American bee-keepers. While the inspectors are fighting the progress of disease to the best of their ability, yet lack of laws, inadequate laws, and an absence of uniformity of method and of coöperation, make the work difficult.

For these reasons it has appeared advisable to call a meeting of inspectors for the purpose of remedying this condition of affairs, in so far as is possible, by consultation and coöperation of persons familiar with this work.

If the inspectors now at work on these problems can meet together, there are several subjects which could be discussed to advantage. Among these might be mentioned:

Comparisons of methods of treatment; locality, differences in disease and treatment; foul-brood laws now in force, with suggestions for improvement.

As a time and place of meeting, San Antonio, Texas, November 6, 1906, has been suggested, since the National Bee-keepers' Association meets there the day after, and the inspectors would thereby get to attend both meetings. At the same time it would add to the interest of the N. B. K. A. convention. The low railroad rates would make the expense less heavy. Another suggestion is Washington, D. C., where it would be possible to have the bacteriological side of bee-disease work explained and demonstrated. No decision of time and place will be made except by choice of the majority of inspectors who agree to come.

One of the important results of such a meeting would be that persons interested in the passage of new foul-brood laws would have an opportunity to consult with those already familiar with the fighting of bee disease, and get suggestions as to the best form of law. If such a meeting is held, it will be open to all persons interested; but it is understood that it is to be strictly an inspectors' meeting, and other persons will not be allowed to take up valuable time of the meeting in discussions.

The questions which we wish to have answered by the various inspectors are:

1. Are you in favor of such a meeting?

2. Will you come?

3. Will your State or county pay your expenses?

4. What is your choice of time and place?

In case of a good attendance and a successful meeting, arrangements can easily be made for the publication of the proceedings of the meeting, without cost to the inspectors.

We feel that attendance at such a meeting by the inspector would be of sufficient value to the community so that the State or county employing him should be willing to pay the necessary expenses of such a trip.

The hearty coöperation of every person interested in this work is earnestly requested. Such a meeting will be for the purpose of furthering work in fighting bee disease, and not to advance the interests of any person except the bee-keepers of America.

Kindly write at an early date, and let us know what you think of such a movement. A candid, full reply is solicited.

Truly yours,

W. Z. HUTCHINSON.

Inspector of Apiaries for Michigan.

N. E. FRANCE.

Inspector of Apiaries for Wisconsin.

E. F. PHILLIPS,

U. S. Department of Agriculture.

This, in my opinion, will be a very important meeting, for I am in position to know that bee diseases in many localities, especially where there are no foul-brood laws, are on the increase; and it is very important that some intelligent and concerted action were taken. The fact that the United States government through its representative, Dr. Phillips, has taken such an active interest in this thing deserves not only the thanks of every bee-keeper of the country, but any material aid he can render. As will be seen by the circular letter, it has been decided to hold the meeting the day before the National convention at San Antonio—certainly an opportune time and place.—Ed.

"If Goods are wanted quick, send to Pouder."

Established 1889

Bee-Keepers' Supplies

Distributor of Root's Goods from the best shipping-point in the Country. My prices are at all times identical with those of The A. I. Root Company, and I can save you money by way of transportation charges.

Special Notice!

During this month (September) I am offering a special discount of seven (7) per cent for cash orders for Bee-supplies for next season's use. After October 1st the discount will be six per cent.

**New Metal-spaced
Hoffman Frames
are Here in Stock**



**Headquarters for the
Danzenbaker
Hive**

**Dovetailed Hives, Section Honey-boxes,
Weed-process Comb Foundation,
Honey and Wax Extractors, Bee-smokers,
Bee-veils, Pouder Honey-jars, and,
in fact, Every Thing used by Bee-keepers.**

BEESWAX WANTED!

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express: large shipments by freight. Always be sure to attach name to package.

If you wish to secure finest grades of Honey with which to supply your neighbors, write for my market Quotations of the Indianapolis honey market, free.

Catalog Free

Walter S. Pouder
513-5 Massachusetts Av., Indianapolis, Ind.

At St. Louis

A complete line of Root's Bee-keepers' Supplies. Unexcelled shipping facilities for reaching the Middle West.

ADDRESS

Blanke & Hauk Supply Co.

202-204 Market Street
St. Louis, Mo.

ALSO MANUFACTURER OF AND DEALER IN

Dairymen's and Poultrymen's Supplies

Low freight. . . Prompt shipments.
Factory prices. . . Write for catalog.

Send Us Your Order

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company

H. G. ACKLIN, MANAGER

1024 Mississippi Street, St. Paul, Minn.

10^{per cent} Discount During September!

In order to liven up business during the dull months we will give ten per cent off all supplies, in the catalog, wholesale or retail, during September for goods for next year.

Jobbers for Central : Pennsylvania — for — ROOT'S GOODS

Now's the time to save money on goods for next season. Send for catalog. Best shipping facilities in the State.

Frank W. Prothero
Dubois, : : : Pennsylvania

DO YOU KNOW

That the sale of Dittmer's Foundation has increased so much that we were forced to double our melting capacity in order to fill orders promptly?

There is a Reason for This

It is because Dittmer's Foundation is tough, clear, and transparent, and has the natural color of beeswax.

AGENTS FOR DITTMER'S FOUNDATION

W. D. Soper Jackson, Mich.
Bee and Honey Co. Beeville, Texas
E. H. Taylor. . . Welwyn Sta., Herts, Eng.
E. Grainger & Co. Toronto, Ont., Can.

Our warehouse is well stocked with all kinds of bee-keepers' supplies.
Beeswax always wanted.

Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trester Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.



Michigan Distributors

—FOR—

G. B. Lewis Co.'s Beeware, Dadant's Foundation.

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service.

ADVANCED BEE-VEIL. Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

A. G. Woodman Co., Grand Rapids, Mich.

Dear Sirs:—Your advanced bee-veil just arrived, and is, as advertised, the best on the market. Find enclosure for ten more veils.
Platteville, Wis., April 14, 1906. N. E. FRANCE.

A. G. Woodman Co., Grand Rapids, Mich.

Beeswax Wanted.

We Manufacture

the finest, whitest, no-drip basswood **SHIPPING-CASE** on the market to-day. Covers and bottoms are of **ONE PIECE**. Everything is **POLISHED** on both sides, and a better case can not be had at any price. We can furnish them in single or carload lots to fit any number or style of section. Large quantities of all the standard sizes on hand. . . . As a special offer we will sell you 25 cases to hold 24 sections, complete with **NAILS, PAPER, and GLASS** at \$4.00. Write for prices on larger quantities. Furnish corrugated paper if desired. We can furnish you with any thing you need in the apiary. Our catalog is free. . . . **PROMPT SHIPMENT and SATISFACTION GUARANTEED.**

Minnesota Bee-supply Company Nicollet Island, No. 20, Minneapolis, Minnesota

BEE-SUPPLIES

LEWIS GOODS AT FACTORY PRICES

Best of everything the bee-keeper needs. Large and complete stock. **SEVEN PER CENT DISCOUNT.** Prompt service. Catalog free. Get our prices before ordering.

C. M. SCOTT & CO., 1004 E. Washington St., Indianapolis, Ind.

Established 1881

YES!

Same Place 1906

THIS IS THE MAN

WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year.

Geo. E. Hilton, - Fremont, Mich.

BINGHAM

Original
Direct Draft
CLEAN
Bee Smokers



Pat'd 1878, '82, '92 & 1903

Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and last; don't spit fire; don't go out; don't daub themselves all over. We are the most extensive *exclusively* bee-smoker makers in the world.

T. F. Bingham - Farwell, Mich.

Chico, California, October 28th, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.
J. M. RANKIN.

Third Photo Contest

We want bright interesting photos to illustrate GLEANINGS. Send in those you think suitable, and you will stand a chance of one of the prizes below.

PRIZES

Class A.—Photos of general interest, excluding swarms and apiaries. Prizes: First, \$5.00; second, \$3.00; third, \$2.00; fourth, A B C, cloth.

Class B.—Photo of swarms. Prizes: First, \$3.00; second, \$2.00; third, A B C of Bee Culture; fourth, GLEANINGS one year.

Class C.—Photo of apiary. Prizes: First, \$3.00; second, \$2.00; third, A B C of Bee Culture.

Special.—Photos that do not win prizes but which we can use will be awarded a prize of \$1.00 each.

CONDITIONS

Contest closes November 1st.

All photographs should be marked "For Contest," and have name and address attached. Prize-winning photos become our property. No photo returned unless stamps are sent. We prefer unmounted prints toned to a light-red-dish color on solio paper.

The A. I. Root Company

Photo-contest Department
Medina, Ohio, U. S. A.

Swarthmore Books!

BABY NUCLEI (2d ed.)—The second edition of this popular treatise is off the press. This book thoroughly covers the field of small mating under management. The experience of twenty years in mating young queens in baby nuclei is given. A delightful little book—good printing, enjoyable reading, and easy understanding. Price 25 cts. postpaid.

SIMPLIFIED QUEEN-REARING.—A revised edition of this book just out. It tells the honey-producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just an effective and economical plan for the bee-keeper who works for profit. Price 25 cts. postpaid.

INCREASE.—Don't depend entirely upon swarming for your increase. It's too slow and uncertain. Swarthmore tells of a way in his delightful little book entitled "Increase"—a natural way, simple and safe, no labor, little trouble. Colonies formed on this plan will work like prime swarms, and store a surplus. Price 25 cts. a copy postpaid.

CELL-GETTING.—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life. Price, postpaid, 50 cts.

SWARTHMORE QUEEN-REARING TOOLS.—Complete outfits or separate parts. Write for price list.

FOR SALE BY

The A. I. Root Company

ALL BRANCHES AND AGENCIES

Banking by Mail

4 : per : cent : Interest

NEARLY every man has a little money that he would like to have safely invested outside of his business, but in such a way that it would give him no worry, would be readily available should he need it, and at the same time earn a fair rate of interest.

Deposits of \$1.00 and upward are accepted by mail or in person, and interest allowed at the rate of 4 per cent, compounded every six months.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system. Write for the booklet to-day.

Assets over One-half Million



MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.



Just What YOU Need at Home.

For doing the necessary repairing of the "every-day" jobs in your home, and doing them RIGHT, there is no better or more practical article on the market than the 602 POCKET - KNIFE NAPANOCH TOOL-KIT. It embodies all the tools required—a pocket-knife, a saw,

a reamer, a file, a chisel, a screw-driver. The bag (which we provide) holds all the tools. It can be carried in your pocket. No "hunting" or "fussing" when you want a particular tool. The NAPANOCH is always "on the job." Sent postpaid on receipt of the price, **\$2.25**

... Guaranteed UNCONDITIONALLY
U. J. ULERY CO., W7 Warren St., New York



LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address: COILED SPRING FENCE CO., Box 448 Winchester, Ind.

JOSEPH HORNE CO.

Pittsburgh, Penn.

Elastic Cotton Felt Mattresses

The mattress which is best thought of to-day is the Elastic Felt Mattress. There has been considerable mystery thrown about the manufacture of this mattress on the part of certain manufacturers. We will be frank and tell you that a felt mattress is simply one in which the cotton is felted in by layers instead of being put in promiscuously.

Our Elastic Cotton Felt Mattresses are the equal of any on the market to-day, and they are all sold for popular prices. All weigh 45 lbs.

Of course we guarantee the mattresses we sell, and pay the freight on any of the following to any point east of the Mississippi River.

J. H. Co's Special Elastic Felt Mattress	\$15.00
"St. Regis" Electric Felt Mattress	: 14.00
"Ritz" Elastic Felt Mattress	: 12.00
"Savoy" Elastic Felt Mattress	: 8.50

We have an excellent cotton mattress—not a felted mattress, but a thoroughly good article—filled with the best grade of picked cotton, full double-bed size, for which we ask only \$6.75.

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it six months on trial. Sample free.

The Southern Fruit Grower, Box 1, Chattanooga, Tenn.



CHOICEST FRUIT

and Ornamental Trees, Shrubs, Roses, Plants and Bulbs. Catalogue No. 1 free to purchasers of Fruit and Ornamental Trees. No. 3 free to buyers of Holland and other Bulbs, Hardy Plants and Vines, Roses, Ferns, Araucarias, Palms and Greenhouse Goods in General. Try us. Will give you a square deal and guarantee satisfaction. Correspondence solicited. 53 years; 44 greenhouses; 1200 acres.

THE STORRS & HARRISON CO.
Box 274, PAINESVILLE, OHIO.

850,000 GRAPE VINES

100 Varieties. Also Small Fruits, Trees, &c. Best root-ed stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. Lewis Roesch, Fredonia, N.Y.

Queens from 50 Cents Up!

Bred from Root's Imported Italians. Write for prices, stating wants. . .
C. M. Church, Arnold, Pa.

PAROID ROOFING

The only Roofing Sold on
a Money-back Guaranty.
Read Our Trial Offer. . .

YOU want, when you build or repair, the very best that you can get for your money.

We are confident that *Paroid* is the best, and all we ask of you is that you *try* it.

BUY one lot of *Paroid*; open it; examine it; apply it to your roof, and if then you are not satisfied that you have the best ready roofing in the market, send us your name and address and we will send you a check for the cost of the roofing and cost of putting it on.

We *know* *Paroid* is the best, and we feel sure it will satisfy you because it *is* the best.

This is why:

The felt—the foundation of the roofing—we make ourselves in our own mills (established in 1817). Ninety years' experience has taught us how to make it. We *know* it is right. We take no chances, as do other manufacturers who buy their felt wherever they can get it cheapest.

* * *

We soak this perfect felt in a compound of our make—the result of years of experience—which renders every fibre of it—through and through—absolutely *water-proof*. Remember, not dipped but *soaked*.

* * *

We coat this water-proofed felt on *both sides* with a smoother, thicker, tougher, and more elastic coating than is on any other roofing on the market.

An examination will convince you of this.

Don't take our word for it, but compare a sample of *Paroid* with other makes.

Freeze the samples and try to bend them.

Paroid will be as flexible as in warm weather, while others will break and crack.

You can *feel* and *see* that *Paroid* is more *flexible*, *tougher*, *smoother*, *stronger*, more *durable*, and more *sightly* than any other.

* * *

But that's not all.

Paroid is not only the best ready roofing made, but the method of laying it is best.

In every roll you will find a complete roofing-kit including our *patented caps*.

The caps are square, and so give larger binding surface.

They are water-proofed on *both sides*, and so *can not rust* and work loose, and cause leaks as *all other caps do*.

You get these caps *only* with *Paroid*.

* * *

The best piece of felt—the most thorough saturation—the toughest and most flexible coating—and the *only* rust-proof cap.

Do you wonder that *Paroid* lasts the longest, in all weathers and under all conditions?

Will you try it on our money-back guaranty?

Send for samples and see for yourself. If your dealer will not supply you send to us direct. We pay the freight.

F. W. Bird & Son, 20 Mill Street, E. Walpole, Mass.
1420 Monadnock Bldg., Chicago, Ill.

CUT OUT AND MAIL THIS TODAY.

Please mail me your book of plans for farm buildings and samples of *Paroid*. I enclose 4 cents for postage.

Name.....

Address.....

Fire Sale Bee and Poultry Supplies

Come or send, and save 25 to 50 per cent on slightly damaged goods. NEW LEWIS GOODS at factory prices by return freight. Golden Italian or Red-clover queens by return mail. Untested, 75c; select untested, \$1.00; tested, \$1.25; select tested, \$2.25. Full colonies in up-to-date hives, and nuclei.

H. M. Arnd, Propr. York Honey & Bee Supply Co. (Not Inc.)
Long Distance Telephone, North 1559. 191 and 193 Superior St., Chicago, Ills.

HONEY-JARS!

A neat package is a great help to the sale of your extracted honey. A glass jar is the favorite for many markets. Some retail trade demands one style and some another. We can supply you with what you want.

Simplex Honey-jars

This is a new jar with glass screw-top and rubber gasket fitted to the taper screw on jar, which seals absolutely airtight. We consider it the handsomest jar we sell for one pound of honey. Your honey in these jars is sure to attract attention and have a ready sale in any grocery.

We are now prepared to offer Simplex jars in partitioned cases of two dozen each, ready to reship, when filled, at \$1.00 per case; ten-case lots or over, at 95 cts.; fifty-case lots at 90 cts. We can ship either from Medina, Chicago, New York, Philadelphia, and, after Sept. 1, from Mechanic Falls, Me.



SIMPLEX JAR

No. 25 Jars

This is our standard jar—holding one pound of honey. We have sold this jar for years, and in larger quantities than any other honey-package we ever handled. It has opal cap with rubber ring and tin screw rim. Put up in re shipping-cases of two dozen. Prices same as Simplex jars quoted above.



NO. 25 JAR

Tip-top Honey-jars

This is a new-style jar sealed with a rubber ring under rim of a glass top held securely with spring-top fastener. This fastener is applied to a great variety of bottles and jars used for different purposes. We have selected two styles among them all as being most suitable for honey. The one and two pound square jars may be had with spring top fastening instead of cork at 75c per gross extra. We furnish in two sizes. Half-pound, 45c per dozen; gross, \$4.50. One-pound, 50c per dozen; gross, \$5.00.



TIP-TOP JAR

Tumblers

There seems to be an increasing demand for a cheap tumbler to put up a half-pound of honey to retail at 10 cts. We have secured a stock of such tumblers at a price which enables us to offer them at \$4.00 per barrel of 24 dozen. This is less than 1½ cts. apiece. For less than barrel lots we can not repack them for less than 25 cts. a dozen; or we will put them up 4 dozen to the case with partitions ready to reship when filled, at \$1.00 a case; 10-case lots at 95c.

Mason Fruit-jars

These are very largely used for canning fruit, and are often used for honey as well. As we buy them by the carload, we can make the following prices at Medina, all put up complete with porcelain-lined caps and rubbers, in cases of one dozen:

SIZE	Doz.	6 doz	12 doz
Pint	\$ 52	\$3 00	\$5 75
Quart	55	3 10	6 00
½-gallon	75	4 10	8 00

Triumph wrench for Mason caps, 15c each; by mail, 25 cts.

Ball's waxed rings, better than rubbers, 5c dozen; postage 3c.

Sample Mailing-blocks

Price each, 6c; by mail, 8c.

These are small wide-mouthed glass bottles, which hold ½ oz., with cork, put up in a mailing-block, with top which screws on and is easily removed.

Honey-labels

We print them in large and small lots; over fifty styles. Write for sample-book and prices.

Prompt Shipment

All of our branches and agents are well supplied. Write the one nearest you.

The A. I. Root Company, Medina, O.

BRANCH OFFICES IN THE UNITED STATES

44 Vesey St., New York City

144 East Erie St., Chicago

10 Vine St., Philadelphia, Pa.

Mechanic Falls, Me.

1100 Maryland Avenue, S. W., Washington, D. C.

1635 Genesee St., Syracuse, N. Y.

1024 Miss. St., St. Paul, Minn.

BEE-KEEPERS OF NORTHERN NEW YORK

Buy your shipping-cases, etc., of

A. H. Reeves, Perch River, Jefferson Co., N. Y.

and save freight charges, and time.
A complete stock on hand ready for
shipment. Comb honey wanted in
no-drip cases; also beeswax. . . .

Marshfield - Hives - and - Sections

kept in stock; none better. DITTMER'S foundation
and all kinds of bee-keepers' supplies sold right. Thou-
sands of shipping cases, 24-pound, 13 cts.; fancy white
basswood, 16 cts, HONEY and BEESWAX wanted.
Send for free list, and save 20 per cent on your order.

W. D. Soper, Route 3, Jackson, Michigan

Something New in Honey-jars...

Cook's Square Jar combines a new fea-
ture that improves the package and
reduces the cost, and is the best and
cheapest one-pound glass package made.
Send for circular and full catalog of
hives, bees, and useful implements. . .

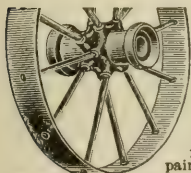
J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and
only Reliable goods sold. 10 cents brings
sample jar by mail.

Jelly-tumblers at Reduced Prices !

You can double your money from your honey crop
by using Jelly-tumblers of correct style, as contain-
ers, and keeping your market supplied. No other
glass so economical. Write for quotations.

OREL L. HERSHISER,
301 Huntington Av., Buffalo, N. Y.



STEEL WHEELS

with wide tires double the use-
fulness of the farm wagon.
We furnish them any size to
fit any axle. Cheaper than re-
pairing old wheels. Catalogue free.

EMPIRE MFG. CO., Box 91A Quincy, Ill.

BEES and QUEENS

BY RETURN MAIL.

**The Three-banded
Long-tongued Strain
of Italians.**

We are breeding exclusively the above strain of
bees, as from years of experience we consider
them the best all-round bees that can be had. We
have been making, from time to time, very careful
selections for the following

Superior Qualities.

Honey-gathering, size of bees, non-swarming,
docility, uniform markings.

Our selection of bees awarded diploma at the
PAN-AMERICAN EXPOSITION for being the
best bees there. And we guarantee them the
equal of any bees anywhere at any price

Quality Our Motto.

1300 colonies to select from.

Untested queens.....	75c; 6,	\$4.25; 12,	8.00
Select untested queens.....	1.00; 6,	5.00; 12,	9.90
Tested queens.....	1.00; 6,	6.00; 12,	11.50
Select tested queens.....	1.50.		
Breeding queens,	\$3.00 to \$5.00.		

Yours for best service,

**The Victor-Knolle Apiary Co.,
Hondo, Texas.**

Northeastern and New England BEE-KEEPERS

Order goods now. Don't delay. Have
them ready when you need them. We
keep a full line in stock at Medina
prices. Save both time and freight
by ordering of us. Beeswax wanted.
Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

HONEY-JARS

No. 25, with burnished cap, heavy clear
glass, per gross, \$5.00; 3 gross, \$13.50.
11-ounce nickel-cap jar, gross, \$4.00;
3 gross, \$11.00.
1-lb. square jar with cork, gross, \$5.00.
Heavy cartons, \$5.50 per M.
Italian queens, 75c. Catalog free.

I. J. Stringham
105 Park Place, N. Y. City
Apiaries at Glen Cove, L. I.

QUEENS

By Return Mail at the Following Prices for the Balance of this Season. Golden or Leather-colored Italian. . . . The Season will soon Close, so Hurry in Your Orders. . .

Grade of Queens	1	6	12
Select Queens.....	75	\$4 00	\$7 00
Tested Queens.....	1 00	5 00	9 00
Select Tested Queens.....	1 50	8 00	15 00
Breeders.....	3 00	15 00	
Straight Five-band Breeders	5 00		

Safe delivery and satisfaction guaranteed of all queens. Any queen not satisfactory may be returned any time inside of sixty days and another will be sent gratis.

Address all Orders to

**Quirin-the-Queen-Breeder,
Bellevue, Ohio.**

When a Thing Needs Doing

NO *N* is the time to do it. How about those worthless queens? Will you tolerate them for another season, when the best of stock can be obtained so readily? Laws' bees and queens are bringing the best of reports. I could fill many pages of testimonials, but give you only one. Mr. T. P. Robinson, of Bartlett, Texas, says: "Dear Sir.—The car of bees shipped June 20th are now all safely landed, and I have overhauled the entire lot. The bees are from 25 to 40 per cent better than contract, and you ought to hear my wife's exclamations of delight at seeing those fine yellow bees so quietly nestle between the combs at the very approach of smoke. I can certainly recommend you."

Leather and Golden Italians, Holy Lands, and Carniolans—single queen, \$1.00; six for \$5.00. Quantity lots, prices on application.

I also manufacture the Hoffman frames, both new and old style, at \$16.00 per M; single-story eight frame hive complete, 75c; 1½-story for extractor, \$1.00. Price list on application.

W. H. Laws, Beeville, Bee Co., Tex.



**Fine, Young, Prolific
Three and Five Band
ITALIAN QUEENS**

by return mail; untested only 45c,
or \$5.00 a dozen; tested, 65c.

J. S. FAJEN, Alma, Mo.

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy-Lands, Italians.

The JENNIE ATCHLEY CO.,

Box 18, Beeville, Bee Co., Tex

Golden-All-Over

ITALIAN - QUEENS

I have a few choice untested Golden-all-over Italian queens, reared from Pratt stock, by Pratt's methods, and will be able to supply a limited demand for balance of the season at 75c each.

**Wm. A. Shuff, Philadelphia, Pa.
4426 Osage Ave.**

SUPERIOR STOCK.

I make a specialty of long-tongued Italian red-clover honey-queens. Untested queen, 75 cts. each; ½ doz., \$3.00; tested, \$1.00; ½ doz., \$5.00. Bees for business is my motto.

FRED. LEININGER, Ft. Jennings, O.

Yellow from Tip to Tip!!!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce Golden queens and beautiful bees; non-swarmers, very gentle, and hustlers for honey. Single queen, \$1.00; three queens, \$2.50; six, \$4.50, or \$8.00 per dozen. Large select breeding queen, \$2.00 each. Every thing guaranteed.

H. ALLEY, - - Wenham, Mass.

Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:

Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

H. M. PARKER, Jr.

James Island, South Carolina

CARNIOLANS our SPECIALTY

WE HAVE been breeding this wonderful race of bees for over twenty years, and during all this time we have been making very careful selections, and we now claim to have one of the best and purest races of Carniolan bees in this country.

They are very gentle, hardy, and prolific; the best of workers; they come out of winter quarters healthier and stronger in bees; they build up very rapidly in the spring, are great comb-builders, and their sealed combs are of snowy whiteness.

Also Breeders of Golden and Leather Italians

No foul brood or other bee-diseases here. Bees and queens guaranteed to arrive in good condition at your postoffice in the United States or Canada. Descriptive price list free.

PRICES.—Untested queen, 75c; six, \$3.90; doz., \$7.00. Tested, \$1.25. Best breeding, \$2.50. Best imported,

F. A. Lockhart & Co.,

\$4.00. One L-frame nucleus, 75c; two-L-frame nucleus, \$1.50; three-L-frame nucleus, \$2.00. Add price of queen wanted to nucleus. Special prices quoted on large orders to dealers.

Banater Bees from Hungary

This wonderful new race of bees takes the lead over all other races, all points considered, that we have seen. The three colonies we are testing are strong in bees; do not offer to swarm; are great honey-gatherers; build snowy white combs, and are very gentle; in fact, no smoke is needed to handle them. They resemble the Carniolans in color, though somewhat darker. We have never seen a race of bees with so many desirable qualities. We shall breed a limited number of queens for sale, and have started a queen-rearing apiary five miles from other bees, and expect to have laying bees ready to mail by July 15. Price \$5.00 each. Pure mating and safe arrival guaranteed.

Lake George, New York

Orders Filled Promptly by Return Mail

Queens from our fine strain of three-band Italians will not disappoint you. Bees are gentle, and the best of honey-gatherers. Queens are large and prolific, and every one guaranteed. Untested, 50c; \$6.00 per dozen. Tested, \$1.00.

J. W. K. SHAW & CO.
Loreauville, Iberia Par., Louisiana

The Best Stock

Nice three-banded Italians that are guaranteed to please, or money refunded. The Robey queens now go to nearly all parts of the globe. They are being used by many of the largest honey-producers of this and other countries, who pronounce them to be very superior strain of bees. I have spent 21 years in building up this strain of bees. Warranted purely mated, in any quantity, 60 cts. each; selected warranted, 75 cts. each.

L. H. Robey, Worthington, W. Va.

Untested Queens! Golden Italian

75 cts. each; six for \$4.00; an extra fine one for \$1.00. Warranted purely mated and good queens. . . .

J. B. Case, Port Orange, Fla.

Italian and Caucasian QUEENS

A special discount is now offered on all queens and bees to be delivered before the close of the season of 1906. Pure stock, pure mating, and excellence of grade guaranteed. Address

Robert B. McCain, R. F. D., Yorkville, Ills.

DOOLITTLE & CLARK

will send CHOICE QUEENS the remainder of the season at the following prices:

Grade.	One	Three	Twelve
Untested.....	\$1 00	\$2 50	\$9 00
Select Tested.....	1 50	4 00	14 00
Tested (1905 rearing).....	2 50		
Select Breeding.....	5 00		
Extra Select Breeding.....	10 00		

Now is the Time to Requeen

Borodino, Onondaga Co., N. Y.

MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, 75c; six, \$4.00; twelve, \$7.50. Tested, \$1.25; six, \$6.00. Twelve, \$11.00. Best breeders, \$2.50. Safe arrival guaranteed.

W. H. Rails, - - - Orange, Calif.

Red-clover and Italian Queens!



Average untested, 65c; two for \$1.00. Select untested, 75c. Fine tested queens, \$1.00 each. Four-frame nuclei, fine queen, in painted hive, \$3.75. Remember we guarantee our queens to work red clover as well as white clover. Get my circular.

Queens sent in rotation; 50 and 100 at special prices.

G. Routzahn, Route 3, Biglerville, Penn.

Better than an Island

This place is just as good as an island for breeding queens, for there are no other bees within five miles, and so pure mating is guaranteed. It is better than an island when you order queens, for the fastest trains stop here, and hence queens are not away from the colony long enough to impair their usefulness. Safe introduction is guaranteed if you follow my special directions. The best bees known are the Banat Caucasians. The gentlest bees known are the Caucasians. The nicest bees known are the Golden Italians. Banat Caucasian queen, \$3.00; Caucasian queen, \$1.50; Golden Italian queen, 75 cts.

Dele Collins, Ph. D., Emporium, Pa.

Superior Queens!!!!

—Before June 15— —After June 15—

Italian and Carniolan

Untested.....	75c; \$8.00 per doz.	60c; \$6.50 per doz.
Tested.....	\$1.00; 11.00 per doz.	75c; 8 00 per doz.
Select Tested...	1.25; 12.00 per doz.	1.00; 11.00 per doz.

Caucasian

Untested.....	\$1.00; \$11.00 per doz.	75c; \$8.00 per doz.
Tested.....	1.50; 16.00 per doz.	1.00; 11.00 per doz.
Select Tested...	2.00; 20.00 per doz.	1.25; 12.00 per doz.

Write me a postal card for my circular.

Chas. Koeppen, Fredericksburg, Virginia

MOORE'S - STRAIN - OF - ITALIANS

as Red-clover Workers.

Wm. S. Slocum, Newport, R. I., writes: "My friend, W. O. Sweet, West Mansfield, Mass., asked me about two years ago where he could get good queens, and I referred him to you. To-day he called on me and said he noticed the colonies with your queens were storing much faster than others. He went immediately to his red-clover field, and saw bees working there freely."

Untested queens, 75c each; six, \$4.00; dozen, \$7.50.

Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00.

Safe arrival and satisfaction guaranteed. Descriptive circular free.

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Ky.

IMPROVED

Red - clover Italians

for honey-gathering, hardiness, and non-swarming can not be surpassed. I breed for business the bees that will fill your hives with honey. Untested queens, 60 cents each. Safe arrival and satisfaction always guaranteed.

H. C. Clemons, - Boyd, Ky.

ITALIAN QUEENS

bred from best of honey-gatherers, either three or five banded or Golden races. Untested, 65c each, 3 for \$2.00, 6 for \$3.75, 12 for 7.25; tested, \$1.00 each, 6 for \$5.00, 12 for \$9.00; select tested, \$1.50 each; breeders, \$300 each.

J. W. Taylor, Beeville, Bee Co., Texas

YEARLING QUEENS

of doubtful mating, J. P. Moore Red-clover strain, 35c each. Also single-comb Buff Orpington cockrels for sale at \$1.50, \$2.00, \$3.00. Root German wax-press, \$5.00.

A. H. Kanagy, - Milroy Penn

DAUGHTERS from my famous \$100.00 Red-clover breeder, also Golden Italians, 50c; tested, \$1.00.

H. A. Ross, 1709 Up, Second St., Evansville, Ind.

Wants and Exchange.

☐ Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rate. This department is intended only for bona-fide exchanges. Exchange for cash or for price lists, or notices offering property for sale will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED. For cash, solar wax-extractor.
E. BRUBAKER, 14 North Third St., Philadelphia.

WANTED.—Bee supplies in exchange for 300 colonies bees. Ad. elsewhere. Manufacturers write if interested. LEO F. HANEGAN, Glenwood, Wis.

WANTED.—Photos for our third contest. For particulars see ad. on page 1203.
THE A. I. ROOT CO., Medina, Ohio.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To correspond with parties that will need a first-class man to handle bees the coming season.
J. LAWRENCE,
141 First Ave., Station B, Dallas, Texas.

WANTED.—To rent or sell good fruit and berry farm with or without apiary; good markets; soil unsurpassed and good location for bees.
A. E. WOODWARD, Rt. 1, Rexford Flats, N. Y.

WANTED.—To exchange or sell 40-acre farm and apiary. Apiary over 100 colonies, strong and healthy. Farm, no waste land, nearly half under cultivation—grain, clover, and dairy; excellent creamery $1\frac{1}{2}$ miles; fine location.
E. S. ROE, Clarissa, Minn.

WANTED.—Sealed bids for any part of two carloads of hives and supplies located at San Antonio, Texas. The right reserved to reject any and all bids. If not sooner disposed of, the whole lot will be sold at auction, piece-meal, during the next session of the National Bee-keepers' Association, San Antonio, Nov. 8, 9, 10. W. H. PUTNAM, River Falls, Wis.

Wanted, Situations.

WANTED.—For 1907, employment in a large apiary in the U. S., by a young man of very best habits; some experience with bees. He asks boarding, washing, and wages according to worth. References.
JAN MOET, Apeldoorn, Rerklaan 334, Holland.

For Sale.

FOR SALE.—Second-hand job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—400 acres choice citrus fruit land.
ALBERT GUNN, Cespedes, Camaguey Prov., Cuba.

FOR SALE.—First-class second-hand 5-gallon honeycans, two in the case.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—Forty acres good fruit land and 100 or more colonies of bees cheap.
R. S. BECKTELL, Grand Valley, Colo.

FOR SALE.—My apiary complete in the great irrigated alfalfa belt; no failure yet. See GLEANINGS of Dec. 15, 1903, page 1051.
C. K. C., Lovelock, Nev.

FOR SALE.—Second-hand telephones in good condition at less than half price.
G. A. WATT, Bellevue, Ohio.

FOR SALE.—Eight acres fruit and market garden; good house, buildings, and water; 15 colonies of bees.
J. HARRIOTT, Stamford, Ontario.

FOR SALE.—New 650-volt $\frac{1}{2}$ -h.p. motor; just the thing for small power using electric-line current. Also Goodell foot-power lathe.
G. A. WATT, Bellevue, Ohio.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to
FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Seeds of honey-plants—seven-head turnips, motherwort, catnip at 5c a package, postpaid; still a few sections at reduced price; 24-lb. shipping-cases, complete, 14c.
H. S. DUBY, St. Anne, Ills.

FOR SALE.—\$1000 annual income can be made from my two-acre strawberry and truck garden, with 35 colonies of bees in this city; a large house, extensive waterworks; an elegant home. Price \$5000.
J. NIPE, De Funiak Springs, Fla.

FOR SALE.—Forty-acre ranch, fenced but unimproved except small frame house; fine spring near house; good soil, no alkali, fine alfalfa and fruit land. Also for sale, 100 or more colonies bees. Location very good for alfalfa and sweet-clover honey. Good reason for selling.
R. S. BECKTELL,
Grand Valley, Garfield Co., Colo.

FOR SALE.—Angora and Persian cats; mostly all colors. Persians pure white with blue eyes. Everybody admires these beautiful pets. Women make money raising them. Good profits. Cats and kittens for sale at moderate prices. Also have ferrets for sale. Send stamp for circular.
MRS. J. F. SKEES, Marion, Ohio.

Bees and Queens.

FOR SALE.—400 colonies pure Italian bees in lots to suit. Write for prices.
F. A. GRAY,
Redwood Falls, Minn.

FOR SALE.—Queens. I breed a superior strain of fine golden-all-over Italians. Untested, 75c; tested, \$1.00.
T. L. McMURRAY, Ravenswood, W. Va.

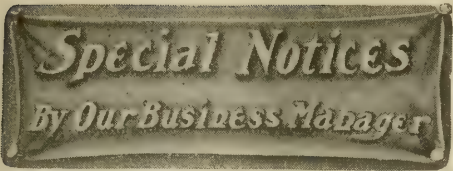
FOR SALE.—50 full colonies of Italian bees in 10-frame Root Dovetailed Langstroth hives at \$3.00 each.
EARL BAKER, 3309 Monroe St., Sta. B, Toledo, O.

FOR SALE.—275 colonies of bees in good condition. Also can locate you on first-class homestead claim under Gunnison tunnel, one of Uncle Sam's biggest reclamation projects. Address Box 782, Montrose, Col.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season. W. N. CANNON, Greenville, Ala.

Poultry Offers.

FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free.
A. H. DUFF, Larned, Kan.



EARLY-ORDER DISCOUNT.

Only two weeks remain in which to take advantage of the extreme discount of 7 per cent for early cash orders. After Oct. 1 the discount drops to 6 per cent. Send in your orders while the full amount of discount is available.

SWEET-CLOVER SEED.

We have secured an abundant supply of unhulled white-sweet-clover seed which we offer at 12 cts. per pound; \$1.00 for 10 lbs.; \$8.00 for 100 lbs. By mail, postpaid, 20 cts. per pound. We are not yet supplied with hulled seed of the yellow variety. If any of our readers are prepared to supply it we should like to hear from them.

HONEY-PACKAGES.

We are well supplied with stock of Simplex and No. 25 jars, also 1/2-lb. tumblers and most other glass packages for honey. An accident has occurred in the factory making the Simplex jars, and they are not prepared to supply more, and may not be for some months. We have good stock in Philadelphia, Pa., and Mechanic Falls, Me., and a fair stock in New York, Chicago, and here.

FACTORY REPAIRS.

Our factory is shut down during most of this month undergoing repairs in the power-house. We are adding another story, 35x50, to the boiler-house, increasing the height of the smoke-stack 15 feet, and enlarging the flue in the same, so as to get better draft in the boiler furnace. Our new office and printing-building is progressing nicely, and we hope to occupy it in November.

CHAFF HIVES FOR WINTER.

Winter is approaching, and if you have not made provision for protecting your bees during the winter months you will need to be making your plans. Remember that chaff hives or winter cases not only afford protection to the bees during winter and spring, but are equally valuable in maintaining uniform temperature in the summer, and tend to increase the yield of honey.

SHIPPING-CASES.

If in need of cases for your comb honey, remember it pays to use the best. Light basswood cases, neatly made, improve the appearance of your honey, and very often means a difference in price sufficient to pay for good cases over poor cases such as you will often get at your local mill or of inexperienced manufacturers. We have a good stock of all sizes, listed ready for immediate shipment.

TIN CANS FOR HONEY.

We are still supplying tin cans for honey, at reduced prices, and we have a good stock to draw from. If in need of cans, let us hear from you.

No. in a box.	Capacity of each can		Price of		Wt. of
	in gallons,	in honey.	1 box.	10 bxs.	1 box.
1	5-gal. can	boxed 60 lbs.	\$ 50	\$ 4 50	10 lbs.
2	5-gal. "	60 "	75	7 00	15 lbs.
10	1-gal. "	12 "	1 25	12 00	20 lbs.
12	½-gal. "	6 "	1 25	12 00	20 lbs.
24	¼ gal. "	3 "	1 75	16 50	25 lbs.
100	1-gal. "	12 "	10 00	95 00	110 lbs.
100	½-gal. "	6 "	8 00	75 00	80 lbs.
100	¼-gal. "	3 "	6 00	55 00	60 lbs.

In lots of 50 boxes or over we will furnish the 60-lb. cans, two in a case, at 65 cts. a box.

HONEY WANTED.

There seems to be a shortage of honey, or else those who have it to sell are not very anxious to dispose of it. We have made several calls for honey, and have not been able so far to secure it fast enough to supply our orders and provide a surplus ahead. We are in the market for choice comb and extracted honey, and should like to hear from those who have it to sell. If it is comb honey, tell how much you have of fancy and No. 1 white, and how it is packed; what size of section, and the number in a case, and the price asked. If extracted, send us a sample by mail, stating how packed, how much you have to offer, and the price asked. If you have no bottles or cases suitable for mailing samples we can furnish them at 6 cts. each or 9 cts. postpaid; \$1.00 per dozen postpaid. If you have not yet prepared your honey for market, do not put it off too long. The best selling months for honey, especially comb, are September, October, and November; and our trade usually starts in as early as July. If you have a home demand at good prices, always supply that first. If you have a surplus for distant market, get it there when it is most in demand.

CLASSIFIED ADVERTISING.

This is the season to take advantage of our classified department to dispose of your honey, bees, queens, supplies, or any other article you may have. Look over the department in this issue. You will likely find some goods you want. If you send us an advertisement for Oct. 1st issue by return mail we will give it one insertion and agree to make a refund of the price charged (20 cents per line) if a satisfactory number of inquiries are not received.

THE PERFECT PAMPHLET-PRESERVER.

We have much satisfaction in believing that great numbers of our readers value the contents of GLEANINGS so highly—most of it for its interest and much of it for its permanent value—that they take pains to preserve its issues.

Many more readers would doubtless do the same if they knew of some really convenient, economical, and attractive method.

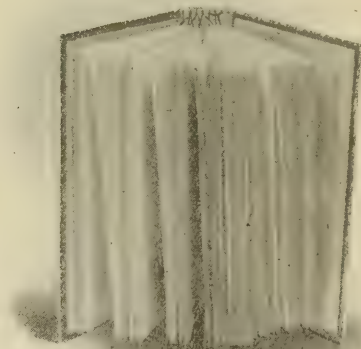
A NEW INVENTION.

The way has been found, and the publishers have secured the use of it for their subscribers.

It is called the "Perfect Pamphlet-preserver."

The name fairly fits.

On the shelves it looks just like a book.



BIND THIS MAGAZINE.

It holds its contents even more firmly than the leaves of the average book—one issue or a full volume. Its manner of use is quite as simple as "tying a shoe."

Its cost comes close to the nominal.

Price 25 cts.; postage 7 cts.

PATENTS.

Twenty-five Years' Practice.

PRINDLE & WILLIAMSON,

Second Nat'l Bank Bldg., Washington, D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.

How to Paint Your House Cheap

And to Have It Look Better, Stay Brighter,
and Wear Longer than Any
Other Paint Made.

Try It Free of Cost.

Mr. A. L. Rice, a prominent manufacturer of Adams, N. Y., has solved the paint problem for us all by a new process he has perfected that reduces the cost of painting one-half. This process makes an oil paint which will wear twice as long as any other paint made, and stay fresh and bright for many years after the ordinary mixed paint has faded and peeled. It spreads easier, goes farther, and is backed up by a guarantee to wear eight years.

The genuine superiority of Doublewear Paint can best be appreciated after a trial, and Mr. Rice has so much confidence in the merit of his product that he will send a liberal sample, together with color card, free to any person intending to paint.

Address A. L. RICE, 607 Main St., Adams, N. Y.

EGGS FROM BONE



Green cut bone doubles egg yield. More fertile eggs, vigorous chicks, early broilers, heavy fowls.

MANN'S LATEST MODEL BONE CUTTER

10 days free trial. No money in advance. Send it back at our expense if you don't like it. Cat'g free.
F. W. MANN CO., Box 37, Milford, Mass.

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.,
Ashland, Ohio.



ASHLAND
PUMP AND
HAY TOOL
WORKS



THE "BEST" LIGHT
Makes and burns its own gas. Produces a safe, powerful, white, steady light, at a cost of 2c a week. Brighter than electricity or acetylene, cheaper than kerosene. Over 100 styles—every one warranted. Agents wanted everywhere.
The Best Light Company,
336 E. 5th St., Canton, O.



SAVE HALF YOUR FUEL

BY USING THE

Rochester Radiator

Fits any Stove or Furnace. Guaranteed to do all we claim or money refunded. Write for booklet on heating homes.

Rochester Radiator Co.,
50 Furnace St., Rochester, N. Y.

Price from
\$2.00 to
\$12.00

For hard or
soft coal,
wood or gas

STANDARD
GREEN BONE CUTTERS
Make poultry keeping profitable. Cut green bone is a real money-making poultry food easily prepared with this machine. Small size, \$8.80; large ones more. Made by responsible concern. Ask for free catalog, prices and Trial Plan.
Standard Bone Cutter Co., Milford, Mass.

You Need It.

If you have only a few chickens;
If you are at all interested in poultry;
If you are breeding for fancy points;
If you cater to the market trade;
If you are in the business on large scale, you need

Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts.

AT HALF PRICE
for a short time to introduce it to readers of Gleanings. Send 25 cts. and get it a year; or if you send us \$1 for a year's subscription to Gleanings in Bee Culture we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal Dept. 14, Dayton, Ohio.

\$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size 8x 11 1/2 inches) of valuable poultry, pigeon, and pet-stock reading, costing us thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

Poultry Item, Sellersville, Bucks Co., Pennsylvania

DO YOU RAISE CHICKENS?

If so, you will find the Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cents a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb

A New Factory

and also a new firm name, but in the same place with the same management. We have just put in a complete

Weed Process Comb Foundation Factory

of the very latest type, and we are now ready to work up wax for western bee-keepers at low prices. . . . We want several thousand pounds of beeswax at once, and will pay top market price for same. Let us hear from any one having wax to offer.

Buck & Wilson, Augusta, Kan.

Butler County

Y
O
U

C
A
N

M
A
K
E

I
T

P
A
Y

By sending for our forty-page catalog.

It gives full particulars about scores of different hive-combinations and other supplies that we always keep in stock. We have handled

ROOT'S GOODS for twenty years. They are the best. Don't fail to write us about your wants for next season's use.

**John Nebel & Son
Supply : Company**

**High Hill, Missouri
Montgomery : County**

MR. TEXAS BEE-KEEPER

I would like to talk to you *personally*.

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's *better* in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you supplies with the utmost promptness.

Then, too, I have installed a complete Weed-Process Foundation factory. I can turn out 500 lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when at San Antonio. You are *always* welcome. I have fitted up my office with plenty of desks and chairs, with writing material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red-clover and Golden Italian queens promptly.

I am now paying 25c cash and 28c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein - San Antonio, Texas

1322 South Flores Street

Gloves for Handling Bees

Something New. Something You Want.

Our specially prepared Gloves soften the hands, and prevent and cure chapped hands. The fabric contains a preparation which prevents the gloves from becoming hard and stiff. We furnish them without armlets or sleeves for using in sweeping, gardening, or general housework, driving, or outdoor work. They are just the thing for driving in the rain, as they are absolutely waterproof. If worn at night they keep the hands soft and white. All their points of excellence can not be here enumerated, but they never fail to give the greatest satisfaction. To introduce them, we will send by mail or with other goods at the following low prices:

Bee-gloves—long arms, fleece-lined in two sizes—large for men, small for ladies.....35 cents

Men's gauntlets, fleece lined.....	35 cents	Ladies' gauntlets, fleece lined.....	35 cents
------------------------------------	----------	--------------------------------------	----------

Ladies' unlined for wearing at night or doing light housework.....40 cents

Early-order discounts on bee-supplies (excepting above and a few other articles) as follows:

7% for cash with order before October 1st	6% for cash with order before November 1st
---	--

5%	"	"	"	December 1st	4%	"	"	"	January 1st
----	---	---	---	--------------	----	---	---	---	-------------

3% for cash with order before February 1st

If you haven't our 1906 catalog send for one and a free copy of The American Bee-keeper (50c a year).

The W. T. Falconer Manufacturing Co., Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 124 West Liberty St., Savannah, Ga.

Dadant's
Foundation
It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!
No Sagging; no Loss.
Twenty-eighth Year.
We Guarantee Satisfaction.
Wax Worked into Foundation.

Bee-supplies of All Kinds

Beeswax Wanted at all Times.
Send for Our 1906 Catalog.

Dadant & Sons, Hamilton, Ills.

Root Goods

for the West

Send for my complete catalog. Write to-day.

I have been in the business over twenty years,
and carry the largest stock in the West.
Many thousands of dollars' worth of goods
now on hand ready for distribution.

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS. My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Jos. Nysewander, Des Moines, Iowa
565, 567 West Seventh Street

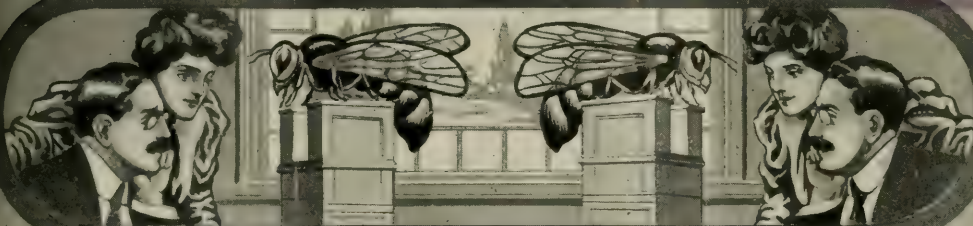
GLEANINGS IN BEE CULTURE

VOL. 34

OCT. 1, 1906

NO. 19

SHUBERT'S
BEE CULTURE
COLLEGE



THE A.I. ROOT CO.,
MEDINA — OHIO

Entered at the Postoffice, Medina, Ohio, as Second-Class Matter

BEE-KEEPERS

We carry the largest stock of goods in the Middle West. The low freight rates from

Toledo

will save you money. We will buy your HONEY and beeswax, and pay highest market price. It will pay you to correspond with us when your crop is ready to market. No shipment is too large for us. Carloads a specialty.

Queens! Queens!

We have a yard at Toledo with 100 colonies and over, which we use for queen-rearing only; besides several out-yards which we run for honey, also for extra bees and brood, and queens are mailed same day order is received.

Our 70-page Catalog

is sent free to any one asking for it. No matter whether you keep one colony or five hundred. We also handle a large line of poultry supplies, and sell eggs for hatching. Our 1906 mailing list is sent with every catalog. Don't buy until you have seen it.

Griggs Brothers

523 Monroe St. : Toledo, Ohio

APICULTORES

De Espana, Portugal y Colonies.

Pidan catalogos de las colmenas, extractores, prensas para cera, ahumadores, zinc perforado, escape de abejas, velos, cuchillos, maquinas para hacer base de panales, y todos otros articulos utiles en apicultura manufacturado por la celeberrima casa de

A. I. Root Company,

la fabrica la mas importante del mundo. Precios muy modicos a los subagentes por mercancias puestas en nuestros talleres.

EMILE BONDONNEAU,

Agente Générale

POR TODA EUROPA Y COLONIAS,

142 Faubourg SAINT DENIS, PARIS. 10.ne.

CENTRAL AND NORTHERN PENNSYLVANIA

Distributor of Root's Goods from the
Best Shipping - point in this State.
WHOLESALE - AND - RETAIL

I sell at catalog prices, and, with the low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also rear Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

E. E. PRESSLER, WILLIAMSPORT, PENN.

C. H. W. Weber,

Headquarters for

Bee - Supplies.

"Root's Goods at Root's Factory Prices."

Honey Wanted.

White clover, extracted and comb. Mail sample, and state lowest price expected, delivered at Cincinnati. We pay cash on delivery.

Queens Now Ready to Supply by Return Mail.

Stock which can not be excelled. Each variety bred in separate apiaries, from separate mothers; have proved their qualities as great honey-gatherers.

Golden Italians.

Have no superior, and few equals. Untested, 75c; six, \$4.00.

Red-clover Queens.

Which left all records behind in honey-gathering. Untested, 75c; six for \$4.00.

Carniolans.

They are so highly recommended, being more gentle than all others. Untested, 75c; six for \$4.00.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Markets.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain, or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A. No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

MILWAUKEE.—The condition of this market continues to favor the shippers of fancy comb and white extracted honey. We, being the largest receivers of this class thus far this season, have been able to maintain good values, and receipts have been good, and shippers have had returns which they are pleased to acknowledge with a good degree of satisfaction, and the demand continues and the supply has not as yet been in excess of the demand, and we can encourage shipments with much assurance that good prices can be obtained and good results follow. We continue to quote section honey, fancy, 16 to 17; good, 15 to 16. Extracted, in barrels, cans, and pails, white, 7½ to 8½; amber, 6½ to 7. Beeswax, 28 to 30.

A. V. BISHOP & Co.,

Sept. 20. 119 Buffalo St., Milwaukee, Wis.

PHILADELPHIA.—Comb honey has been arriving quite freely, and the demand is quite brisk at this time. Prices seem to have an upward tendency. The outlook is for still higher prices. We would advise parties who have comb honey to ship to send it in at once and sell it while the demand is on, for September, October, and November are the big honey months. We quote: Fancy white comb, 16 to 18; No. 1, 14 to 15; amber, 12 to 14. Fancy white extracted, 8 to 9; light amber, 7 to 8. We are producers of honey, and do not handle on commission.

W. M. A. SELSER,

Sept. 20. 10 Vine St., Philadelphia, Pa.

TORONTO.—Honey is almost a total failure in this part of the country (Ontario). Extracted, even of inferior quality, is selling at 12 to 14. Comb honey, 20, and can not be obtained. There is some buckwheat honey which is held at from 9 to 10; comb, 12.

Sept. 20. M. MOYER & SON, Toronto, Can.

ST. PAUL.—The following are the prices on honey: No. 1 white clover, 12½ to 13; No. 2, 10 to 11. We have no amber or dark, and no demand on this market.

W. H. PATTON,

Sept. 24. Sec. Bd. of Trade, St. Paul, Minn.

TORONTO.—Honey is scarce here, and dark, too, in most cases, and is selling at 10c wholesale. Comb is more plentiful, but that too is very short, and is selling from \$1.75 to \$2.50 per dozen. Quite a lot of buckwheat honey is offered which is more or less mixed with other fall honey—all dark and rather off in body and is selling wholesale at from 6 to 8. Outlook for honey this season is very poor.

Sept. 23.

E. GRAINGER & Co., Toronto, Ont.

CINCINNATI.—The demand for comb honey is good; fancy and No. 1 selling freely at 15 and 16; lower grades not wanted at any price. The market on extracted honey is quiet, as quantities remain unsold from last season. We quote amber at 5½ to 7, according to quality. Fancy extracted white clover, 7½ to 8. We are paying 29 and 30 for choice yellow beeswax, free from dirt.

Sept. 18.

THE FRED W. MUTH CO.,
51 Walnut St., Cincinnati, O.

SCHENECTADY.—Honey coming forward just about fast enough to supply the demand. No. 1 white clover sells at 14 to 15 cts.; No. 2, 12 to 13. Buckwheat, fancy, 12 to 12½; good, 10 to 11. Extracted, white, 6½ to 7; dark, 5½ to 6.

Sept. 24.

C. MACCULLOCH,
Schenectady, N. Y.

ATLANTA.—The demand for honey is quite good for fancy stock, of which our supply is almost exhausted. We quote you as follows: Fancy comb, 13 to 15; A No. 1, 11 to 12½. Extracted, 6 to 7.

Sept. 18.

JUDSON HEARD & Co.,
Atlanta, Ga.

COLUMBUS.—Demand good. Fancy white comb, 15½; No. 1, 14½; No. 2, 13; amber, 12.

Sept. 18.

EVANS & TURNER, Columbus, O.

FOR SALE.—Choice ripe clover and basswood honey, two 60-lb. cans, per case, 8½c, f. o. b. here, cash with order. Also 40-acre farm N. W. Missouri.

ELIAS FOX, Hillsboro, Wis.

FOR SALE.—Light extracted honey, good quality; two 60-lb. cans, 8½c per lb., barrel at 7½c; amber, 60-lb. cans at 7½c, barrel at 6c; sample, 10c. We pay 29c for beeswax.

I. J. STRINGHAM, 105 Park Pl., N. Y.

FOR SALE.—10,000 lbs. of clover and buckwheat honey at 8c per lb. for clover and 7c for buckwheat, in 60-lb. cans.

G. H. ADAMS,
Mill St., Bellevue Sta., Schenectady, N. Y.

FOR SALE.—Thoroughly ripe amber honey, at \$4.25 per can of 60 lbs. gross. Sample 5 cts.

R. & E. C. PORTER, Lewistown, Ill.

FOR SALE.—3000 lbs. of white-clover and locust honey, in 20-lb. no-drip cases. Fancy, 15c; No. 1, 13c.; f. o. b. Nice article. H. W. BASS, Front Royal, Va.

FOR SALE.—Buckwheat extracted honey; 6000 lbs.; not extracted until the combs were all sealed—ripe, rich, and thick; 60-lb. tin cans, two in a case, at 6 cts. a pound. Sample sent upon request.

W. Z. HUTCHINSON, Flint, Mich.

FANCY WHITE EXTRACTED HONEY

CRATES 2-60 LB. CANS; 8c

TWO OR MORE CRATES; 7½

LARGER LOTS; WRITE FOR SPECIAL PRICES. ALL F. O. B. CINCINNATI. CASH WITH ORDER. SAMPLES 10c. TO PAY POSTAGE.

THE FRED W. MUTH CO.

No. 51 WALNUT STREET, CINCINNATI, OHIO.
SEND FOR CATALOG OF BEE SUPPLIES WITH SPECIAL DISCOUNT.

FOR SALE.—Five tons of comb and extracted honey in lots to suit purchaser.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—Alfalfa honey in five-gallon cans, \$5.00 per can; more than one can, \$4.80 per can, f. o. b. here.

VIRGIL SRES, North Yakima, Wash.

FOR SALE.—Fine alfalfa honey in large or small lots and at a very low price. Dealers and others wanting a fine table honey should write for free samples and prices to

THE DELTA APIARIES, Delta, Colo.

FOR SALE.—Well-ripened fancy extracted clover and basswood honey in 60-lb. tin cans, two in a case, at \$10.00 a case, f. o. b. here. Sample on request.

ERNEST W. FOX, Hillsboro, Wis.

FOR SALE.—San Diego County honey. Nine tons of the finest honey in the world—98 cases of white and 59 cases of light amber. This honey is guaranteed to be absolutely pure, and will weigh more than 60 lbs. net to each five-gallon can. Prices must be f. o. b.

FRANCIS J. COLAHAN, Bernardo, S. D. Co., Calif.

FOR SALE.—2500 lbs. fancy amber extracted honey, in 60-lb. cans, two in a case. Single case of 120 lbs., \$8.00. Two or more cases, 6½¢ per lb. Single 60-lb. can in box, 7¢ per lb., f. o. b. here. This honey was all thoroughly ripened in the hives, and re-ripened since taken from hives. All guaranteed like sample, sent free to any one interested.

O. H. TOWNSEND, Otsego, Mich. R. F. D. No. 2.

WANTED.—Choice white comb and extracted honey; clover preferred.

B. WALKER, Clyde, Ills.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.

R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—I have a good demand for fancy white comb honey. Those interested please correspond.

A. H. DOOLITTLE, 180 Perry St., Buffalo, N. Y.

WANTED.—To buy for cash, fancy comb and extracted honey.

ROBT. A. HOLEKAMP,

4263 Virginia Ave., St. Louis, Mo.

WANTED.—No. 1 and fancy white comb honey (unglassed), Danz. sections preferred.

THE A. I. ROOT CO., Medina, Ohio.

WANTED.—Comb and extracted honey. State kind and lowest price.

CHAS. KOEPPEN, Fredericksburg, Va.

WANTED.—Comb and extracted honey. State quality, quantity, and price.

JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Extracted clover honey in 60-lb. cans. State price delivered in Providence, R. I., and send sample to

ALEX N. ESTY,

38 Arch St., Providence, R. I.

WANTED.—Beeswax. We will pay 30 cts. per pound for fancy pure yellow beeswax delivered in New York until further notice.

CHAS. ISRAEL & BROS.,

486 Canal St., New York City.

WANTED.—Honey, steadily from September 1 to April 1. Prices given on application. Suggestions and advice about packing and shipping honey cheerfully given from long experience, close study, and observation.

H. R. WRIGHT, Albany, N. Y.

WANTED.—Beeswax. We are paying at this date for pure average beeswax delivered at Medina or any branch office named below, 27 cts. in cash or 30 cts. per lb. in exchange for bee-supplies, less transportation charges. We can not use old combs. Pack securely and address plainly. Be sure to send bill of lading when you make shipment, and advise us how much you send, net and gross weights. Ship to home office or nearest branch named below.

THE A. I. ROOT CO., Medina, Ohio.

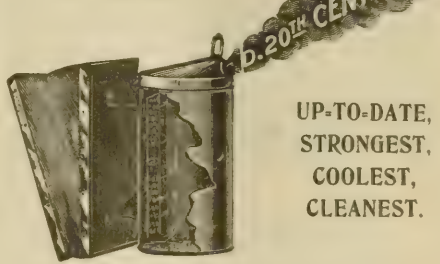
Chicago, 144 East Erie St.; New York, 44 Vesey St.; Philadelphia, 10 Vine St.; Washington, 1100 Maryland Ave., S. W.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

A COLD MEDAL

at the World's Fair,
St. Louis, 1904.



**UP-TO-DATE,
STRONGEST,
COOLEST,
CLEANEST.**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke. I find it all you claim. In the spring I shall want several. I always want the best.

N. E. FRANCE, Platteville, Wis.

SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, I can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel is all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."

GRANT STANLEY,

Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

F. DANZENBAKER, MIAMI, FLORIDA

EVANS & TURNER,

Columbus, Ohio,

are in the market for white comb honey, and especially want some fine stock from Wisconsin, Michigan, Indiana, and New York. They would also like to hear from Iowa producers. Write fully what you have; and if you care to name price, do so, stating about what time you will be ready to ship.

Chas. Israel & Brothers

486-490 Canal St., New York

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments Solicited. Established 1875.

WANTED.—A few barrels of good extracted that will not granulate. Mail sample.

JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Comb and extracted honey. Must guarantee pure and of best quality. State price and how put up. Cash paid.

C. M. CHURCH, Arnold, Pa.

WANTED.—20,000 pounds pure clover honey. Send average sample and state best price.

J. E. CRANE & SON, Middlebury, Vt.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.

GRIGGS BROS., Toledo, O.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELEN,
265-267 Greenwich St., New York.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

E. R. ROOT
Editor

A. I. ROOT
Editor Home Departments

H. H. ROOT
Asst. Editor

Department Editors:
Dr. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE,
LOUIS H. SCHOLL, G. M. DOOLITTLE, W. P. ROOT.

J. T. CALVERT, Business Manager

A. L. BOYDEN, Advertising Manager

Circulation 30,000. Reaches every State and 60 foreign countries.
Established in 1873. Sixty-four pages. Semi-monthly.
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

Terms---\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.

Postage is Prepaid by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS., 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 5/-*

Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publisher.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

STATE.....

DATE.....

If you want Gleanings discontinued at expiration, check here ()

RASPBERRY HONEY!

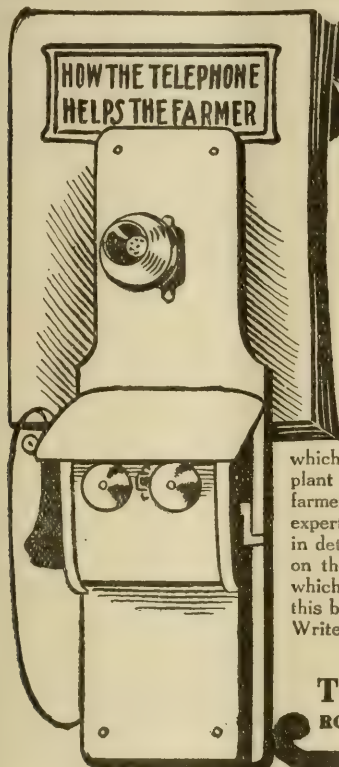
I have produced a crop of extracted honey from the wild red raspberry of Northern Michigan. It would be an easy matter to send this entire crop in a lump to some dealer, but I prefer to give each of my friends an opportunity of supplying his table with this truly delicious honey—a honey with a flavor all its own—a flavor that smacks of the wild raspberry of the forest.

The honey is put up in 60-pound cans, two in a case, and a single case (120 pounds) will be sold at 8½ cents a pound (\$10.20 for a case) and larger orders will be

filled at 8 cents a pound (\$9.60 a case) but not less than that, even though the whole crop should be taken.

If you prefer to taste the honey before ordering, drop me a postal, and I'll mail you a generous sample—enough so that the neighbors, too, can have a taste, and perhaps will wish to join you in ordering a case, if you should not care to take that much yourself.

W. Z. HUTCHINSON, Flint, Michigan.



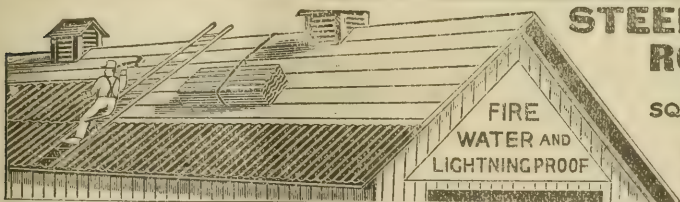
You Want This Free Book

Of course you need a telephone. You need it for business, for the family, in sickness, in case of fire, or in danger of any kind. The question is—how can you get one on your farm? This little book which we send free the same day we get your request answers the question perfectly and tells you how to get the greatest convenience of the twentieth century so easily and cheaply that it becomes a positive saving and a money-maker, instead of an expense. It tells all about

Stromberg-Carlson Telephones

which are made in the largest independent telephone plant in the world. These are the best instruments for farmers' lines, because they have been constructed by experts for this particular purpose. They are described in detail in the booklet, together with full information on the organization of farmers' lines, the manner in which they are built, cost of material, etc. You want this book, F36 "How the Telephone Helps the Farmer." Write for it today.

**Stromberg-Carlson
Telephone Mfg. Company**
ROCHESTER, N. Y. CHICAGO, ILL.



**STEEL
ROOFING**
PER 100
SQUARE FEET
\$1.50

Most economical and durable roof covering known. Easy to put on; requires no tools but a hatchet or a hammer. With ordinary care will outlast any other kind. Thousands of satisfied customers everywhere have proven its virtues. Suitable for covering any building. Also best for ceiling and siding. Fire-proof and water-proof. Cheaper and more lasting than shingles. Will not taint rain-water. Makes your building cooler in summer and warmer in winter. Absolutely perfect, brand new, painted red two sides. \$1.50 is our price for our No. 15 grade of Flat Semi-hardened steel roofing and siding, each sheet 24 inches wide and 24 inches long. Our price on the corrugated, like illustration; sheets 22 inches wide x 24 inches long \$1.60. At 25 cents per square additional we will furnish sheets 6 and 8 feet long. Steel pressed brick siding, per square \$2.00. Fine Steel Beaded Ceiling, per square \$2.00. Can also furnish standing seam or crimped Roofing.

WE PAY THE FREIGHT TO ALL POINTS EAST OF COLORADO except Oklahoma, Texas and Indian Territory. Quotations to other points on application.

Satisfaction guaranteed or money refunded. We will send this roofing to any one answering this advertisement C. O. D. with privilege of examination if you wish and not found as represented we do not have to take the shipment and we will cheerfully refund your deposit.

Ask for Catalog No. W-688. Lowest prices on Roofing, Eve Trough, Wire, Pipe, Fencing, Plumblings Doors, Household Goods and everything needed on the Farm or in the Home. We buy our goods at sheriff's and receiver's sales.

CHICAGO HOUSE WRECKING CO.

35TH & IRON STREETS,

CHICAGO

CONTENTS OF THIS NUMBER.

MARKETS	1218	How to Build a Bee-cellar	1249
STRAWS	1227	Chambers Non-swarming Device	1251
EDITORIAL	1229	YEAR'S WORK IN AN OUT-APIARY	1252
"Making" Bees out of Sugar Syrup	1229	HEADS OF GRAIN	1254
Characteristics of Caucasians	1230	Poultry versus Bees, Again	1254
A. I., Second	1230	Putting Foundation Starters in Sections	1254
Power-driven v. Hand-driven Extractors	1230	Running an Apiary for Wax	1255
U. S. Chemical Standard for Honey	1231	Swarming: How to Prevent	1255
Possible Annexation of Cuba to the U. S.	1232	Bee-brushes Made of Burlap	1255
CONVERSATIONS WITH DOOLITTLE	1233	Ripeness of Honey Left on Hive Long Time	1255
NOTES FROM CANADA	1234	Side Entrance	1256
GENERAL CORRESPONDENCE	1236	Modification of the Alexander Feeder	1256
Frame-spacers	1236	Bees Slow to Enter Supers as Wax-makers	1256
Hives	1237	Importance of Clean Honey-cans	1256
One-pound Section, Again	1238	Sweet Clover for Bees and Farm Stock	1256
White and Sweet Clover	1239	Gentle Carniolans	1256
Australian Bee License	1240	Automatic Cover for Boxes on Wheelbarrows	1257
Bee-keeping in Michigan	1241	Orange-blossom Honey	1257
How to Put up Comb Honey for Shipment	1246	Unfinished Sections	1257
Remarkable Set of Extracting-combs	1248	OUR HOMES	1258
American Breeders' Association	1248	CONVENTION NOTICES	1271
		SPECIAL NOTICES	1271

INDEX TO ADVERTISEMENTS.

Banking by Mail.		Case, J. B.	1269	Household Specialties.	
Savings Deposit Bank Co.	1264	Clemons, H. C.	1269	Best Light Co.	1264
Bee-books.		Church, C. M.	1269	Horne Co., Joseph.	1264
Swarthmore	1263	Collins, Ph. D., Dele.	1269	Rochester Radiator Co.	1264
Bee Smokers.		Fajen, J. S.	1268	Stromberg-Carlson Tel. Co.	1221
Bingham, T. F.	1263	Koeppen, Chas.	1269	Machinery.	
Danznebaker, F.	1219	Laws, W. H.	1268	Electric Wheel Co.	1262
Bee Supplies.		Lockhart & Co., F. A.	1268	Lyons Engine Co.	1265
Blanke & Hawk	1261	McCain, Robert B.	1269	Myers & Bros., F. E.	1272
Cook, J. H. M.	1267	Moore, J. P.	1268	Miscellaneous.	
Falconer Mfg. Co., back cover.		Parker, Jr., H. M.	1268	Chicago House-wrecking Co.	1221
Hilton, Geo. E.	1263	Quirin-the-Queen-Breeder	1268	Conkey Co., G. E.	1272
Hunt & Son, M. H.	1224	Rails, W. H.	1269	Hunt Farm Jerseys	1161
Kretschmer Mfg. Co.	1262	Robey, L. H.	1269	Mann, F. W.	1272
Lewis Co., G. B.	1226	Ross, H. A.	1269	Prindle & Williamson	1272
Mason, J. B.	1267	Routzahn, G.	1269	Publishers, Agricultural-paper.	
Minnesota Bee Supply Co.	1262	Shaw & Co., J. W. K.	1269	Southern Fruit Grower	1264
Muth Co., F. W.	1218	Taylor, J. W.	1269	Farmer's Call	1267
Nysegander, J., back cover.		Victor-Knolle Apiary Co.	1269	Publishers, Bee-Journal	
Pouder, Walter S.	1260	Comb Foundation.		Falconer Mfg. Co. Back Cover	
Prothero, Frank W.	1261	Dadant & Son, back cover.		Root Co., The A. I.	1220
Reeves, A. H.	1267	Dittmer Gus.	1261	York & Cq., Geo. W.	1225
Root Co., Medina	1266	Fences.		Publishers, Poultry-paper.	
Root Co., Syracuse	1224	Brown Fence and Wire Co.	1272	Ohio Poultry Journal	1272
Root Co., St. Paul	1261	Coiled Spring Fence Co.	1267, 1272	Poultry Gazette	1272
Scott & Co., C. M.	1262	Kitselman Brothers	1272	Poultry Item	1272
Stringham, I. J.	1267	Honey for Sale.		Seeds and Trees.	
Weber, C. H. W.	1217	Hutchinson, W. Z.	1221	Storrs & Harrison Co.	1264
Woodman Co., A. G.	1262	See page	1218, 1219	Roeh, Lewis	1264
York Honey & Bee Supply Co.	1267	Honey-buyers.		Wants and Exchanges.	
Bees and Queens.		See pages	1218, 1219	See page	1270, 1271
Alley, H.	1268				
Atchley Co., The Jennie	1268				

ADVERTISING TALKS

BY THE AD. MAN.

A WORD TO OUR READERS.

Any publication, in order to be successful, must have the confidence and support of its readers. Especially is this confidence valuable when the readers feel that their interests are being carefully guarded in the matter of advertisements admitted to the columns of the publication.

As most of our readers know, it has always been the policy of GLEANINGS to guard carefully the advertisements which we accept. We make it a point to investigate the business integrity of the man or firm that applies for admission to our advertising columns, and to satisfy ourselves as to the ability of the individual or company to carry out the offer made or to furnish the goods offered for sale.

It is very seldom indeed that we learn that our judgment in keeping out the unreliable advertisers has been faulty. We could carry a great many more advertisements than we do if we were willing to publish all that are sent us. We realize, however, that if we want to retain the confidence of our readers, and do justice to our advertisers who do business upon an honorable basis, our long-established policy is the best one.

We are just as anxious to know of any unfair dealings between our readers and our advertisers as you will be to tell us, and we shall spare no effort in making the wrong right if the fault rests with the advertiser. Please do not refer to us claims where a little delay is experienced. It is not always possible for any business house to fill an order the day it is received, and we would ask that you give dealers the same consideration that you would like to have given to you.

Telephones are no longer a luxury. Before many years every home will be supplied with this modern necessity. On the farm, especially, is the telephone coming into use with miraculous rapidity. This is because of the great success of the hundreds and hundreds of independent companies. The Stromberg-Carlson Telephone Manufacturing Co., Rochester, N. Y., was always identified with this movement. They are the largest independent manufacturers of telephones in the world. This great Rochester factory employs over 2500 skilled workmen. If you are at all interested in forming a company or installing the very latest equipment you will find it to your advantage to write them. You will receive prompt and full reply. Their advertisement appears on page 1221.

MENTION GLEANINGS.

One of the greatest favors you can do the publishers of this paper and its advertisers is, when ordering, or answering any advertisement, simply to say, "I saw your ad. in GLEANINGS." The advertiser likes to know where his advertisement was noticed, so as

to locate to a certainty what papers are the most profitable for his use. The more you mention GLEANINGS, the more the advertiser values the paper, and the better our paper becomes, for upon its advertisers largely depend its size and the quality and quantity of text and illustrations. You help yourself by helping us. Look over the ad's in this issue. Form a habit of reading them; and when you find an advertiser who can supply you with something you need, write him; and do it before the matter slips from your mind.

As winter approaches, the heating question comes into prominence. To make the assertion that you can save half your fuel by the use of a certain device is startling. Yet it is true. The radiator made by the Rochester Radiator Co., whose advertisement appears on page 1264, is guaranteed to do this or your money is promptly refunded. These radiators are excellent for heating adjoining or upper rooms. Every GLEANINGS reader using wood, coal, or gas for heat should write for the instruction booklet offered by the above concern.

THE RESULTS.

We are striving, not only to make GLEANINGS the best paper of its kind published, but the best regardless of any paper taken for comparison. Such efforts are bound to please our readers as well as our advertisers. Below are two letters which tell the results better than we can ourselves.

Dear Mr. Root:—What a splendid magazine GLEANINGS is getting to be! How can you afford it? If I undertook to publish a pamphlet of that size and excellence it would cost me at least 25 cents apiece for the first thousand. Now, you must publish a great many thousands or the advertisers must pay the bills—both, I suppose.

GLEANINGS is really a fine publication. Its typographical make-up is excellent. The reading-matter is both instructive and entertaining. The illustrations are fine. Every time I open a new number I am astonished and pleased at its beauty.

I wish to congratulate you on the improved appearance of GLEANINGS. It is getting better and better all the time. Sincerely yours,

(Name furnished on request).

The A. I. Root Co.:—I intended the ad. to be inserted in two issues. Please put in at once. I sold nearly \$400 worth of bees through my two small ads. in 1905.

Yours truly,

(Name furnished on request).

ADVERTISING - RATES

Twenty cents per agate line flat.

Classified columns—bonafide exchange or want ads.—15c a line, others 20c a line.

Discount for cash in advance, 5%; if paid in 10 days, 2%.

No objectionable advertising accepted.

Forms close 10th and 25th of each month.

Guaranteed circulation per issue, 30,000.

GLEANINGS IN BEE CULTURE
MEDINA, OHIO

Seasonable Goods!

Non-drip Cases

The kind we call "Root Quality"—none as good.

Glass and Tin Packages

for extracted honey. A neat package means a fancy price.

Honey-extractors

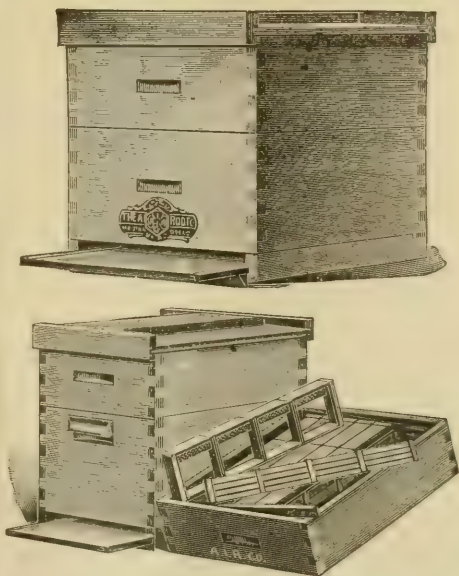
The Cowan No. 15 will give you years of honest service. You need one.

During this month (October) we are offering a special discount of six (6) per cent for cash orders for Bee-supplies for next season's use. After November 1st the discount will be five per cent.

We Have the
Largest Stock of Bee-supplies in Michigan
and all ROOT QUALITY

M. H. Hunt & Son, Bell Branch, Michigan
Wayne County

ROOT'S HIVES!



Look Good.

Are Good.

Good Results.

Do you know a good thing?
Do you use a good thing?
Our catalog describes them.
Six per cent discount during
October.

The A. I. Root Co.
Syracuse, N. Y.

SPECIAL OFFERS for Sept. and Oct. ONLY

Cloth-bound Dollar Books for 60 cents each



DR. MILLER



DOOLITTLE

ALSO

**A 75c Book and a 75c Queen for 25c each
when taken with the American Bee Journal as
offered below:**

(To either New or Renewal Subscribers.)

No. 1 The Bee Journal a year
with Dr. Miller's cloth-
bound "40 Years Among the Bees"
(book alone \$1)—both for \$1.60.



No. 3 The Bee Journal a year
with Doolittle's leather-
ette-bound "Scientific Queen-
Rearing"—(book alone, 75c—\$1.25

No. 2 The Bee Journal a year
with Doolittle's cloth-
bound "Scientific Queen-Rear-
ing" (book alone, \$1)—\$1.60.

No. 4 The Bee Journal a year
with a Standard-Bred
Italian Honey-Queen (Queen
alone, 75c)—\$1.25.

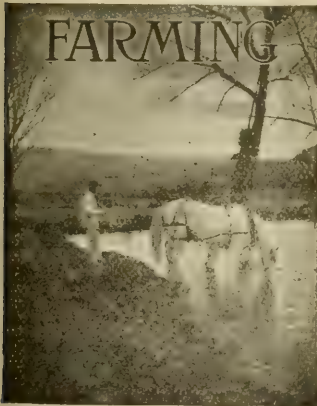
Remember, that each is a separate offer, and must be taken before Nov. 1, 1906, if you want the advantage of these special prices.

If more of the same kind of Queens are wanted, order at these prices during September and October: 3 for \$2.00; 6 for \$3.75; 12 for \$7.00. Now is the time to re-queen.

A free sample of the Weekly American Bee Journal on request; or a "trial trip" of 3 months (13 copies), sent for only 20 cents. Regular price is \$1 a year. Address,

GEORGE W. YORK & CO., 334 Dearborn St., Chicago, Ill.

All our Special Offers always apply only to the U.S. and its possessions, Canada, Mexico and Cuba.



A Delightful Combination

GLEANINGS IN BEE CULTURE, \$1.00 per year.
FARMING MAGAZINE, \$1.00 per year.

PRICE FOR THE TWO, \$1.50.

*Nothing need be said about GLEANINGS. It is the best publication of its class in the world; semi-monthly, 72 to 80 pages, fully illustrated.

†FARMING is a new publication—a beautiful journal for the man who produces from the soil. It is edited and published by the Doubleday Page Co., the people who edit *Country Life*, *World's Work*, and the *Garden Magazine*, a sufficient guarantee of its merit. Larger than GLEANINGS—fully illustrated. Published monthly.

THIS OFFER IS GOOD, EITHER FOR NEW GLEANINGS SUBSCRIPTIONS OR RENEWALS, BUT MUST BE TAKEN ADVANTAGE OF WITHOUT DELAY.

WE CAN ACCEPT SUBSCRIPTIONS FOR THIS COMBINATION AT THIS SPECIAL RATE ONLY WHEN SENT DIRECT TO THE PUBLISHERS OF GLEANINGS,

The A. I. Root Company, Medina, Ohio.

*Sample copies of either publication will be sent upon request.

†Publications will be sent to two different addresses if desired.

HAVE YOU READ BEE PRANKS?

This is a pamphlet compiled from newspaper clippings containing many laughable and wonderful anecdotes which have actually happened in connection with bees. . . .

The book also contains, in nutshell form, what the great poets and other writers have to say about these interesting little insects. . . .

WE GIVE IT FREE FOR THE NAMES AND ADDRESSES OF FIVE BEE-KEEPERS if sent direct to G. B. LEWIS COMPANY, WATERTOWN, WIS., U. S. A.

WE WANT AGENTS FOR THE NEW ENGLAND AND SOUTHERN STATES EAST OF THE MISSISSIPPI

To buy our goods outright by the carload.
Liberal inducements and exclusive territory.

G. B. Lewis Co., Watertown, Wis.
Bee-keepers' Supplies.

GLEANINGS

IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
 Illustrated : Semi-monthly : One Dollar per Year
 Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

OCT. 1, 1906.

No 19



FOUR NUCLEI, according to *D. Imker*, will winter better piled one over another than side by side. [I do not understand why this should be so.—ED.]

N. D. WEST piles his hives in the cellar just as I do, as shown on p. 1183. only I don't have those 1×2 sticks between the hives. I wish he would tell us why he does it.

ONE COLONY may sometimes give more surplus than ten others, and yet be only a little better than either of the ten. Don't see how? I'll show you. The yield is such that the ten get just enough for their own support, but store no surplus. The one, being a little better, stores a little. See?

NAKED COLONIES (bees and queen without combs) seem quite in vogue in Germany, a single number of *Leipz. Bztg.* having 40 ad's of them. After Sept. 15 a 4-lb. colony with queen-cells for about a dollar. [This is quite in line with the plan that we used to practice years ago, of selling bees by the pound. They were put up in wire-cloth cages, without combs. We may go back to this method in the near future.—ED.]

P. NEUMANN says, in *Leipz. Bztg.*, that German scientists have determined that *Bacillus alvei* is not the cause of foul brood. Suspicion now rests upon a micro-organism, not of the vegetable but of the animal kingdom, to which has been given the name *Spirochaete apis* Maassen. [Dr. E. F. Phil-

lips, of the Department of Agriculture, in a paper that he read before the National convention in Chicago, said:

The Bureau of Animal Industry, at my suggestion, assigned a competent bacteriologist to this investigation, and between us we have been getting a fair start. So far the results are, briefly, that *Bacillus alvei* has been found in every sample of "black brood" and in not a single case of foul brood, confirming the work of Doctors Veranus A. Moore and G. Franklin White, of Cornell.

I understand the Department is about to issue a bulletin going into this subject more fully. We shall be glad to give our readers the result when it is issued.—ED.]

"How use doth breed a habit in a man," also in bees! In few things do bees more plainly show force of habit than in the matter of entrances. Where the entrance is established in early spring, there it is likely to stay, no matter what other entrance is offered. No. 58 has an inch hole in the second story in front, but not a bee uses it for an entrance. In hundreds of cases I have shoved the super or upper story forward, making a $\frac{1}{4}$ -inch opening at the back; but, although this may continue all summer, seldom do any of the rising generation use it as an entrance. Yet at No. 35 the back entrance is used altogether, and it looks in front like a dead colony. The secret of it is that, in early spring, a leak under the cover at the back end allowed a single bee to pass, and there the entrance was established.

I AM AFRAID, Mr. Editor, you don't understand the situation when you speak of showing me at work among my bees here, p. 1167. Not much of that can be shown, for the season has been one of failure. In no other of my 45 years of experience have I meddled so little with bees as this year. Clover bloom was abundant, but no nectar. Fortunately the fall flow, heartsease, cucumbers, etc., is giving a grand flow, so that bees will go into cellar heavy with honey, and a lot of sealed combs will be on hand for use next spring.

[I have already received some pretty good pictures. What we fail to get this year we can reserve for next year. You are hereby authorized to have a loaded gun handy—I mean a camera with film, ready for any good subject that suddenly appears. We keep several of them loaded around the Home of the Honey-bees; and, as our pages show, they are brought into frequent service.—ED.]

THAT COLOR has no effect upon bees' stinging propensities is ably argued by D. M. M. in the *Irish Bee Journal*, endorsed by the editor. My good friends, Scotch and Irish, I can bring you a whole lot of proofs, not negative but positive, that, in this locality, bees have their "favourite colours." Only yesterday I stopped work in the apiary to change a colored shirt for a white one, because the little demons were peppering my back through the colored shirt. Although I worked hours afterward with the white shirt, not a sting did I get. Yet I have known bees so savage as to sting through a white shirt. [Some have claimed that color had nothing to do with the temper of bees toward any object; but my experience and observation have been along the line of yours. Several bee-keepers have told me that a black hat is always more liable to attack than a light one. I am always glad to shed my black felt hat in early summer in favor of a straw hat, if for no other reason than that the bees regard the latter with less animosity. I do not like to put on a veil every time I go out into the bee-yard.—ED.]

"THE GOOD OLD SPELLING suits us because we understand it, have spent a lot of valuable time learning it, and haven't time to learn it anew." That's the editorial view of the *National Stockman and Farmer*, one of the ablest of the agricultural weeklies. It shows that men bright and logical in general are governed by blind prejudice and selfishness when it comes to endeavoring, as President Roosevelt puts it, "to make our spelling a little less foolish and fantastic." Because we have "spent a lot of valuable time" learning our present absurd spelling, we insist that unborn generations shall endure the same torture rather than take the very little trouble needed on our part to change to something simple and easy. [GLEANINGS is not in sympathy with the feeling expressed by the *National Stockman*. We most heartily indorse Roosevelt's shorter spelling, and may adopt it. In doing so we may lose a few subscribers; but we shall certainly have the thanks of the rising generation, even for the little strength we may be able to contribute toward a movement so praiseworthy. Personally I wish Roosevelt had the power by law to bring the other magazines and papers into line.—ED.]

YOU DON'T quite get the point I was after, Mr. Editor, p. 1169, in the matter of dual introduction. When I removed No. 1 I immediately put in No. 3. You didn't put in No. 3 until No. 2 was within two days of laying. Now, the question is, which is the bet-

ter way? My way requires only half as many times opening the hives, but it keeps No. 3 caged a long time. Was that long caging any harm to the queen? Also, did the presence of No. 3 delay the fertilization or laying of No. 2? [We never carried this method so far as you show here, having three queens in a hive at once. That would be too much of a good thing. No. 3 would in many cases be confined too long, with the result that she might be too old to mate readily. We found that, in some cases when the weather was bad, even No. 2 would suffer by reason of too long confinement, before she could be released. In practicing this method one should seek to work it so that No. 2 shall be confined no longer or at least not *much* longer than will be necessary to give her the right scent for safe introduction.—ED.]

"DO BEES sting queens?" p. 1192. Certainly they do—lots of times. But when a queen dies in a ball is she stung, suffocated, or starved? Suffocation seems hardly possible; and if it were, would not the bees in the center of the ball be also suffocated? The bees in the center of the hissing mass are crowded so compactly that it would seem a physical impossibility for them to sting. Besides, if they wanted to sting the queen why shouldn't they do so at first, instead of wasting hours? For it is well known that if the ball be dropped in water, even after the queen has been balled an hour or more, she will escape unhurt. But if you forcibly pull the ball apart, the queen is likely to be stung. Blow *hot* smoke on the ball, and the queen is sure to be stung. A queen, especially a laying one, requires constant feeding, and will probably starve in much less time than a worker. Doesn't she have plenty of time to starve in the ball? Or do suffocation and starvation both have their effect? Jay Smith didn't find a dead queen in the ball, but a live one which died immediately after he "called the players off," the poison-sac still contracting. If he had let them alone would the queen have been stung? I think the ball never dissolves until some time after the death of the queen. Did any one ever find a sting in a queen *found dead* in a ball? [Perhaps we pretty nearly agree on the several propositions. "Did any one ever find a sting in a queen found dead in a ball?" I am not positive, but I think I have. Mr. Wardell does not know; but it is possible to conceive of a queen being stung to death in the early start of balling, and the bees in their frenzy continue the balling process, even some little time after she is dead.—ED.]

THANKS, Mr. Editor, for automobile talk, p. 1169. Now please tell us what it will cost, say in five years, for supplies and repairs. [This will depend on what automobile one happens to buy. I can not tell you what it would cost to keep a machine five years, as I have not had one that long; but the first machine I bought cost me for repairs about half the first cost of the machine, the first year. That was because it was badly design-

ed, and before the theory and practice of automobile-building had come down to the perfect science it now has reached. A well-designed machine, of moderate cost,* built not later than last year, should not require a cost of maintenance per mile anywhere near equal to a horse and buggy per mile. My brother and I have a machine, built by the Reo Automobile Co., between us. This has given constant service, being used by three or four families in Rootville. My brother and I have made all our own adjustments, taken some long trips, and so far the repair item has not cost a dollar. This machine has just finished a trip of 800 miles in one week, across the country. At the end of that time it seemed to be in as good condition as when it started out. The cost for gasoline was about $\frac{1}{4}$ ct. per mile. With care, the repair item ought not to exceed one-half cent a mile for a year; and this will be mainly for pneumatic tires. During five years it might require two and possibly three sets of tires, and these two or three sets during five years would equal about a fifth the cost of the machine. The cost of painting and varnishing would be no more than the same items for a buggy of the same carrying capacity.

On the other hand, careless driving, jamming in the clutches before the machine has had a chance to get under motion; driving after dark with a poor light; driving over broken bottles, etc., would probably make the annual cost run clear beyond the figure of half a cent per mile. I have known it to go up to five and even ten cents. I have just talked with a man who has had that experience. He has gone back to horses. As it is with the bee business, so it is in driving automobiles—there is every thing in the man.—Ed.]

PUTTING A weak colony over a strong one, after the Alexander plan, was an utter failure here. That does not condemn the plan. So many have succeeded with it that I believe it's a good thing—a big thing. The thing now to learn is the conditions of success and failure. Did I fail because I had hybrid bees? You say, Mr. Editor, that on first trial you failed. Can you tell us why? [I have said that our first trials of the Alexander plan of uniting were not all of them successful. In some cases it worked and in some it failed. This was before our Mr. Wardell had come to take charge of the bees. I explained to him that I wished him to try it and discover if possible wherein was the possible cause of failure in the few cases. He did so, and in every case he was successful. Now, why did he succeed when the other boys failed, in some instances? He does not know, except that he says he was very careful to have always a strong colony below, as Mr. Alexander stipulated. Then he thought it was very important, when putting the weak nuclei over the strong one, to be extremely careful not to disturb the lower

bees. He accordingly put perforated zinc on top of the strong colony two days in advance of putting the weak nucleus on top; then when ready to do the uniting he lifted the cover only partly; sealed to the perforated zinc honey-board. He next put on the upper story, very gently with its one or two frames of bees, placing a division-board next to the outside frame. This was done very quietly so as not to force the lower bees up into the upper bunch. In every case of colonies so treated he found in a few days both lots of bees thriving tremendously, the lower bees having come up in the mean time supplying the nucleus with its lack of bees, at which time the queen would begin to "spread" herself in egg-laying. He says it is surprising how such a nucleus will increase in strength, and apparently, too, without any diminution in the force below. The philosophy seems to be this: When the two forces of bees are put together, one on top of the other, the work is done so quietly that the lower bees do not for a matter of 24 hours mingle with the upper ones. In the mean time both lots of bees gradually take on the same scent. When the two lots of bees begin to mingle they smell alike and there is no fighting. As the queen has the same scent she is not molested. The result is that the two forces of bees together can do far better than either one of them separately, because they have the egg-laying capacity of two queens.

Try it again, doctor, in your uniting this fall, and report. That reminds me that Mr. Wardell tried the Alexander plan on hybrid birds with the same result.—Ed.]



"MAKING" BEES OUT OF SUGAR SYRUP.

WE have been making some experiments on how much it costs to make a colony of bees out of a given number of pounds of sugar syrup. As we are compelled to buy bees almost every spring to replenish losses due to sales, we have come to the conclusion that we can "raise" our own bees with sugar syrup far cheaper than we can buy them. A colony of very poor hybrids of medium strength on crooked combs can not usually be furnished by the farmer for less than two or three dollars. It takes about two months to get these bees Italianized so they will be fit to send out. The old combs must be replaced by new ones, and, what is more, the bees have to be hauled a distance of several miles. We now think that the same money invested in sugar syrup will go very much further. It is surprising what

*I do not advise high-priced machines. They are heavy, requiring an annual cost for tires alone of two or three hundred dollars.

50 cents' worth of sugar, given in doses little and often, will do with a weak nucleus, beginning with the first of June or even July.

ALAN IRVING ROOT.

On the front cover page of this issue is shown the youngest Root or Rootlet of The A. I. Root Co., Alan Irving Root, or A. I., Second. He is the youngest son of the editor, who insisted that this baby should be named after his grandfather; but a compromise was finally effected by naming him Alan Irving, retaining only the initial letters. This young Rootlet, as his face shows, is a happy little fellow, always greeting his father with a characteristic smile when the latter goes home. On one of these occasions as will be seen, I caught one of those smiles with a camera.

In a future issue I hope to introduce you to some of the other grandchildren standing alongside of a honey-plant that has made the remarkable growth of 16 feet in one year.

From a photographic standpoint the picture on the cover is a remarkable one, because it was taken on a dark cloudy day. I was testing out my new auto graflex camera that will take instantaneous pictures when other cameras would get little or nothing. It was purchased for the purpose of illustrating many bee subjects for these columns, and this is one of the first pictures taken.

Mamma objected to having baby's picture on the GLEANINGS cover, because she said the baby's hair was all mussed up. Papa insisted that the characteristic smile and mussed-up hair, and the careless, playful attitude, made "A. I. Second," look more natural than a fixed professional pose would have done.

SOME CHARACTERISTICS OF CAUCASIANS AS WE FIND THEM: REARING AND MATING QUEENS ON AN ISLAND.

As our readers possibly know, Mr. I. T. Shumard, of Osprey, Fla., is rearing for us Caucasian queens from our imported Caucasian, on Casey Island, off the west coast of Florida. This island has been thoroughly Caucasianized; and to insure a more perfect mating, the bees across on the main land, some two or three miles distant, are also being Caucasianized. From time to time Mr. Shumard has been sending us some of these queens. These we have been placing in our home apiary to test out their characteristics before we make a general business of selling them.

As previously reported, we find they are very gentle, but only slightly more so, if any, than our select Italians. They are slightly more nervous when the hive is just opened, appearing as if they would offer attack. Italians, on the other hand, will usually show no difference in their general actions, scarcely showing a nervous movement. But the Caucasians apparently are not excited because their owner has opened their hive, but because they are alert to discover robbers.

The minute one poises on the wing, a Caucasian will jump at it, and lucky is Mr. Robber if he gets away without a rough-and-tumble fight. The Caucasians are splendid defenders of their homes—no question about that, at least judging from the strain we have. This very trait would indicate that in their native habitat they may be compelled to put up a strong resistance against their own race. At all events, the Caucasians in our apiary seem to be the first ones to rob. We have about thirty colonies of them, and, before the Italians know what is up, the Caucasians, which can readily be distinguished by their color and markings, are ready to seize on to the first sweets in sight. Our Mr. Wardell reports that if there is any robbing going on it often happens that there are nothing but Caucasians at it, notwithstanding there are about ten times as many Italians in the apiary.

They are active cell-builders, and for queen-breeding purposes they are better than Italians.

They are excessive propolizers, chinking wads of gum in the corners of the frames almost as large as one's two thumbs.

As to the amount of honey they will gather as compared with Italians, they easily hold their own. Indeed, some colonies of them run a little ahead of the yellow bees.

In color markings they are rather pretty. Instead of having dirty, muddy, indistinct rings like old-fashioned black bees, the rings are quite a pronounced silver gray. The bees as a whole do not look quite so brilliant as Carniolans, as in this latter race the black shows up with a sort of bluish cast, while the Caucasians show somewhat of a tendency toward brown. Yet a person who is not closely familiar with the characteristic markings of the two races would very easily confound one with the other.

We have none of these Caucasians for sale yet, for the bees are still on probation. Their robbing and propolizing tendency may make them undesirable.

WHY A POWER-DRIVEN EXTRACTOR WILL SECURE MORE HONEY THAN A HAND-POWER OUTFIT.

ELSEWHERE in this issue my brother describes the use of a one-horse-power gasoline-engine for driving a honey-extractor at one of the out-yards of Mr. E. D. Townsend. There is one point that he did not cover; namely, that a power-driven machine will secure more honey, and hence cleaner and dryer combs. It was very clearly explained to me by J. F. McIntyre, of California, who, at the time I visited him, was using a water-motor to drive his extractor, that the reel of his machine could revolve continuously until it was time to put in another set of combs. Not only that, it could be revolved at a high speed, or as high as the combs would stand without breaking. During this continuous running he showed me that a fine spray of honey would be flying from the combs, even though they were supposed to be clean. The longer they were in the ex-

tractor, the less of drip there would be in the cells. I venture to say that hand power, when applied to the larger sizes of extractors, four, six, and eight frame sizes, can not begin to equal the work of the engine power in thoroughness of work; and while it is true that the combs dripping with honey can be returned to the bees, yet it must be understood that a good deal of such honey adhering to the cell-walls, instead of being stored back is actually consumed or wasted. Mr. McIntyre pointed out that, when there was a great deal of drip honey, bees were improvident, and ate more than they actually required to sustain their little bodies. If the extracting is done at the close of the season, and the combs are not given back to the bees, then the cleaner and dryer the combs, the better.

But there is still another advantage to which I have only partially alluded; namely, that in a power-driven outfit the combs can be kept revolving at a high speed until the next set of combs are fully uncapped and ready for the machine. This *continuous* motion will keep up a flying spray from the combs against the sides of the cans; and as the combs become empty the speed can be slightly increased—something that would not be possible by man power after the man had used up all his reserve force in throwing out the bulk of the honey.

THE SHORTAGE OF THE HONEY CROP FOR 1906.

UNLESS bee-keepers are holding back their crops, this will be another season of scarcity of honey. Buyers everywhere are trying to get it. Indications are that the crop has been short. Last season was the poorest known for honey for many years; but conditions now seem to show that the crop is even lighter this year.

Of course, it is true that a good deal of honey that has been harvested has not had time yet to get on the market; and it is no doubt true that some producers are holding back, waiting for a stiffening of prices. But do not make the mistake of holding too long. If others are holding back as some did last year, and these holdbackers all dump their crops on the market about the same time after the season is over, there is bound to be a drop in prices.

There is some honey in Colorado and California; and if the bee-keepers of those States do not hold it too long they will get a fair price for it. But the nearer the buyers get to the holiday season the more conservative they will become, as they will not dare to make an offer that will leave a lot of honey on their hands *after* the holidays. It is my opinion that producers will get their best prices on large quantities through this month. Next month, and the one following, buyers will be shy about buying large lots, and consequently prices will assume an easier tone.

We are not influenced in this statement, as we are only small buyers, purchasing for our local trade.

THE U. S. CHEMICAL STANDARD FOR HONEY; THE ATTITUDE OF THE UNITED STATES CHEMISTS TOWARD HONEY-DEW. AND WHAT EFFECT THIS HAS ON THE BEE-KEEPER; HOW TO DISPOSE OF HONEY-DEW HONEY.

We have just received from the United States Department of Agriculture, from the office of the Secretary, circular No. 19, entitled, "Standards of Purity for Food Products; Supplemental Proclamation," dated June 26. Turning to the subject of honey, we find the following printed standard:

1. Honey is the nectar and saccharine exudations of plants gathered, modified, and stored in the comb by honey-bees (*Apis mellifica* and *A. dorsata*); is lavatory, contains not more than twenty-five per cent of water, not more than twenty-five hundredths per cent of ash, and not more than eight per cent of sucrose.
2. Comb honey is honey contained in the cells of comb.
3. Extracted honey is honey which has been separated from the uncrushed comb by centrifugal force or gravity.
4. Strained honey is honey removed from the crushed comb by straining or other means.

Our readers will remember that the chemists of the United States at one time were proposing to make the standard so that it would eliminate natural honey-dew. This was laid before the readers of the bee-papers, when instantly a mighty protest went up, to the effect that it would be simply impossible to eliminate honey-dew entirely from the honey of some apiaries, especially in some localities. If this were not recognized as the product gathered by the bees, and stored in their combs, the honey of thousands of bee-keepers would have to be classed as adulterated when submitted to a chemical test. The committee seemed inclined to recognize the protest of the bee-keepers as valid, and accordingly, modified its wording. But, as will be noted, it does not even now specifically mention the exudations of aphides, said exudations being deposited on the leaves of plants; but in a supplementary statement the committee of U. S. chemists expressed its judgment as to the application of the standard for honey-dew:

The standard does not in any way exclude small quantities of honey-dew from honey. We realize that bees often gather small quantities of honey-dew that can not be detected in the finished product by chemical means, and does not damage its quality. It is only when relatively large amounts are gathered that the quality of the honey is impaired, and it fails to meet the requirements of the standard. It is generally agreed that such a large amount of honey-dew is injurious to the quality of the product, which can not then be properly regarded as honey.

In a few cases where a large amount of honey-dew is gathered it will be unsafe for the bee-keeper to sell such product as honey; and I am not sure but it would be wise, for more than one reason, to keep it off the market entirely. What little of the pure article may be gathered should be used for stimulative purposes in the spring. In case a bee-keeper should have many thousands of pounds of it he might be able to dispose of it to bakers for just what it is—honey-dew honey.

In not a few cases have I known where

the local markets were damaged almost beyond repair because some local bee-keepers sold at the groceries as honey a lot of strong ill-tasting honey-dew. After consumers have had a taste of that kind of stuff they will tight shy of every thing thereafter bearing the name of honey; so that, taking it all in all, we ought to be well satisfied with the standard—especially so as its scope seems to be broadened by the supplemental statement issued by the committee.

POSSIBLE ANNEXATION OF CUBA TO THE UNITED STATES, AND THE EFFECT OF CUBAN HONEY AND CHEAP SUGAR ON THE HONEY BUSINESS HERE.

OUR readers have doubtless noticed through the general press the disturbances that have been going on in Cuba, and of the possibility and even probability, so it is claimed, that the annexation of the island to the United States will be the ultimate result, for the reason that the troubles on the island will never end until Uncle Sam actually controls it.

I will not attempt to go into the question as to whether or not annexation would be right or wise from any point of view, as that is too large a subject to discuss here; but I may bring up the point as to what the possible effect of such annexation would be on the honey business.

Cuban honey would doubtless come to this country free. Such honey could be delivered and sold here for less, probably, than the same grade of honey could be produced here. As Cuba has resources sufficient to raise almost all the sugar of the world, it could supply this country with sugar without duty, making the retail price of sugar between 3 and 3½ cents as against 5 and 6 now. The beet and cane sugar industry of this country would be put out of business.

Now, then, what would be the effect of a 3½-cent sugar on the honey business of the United States? Mr. W. K. Morrison, who is now with us, and who has studied the West-Indian problems for years, having been in the tropics for a good portion of his life, gives it as his opinion that it will have no particular effect one way or the other. Reasoning from analogy, duty-free sugar in England, that sold for about 3 cents a year or so ago, did not affect the honey business of Great Britain (there is a duty there now of one cent), because, as Mr. Morrison points out, honey is not a syrup and it is not a sugar. It has properties distinctly different from any of the syrups and commercial glucoses on the market; and for manufacturing uses—that is, bakers' use—nothing can take the place of honey. No matter how cheap cane syrup may be, the National Biscuit Co. will have honey just the same in order to preserve their cakes.

But it may be urged, "Why should not this big concern use the Cuban product rather than that produced here?" That is a conundrum that I shall not attempt to answer.

On the other hand, it may be said that a 3-cent sugar in the United States would drive glucose out of the market, for the reason that a syrup could be made of cane sugar that would be practically as cheap as glucose, and of far better quality. If glucose were put out of commission, pure honey would not be compelled to suffer from the competition of glucosed mixtures masquerading under all kinds of names. This, then, brings up the question as to whether a cheap cane sugar would be an unmixed evil; for it is well known that bee-keepers are compelled, and legitimately, too, to feed their bees sugar; in other words, they take away the more expensive product, honey, and give the bees a better and cheaper substitute, saving the salvage due to the difference in the market prices between the two articles.

The only real danger I see to cheap honey is the Cuban honey which could be sold in the American markets, probably, for considerably less than our amber honeys of the United States. Comb honey, of course, would not be affected in any way by the cost of sugar; and it may be said that the best grades of table extracted would also hold their own.

We may theorize what *would* happen if annexation should come to pass; that is, cross bridges before we get to them. But Mr. Morrison thinks a union with Cuba is a remote possibility. In the first place, when the treaty was made the United States agreed not to annex without a direct vote of the Cubans themselves; and this, he says, they will never give; that, even should they do so, the U. S. Senate would probably block it as it did, and for the same reason, when San Domingo asked for annexation.

Moreover, there are "other interests" in this country, and mighty ones too, such as the glucose business, tobacco-growers, cigar-makers, the beet-sugar farmers, sugar-cane planters, citrus-fruit and vegetable growers—all of them would put up a mighty protest, and the U. S. Senate would listen. It would require a two-thirds vote, and the annexationists would never get it.

So, taking every thing into consideration, even if the annexation of Cuba should come, it is not at all certain that we would have any thing to fear. While it is probable that the producers of amber honey might suffer somewhat, it is certainly true that the bee-keeping fraternity *as a whole* would be able to get cheaper sugar to feed their bees than they do under present conditions. Then it is true, also, that the three-cent cane sugar would prove to be the greatest competitor of glucose that was ever put up—so great a competitor that it would seem that the glucose business would be wiped out of existence—especially so in view of the recent national legislation making it a crime against the United States to misbrand any syrupy stuff containing glucose, and calling it honey, maple syrup, or any thing other than *what it actually is*.

If we assume that annexation is an impossibility, then we certainly do not need to cross the bridge before we get to it.



VARIOUS MATTERS.

"To-day is September 15, is it not, Mr. Doolittle?"

"I believe it is, Mr. Brown."

"Came near a frost with us last night. How was it here?"

"There was no frost here this morning, but we did have a little frost on the morning of September 4, which was the earliest I ever knew a frost in the fall."

"Well, why I spoke about frost was this: The night was cold, as you will admit—a night during which the bees are supposed to be doing nothing; but when I went out into the apiary this morning I found several little round caps of wax near the entrance of one of my hives, and I am anxious to know what that means."

"So far as my observation goes, the finding of such caps signifies that drones are emerging from the cells."

"What makes you think so?"

"If you will take the time to examine closely you will find that the drone, when emerging from his cell, bites the cover of the cell entirely off by a smooth cut, while the workers leave only fragmentary pieces of their cell-covering when they gnaw their way out. The queen cuts the covering of her cell in a way similar to what the drones do theirs, except, as a rule, a little piece on one side is left which acts like the hinge of a door, the door often closing after the queen has gone out, so that many times the beekeeper is deceived into thinking that there is a queen in the cell."

"But is it not late for drones to be hatching?"

"Yes, in usual years; but buckwheat was sown late by some of the farmers this year, and brood-rearing has been carried on later than usual this fall on this account."

"Your speaking about the door of a queen-cell closing after the queen had gone out makes me think of my finding a worker-bee in a queen-cell this summer, and I supposed that a worker had been perfected there instead of a queen. Could I have been mistaken, and the bee have gone in after the queen had hatched?"

"That is what you were. It often happens, as soon as a queen has emerged from her cell, that a worker goes into the cell to partake of the royal jelly left therein, after which the cell-cover flies back, or else it is pushed back by the ever traveling bees, they making it fast after it has been closed, and thus very many besides yourself have been made to think that the imprisoned inmate was what the bees intended for a queen, but

turned out to be a worker; and they, having cut off all the queen-cells but this one, call their colony queenless, and send off for a queen, or write to one or more of the bee-papers about the strange phenomena."

"I believe you are right in the matter; for I noticed that the worker had its head toward the bottom of the cell, while a queen which has matured in a cell is supposed to have her head toward the point of the cell. But there is another thing I wish to know about. In gathering honey, do bees visit different kinds of flowers on one trip or gather honey from only one kind of flowers?"

"Many seem to think that bees visit only one kind of flowers while away from the hive in search of nectar, this idea coming, I suppose, from the fact that bees never bring in pollen of different colors at the same time, hence visit only the same blossoms or blossoms of the same color."

"Well, my neighbor did have some show for his belief that bees do not gather honey from only one kind of flower when out on a trip, in what you say about the pollen, but I thought he had no criterion to go by when he asserted that a bee never carries a load of mixed honey. Then you think bees gather only one kind of honey at any one trip?"

"No, I do not think that, for I have repeatedly seen bees go from a gooseberry bush to a currant, and from clover to raspberry bloom, and *vice versa*. But as a rule there is not enough of this flying back and forth from one kind of flower to another to make any mixture of honey which is perceivable when any one of our main honey-flows is on."

"I am glad to know of this matter, and I will try to do some observing for myself next season. But I have more I wish to know about. Let me explain a little. Some time in July I had a swarm come out. The same clustered, and was hived. A few hours later they mostly came out of the hive and returned to the parent colony, leaving a small bunch of bees in the hive. These remained six days, when they swarmed out. I found the queen with this little bunch of bees when they hung on the limb. What made the most of the bees leave their queen and go back home again?"

"Here you have struck on one of the most perplexing things which occasionally happen in the swarming season in a large apiary. The general cause is that a few strange bees from another swarm or elsewhere go in with the swarm, and for this reason the queen is balled for safe keeping, or for some other purpose, just what I never knew, nor have I found any one else who could give a satisfactory reason therefor. When the queen in a newly hived swarm is thus balled, the bees seem to think that they have lost their queen, and so return to the old hive, all except a few which are near the ball of bees, and realize that the queen is there all right. If they are stopped from going home by covering the old hive so they can not get in, they will go to other hives near by, rather than stay where we put

them. I used to get a large proportion of them killed in this way by their trying to go into other hives, or else I had to let them go back, until I learned how to keep them from going back where enough strange bees got into a swarm to cause the swarm to ball the queen."

"Please tell me how you could keep them. Such bees are the most determined of any I ever tried to do any thing with, unless, perchance, it is persistent robbing."

"I hunted out the queen by smoking the ball of bees until they released her, when she was caged and the cage hung down in the middle of the hive. In about half of these cases this satisfied them, while at other times they would ball the cage, so it did no good. Thinking on the matter one day I made a large flat cage that would reach clear across the frames. Into this I put the queen and lay it on top of the frames, when the bees can get at her through the wire cloth between every frame in the hive, which prevents shutting her off from all but a few, as was the case when she was not caged, or with the small cage used at first."

"I see. But how long must she be kept caged?"

"The next morning I let her loose, when all goes well."

"Thank you for this also. Now one more thing. I suppose you noticed in GLEANINGS for September 1st that Dr. Miller no longer reverses bottom-boards, but, instead, uses a rack to fill the two-inch space needed for winter, during the season of the year when the bees would be liable to fill the two-inch space with comb."

"Yes, I noticed this matter, and that the editor indorsed it."

"Well, should we not adopt this way of using the Miller bottom-board?"

"I can well see where Dr. Miller's plan would be a little easier as well as save some time; but the objections to it more than overcome all of this, to my way of thinking."

"What are the objections? I see none."

"Well, the first, but the least, comes in the fall. You know it is customary to weigh each colony, or take out each frame and look it over so as to know that all colonies have a sufficient amount of stores for winter, do you not? Otherwise many colonies may starve before spring."

"Yes, I know that many of our best apiarists do this."

"Certainly they do this, and that is what makes them our best apiarists. Well, by this reversing of bottom-boards all this weighing or looking-over of combs is avoided, for with a little practice the hives which have not honey enough to carry them over the winter are easily detected and marked as we go along. So I ask which is easier—the weighing of the hives, the handling of the combs, the slipshod way of hoping all have enough, or the work required in reversing bottom-boards, by which we know which require feeding, if any do?"

"This is something I had not thought of.

Come to think it over, the reversing is certainly the quickest, the easiest, and the surer as a whole."

"That is the way I see it, and for that reason I continue to reverse. Then when it comes spring, with Dr. Miller's rack plan there is a whole lot of dirt, dead bees, and often mold and filth, necessarily accumulated during the winter's inactivity with the bees, covering the winter side of these bottom-boards, where it must stay till the bees become strong enough, and the weather warm enough for the bees to remove, during which time this accumulation is an injury to the best success at brood-rearing. But with the reversing plan this filth and the dead bees are removed at once, and the clean, sweet summer side of the board placed right up next to the bees for a floor, so that there is no work needed at house-cleaning, by the bees, while this sweet summer side stimulates them to brood-rearing at the earliest possible minute. It also tells the keeper if any colonies have consumed an undue quantity of their stores, so as to need immediate feeding, without the opening of a single hive. No, don't let the thought of a little ease hinder you from reversing the bottom-boards, when so much can be gained by so doing."



In conducting the "Canadian Department" in GLEANINGS it is my desire to get in touch with all Canadian bee-keepers from the Atlantic to the Pacific. Sample copies will be sent to any bee-keeper whose address the reader will be kind enough to forward. If you have an apian device which will save work or improve the method of work in the apiary, or if you know of some one who could add to apicultural information, write to me. The same as to apicultural management or news of general interest. Not every idea may be put in; but due credit will be given the author whenever inserted in this department. GLEANINGS has at present probably more Canadian subscribers than any other bee-journal; and when we add to that an immense subscription-list in the United States and other lands, GLEANINGS becomes a desirable medium through which to give these ideas. Let us show the apicultural world that Canada is not behind in apicultural matters.

There will be an international exhibition at Christchurch, New Zealand. The exhibition opens Nov. 1, 1906, and closes in April. The Canadian government will make an ex-

hibition, including honey. The Canadian staff of officers are, Messrs. W. A. Burns, T. H. Race, R. L. Broadbent, A. W. Depart, H. C. Knowlton.

Let us not be unjust enough to put on the same level the one who extracts honey nectar (may I coin the appropriate term?) and then artificially ripens—no, thickens—it, and the one who extracts the product of the hive at the same time, and without evaporation puts it upon the market. The former action is much to be preferred.

The weather in the United States, like that in Ontario, has been peculiar—all the year, seasons of extremes. The rain has again and again fallen in the same section, leaving others close by without. In a few sections there has been a full crop; but in the majority of places a very light crop, poor in quality. Quebec has also a light crop, but has done better than Ontario. These two provinces are at present the leading honey-producers, although bee-keeping in other portions of Canada is on the increase.

On page 440 is illustrated a hive-carrier as used by G. C. Greiner. It was necessary to look for the author's name before feeling assured that it was not an illustration of the one we use. Ours, however, has the hind legs several inches shorter than the front, more readily to prevent them from striking the stairway steps when going down cellar. We also have the bottom of the legs padded with felt. The same is done with the wood edges upon which the hive rests. This prevents jarring the hive. Make such a hive-carrier if you have to take bees down into a cellar.

So far as my experience goes in Canada, there is no blossom like goldenrod, which yields a product, through the nectar-glands, which varies so much in flavor between the time when it is first stored in the cell by the bee and the time when, by means of a process through which it is put by the bees, it is capped and ripened. In the first case the flavor is almost offensive; in the second case it has a flavor which many prefer to white or buckwheat honey. During the time of ripening, the apiary has the same offensive smell. Do not the bees in ripening expel a portion of the essential and somewhat volatile oil? Let our experiment stations be in a position to answer such questions.

The next annual meeting of the fruit, flower, and honey show will probably be held the second week in November. The place selected is Massey Hall, Toronto, Ontario. There will be a departure from the usual prize list, and the Ontario Bee-keepers' Association will make one large display, asking its members to contribute suitable comb and extracted honey, for which the association will pay market price. It is decided to have

demonstrations, and to distribute literature relative to the uses of honey. Members should encourage this work. If you have any thing suitable, write the secretary, Wm. Couse, Streetsville, Ontario, before you part with it. Messrs. H. Sibbald, R. H. Smith, and E. Grainger are the committee to take charge of the exhibit.

Why not have a judging contest in connection with the show and Ontario Bee-keepers' Association convention, which takes place at the same time and place? Let, say, six samples each of clover, linden, and buckwheat honey be taken. Let these be judged by points and score-card, and the same be filled out by those competing; then let the same be changed about and judged again, and the prizes be given for those doing the most accurate and correct judging, giving reasons for the decision. An hour or two of the convention time taken up in this way would be an educator of value.

On page 951 W. W. Case gives buckwheat honey credit for curing foul brood, and says that this honey is death to the germ. Mr. Case probably gives too much credit to the properties of the honey, and yet he brings out a very important fact. For years I noticed that, when the bees stung during the buckwheat flow, the sting gave greater pain than when working on other blossoms in the locality. I judged that, at that time, more formic acid was secreted. Upon sending samples for analysis to the Ontario Agricultural College it was found that this honey had double the percentage of formic acid that clover honey had. Some experiments since made in Europe have confirmed this.

There has been a good deal of discussion as to the merits of nectar gathered by the bees and stored by them, and extracted when still partially nectar, and then artificially thickened, and extracting the honey and then sealing in vessels. There is no peradventure about it. The bees chemically change the nectar they gather before it is sealed. We also know that, the more the bees "manipulate" the honey, the greater the change made in it until all is inverted. If this inversion (predigestion) is of any value, then artificial nectar partially converted into honey can not be as good to the eater thereof as honey, even if it for the time or for *all* time fills our pocketbook to the same extent.

If Dr. Miller has any corns, let him look out; for I want to stand upon the ground he does in connection with the hearing of bees. Even if bees have no ears, they can hear. Even if we have found no organ which may register the vibrations of the air, as the organs of hearing do, they can hear. The all-wise Creator did not give to the bees the power to make the varied notes they do, without a use. We might as well have tongues without having ears. If bees can not hear, why should the young virgin queen

pipe in the hive? Who has not heard a swarm change its note and suddenly march into a hive, and isolated bee-clusters follow the main cluster when hiving them? During a season many evidences appear to show us that bees hear.

Wm. Couse, Secretary of the Ontario Beekeepers' Association, Streetsville, Ontario, in a circular letter issued to members under date of July 24, states, "From all reports received, the honey crop is short, and beekeepers should not sell honey unless they obtain a good price, probably 9 to 10 cents." The above is valuable, should be worth much to members of the association, and is the wideawake quick way in which all the interests of the association should be guarded by its officers, who, when they accept office, should consider it their duty to promote its interests. Such action would generally result in a much larger membership in beekeepers' associations.



FRAME-SPACERS.

Should They Be a Part of the Rabbet or Frame? Dr. Miller Takes Issue with L. Stachelhausen: an Interesting Discussion.

BY DR. C. C. MILLER.

When so able a man as Mr. L. Stachelhausen says a thing is good, it becomes the rest of us to be very modest about condemning it. A thoroughbred German, entirely familiar with all that is going on in Vaterland as well as in this country, keenly alert for that which is best, either among the old or the new, a Yankee in spirit in the best sense of that term, his views must always be worthy of respectful consideration; and so I ask for a little space to discuss what he says upon the question whether spacers should be part of the hive or the frames, as found on page 1009.

The display of different spacers, exhibited on that and the following page, ought to be an eye-opener to some of us who seem to think that, if the American nation would cease to exist, all invention would die. Can any one muster 32 different samples of spacers that have originated in this country? And some of them got away from him at that! One of the latest, and perhaps one of the best, is simply a piece of wire bent in such form as to be readily slipped on and off the end-bar. What seems to me the best in

the whole lot does not appear—a nail with a head of such thickness as to space the proper distance, and which a child can make no mistake in driving the proper depth. This form of spacer is in extensive use in Germany.

Speaking of top-opening hives in Germany, Mr. Stachelhausen says: "All these hives, if spacers on the frames were used, disappeared very soon, and only such as had the spacers fastened to the hive are still in use." If I interpret that aright, it means that in Germany, with hives that open at the top, such as are in use in this country, no spacers attached to the frames are at present in use. I had supposed they were, but I may easily be mistaken, and yield to Mr. Stachelhausen as authority. Certain it is that spacers attached to frames are in common use in Germany at the present day; indeed, if one may judge from advertisements they are in much more common use there than here: for it will be noted that of the 32 spacers illustrated by him, pages 1009 and 1010, only ten are to be attached to the hive, but twenty-two to the frames; and these twenty-two frame-spacers are all modern affairs, to be seen commonly advertised and illustrated in German bee-journals and price lists. If they, then, are all up-to-date, and not used in top-opening hives, it must be that up-to-date German bee-keepers use chiefly side-opening hives.

Now if I could get my good German friend Stachelhausen off by himself, with no Yankees in hearing, I'd say to him in an undertone, "Look here, mein guter Bruder, if the bulk of bee-keepers in Germany are so far behind the times as to be using hives closed on top and opening at the side, what good is their judgment in the matter of spacers, anyhow?"

Mr. Stachelhausen says that, in a top-opening hive, "the correct place for the spacer is on the hive. If this is not observed, all the advantages of such hives are lost." He must have been very unfortunate in the use of spacers on frames to come to such a conclusion as that. Let us compare the work of getting out the last frame in a side-opening hive with that of getting out the last frame in a top-opening hive with spacers on frames. Let Bill run the first, and Joe the second. Bill pulls out his first frame, and Joe pulls out his dummy at the same time. Then, if the hives are eight-frame hives, Bill has six more frames to pull out before he reaches the last frame. Each one must be pulled out separately, like a bureau-drawer, and each is a little harder to get out than the one that preceded it. Joe looks on while Bill takes five of these six frames entirely out of the hive and disposes of them; and while Bill is taking out the last of the six, Joe deliberately shoves the whole seven frames to one side, taking less time than Bill does to get his frame out of the recesses of the hive; and then while Bill is getting out his last bureau-drawer Joe lifts his frame straight up and out of the hive. Is the advantage of the top-opening hive lost so long as Joe's work of shoving to one side eight frames that can all be pushed in a body is pitted

against Bill's taking six frames one after another entirely out of the hive, bureau-drawer fashion?

You discuss the matter of making nuclei, Bro. Stachelhausen, and seem to compare handling a bunch of self-spacing frames with shallow hives. You say if we take a ten-frame hive and make five nuclei of the contents, taking the frames in pairs, we'll not have things evenly divided. Sure; but what better off shall we be with shallow hives? for to make a nucleus equivalent to the two larger frames we should have to lift out at least three of the shallow frames. To take advantage of the divisible brood-chamber we must take the whole of one section, and if we're going to compare we must consider this one section as against half the frames in a common ten-frame hive. If we split this latter into two equal parts, don't you think we are likely to have a more equal division than if we separate the two sections of a divisible brood-chamber? The five frames at each side of a ten-frame hive are likely to be very much alike, while there is likely to be no little difference between the upper and the lower section of the two-story shallow hive.

But this last paragraph may be unfair to you, for I suspect that what you had in mind was to show that, when it comes to making five nuclei out of a ten-frame colony, there is no advantage in self-spacing frames. I think you are right in that; for I should want to see just what was on each side of each frame, and so would care little for lifting the two frames together. But when I consider the time I take in the course of a year in handling frames to make nuclei, it is so little that it's small matter, and I suspect that I have five times as much to do with nuclei as bee-keepers on the average.

Much more, however, is the time taken, for one purpose and another, in lifting two or more frames out of a hive at a time, when each frame is not separately scrutinized, and it's a matter of much importance to be able to take more than one at a time. It is true, as you say, that we can handle loose-hanging frames by putting a finger between two frames; but in my case it is far from true that we can do it "just as well." For many years I handled such frames by the thousand, and I *could* take more than one at a time; but as a matter of fact I did not do so except when I wanted to carry two or more from one part of the apiary to another, and could save time by doing all at one trip, and then it hurt my fingers so that I felt like dropping them before reaching my destination.

To get right down to the gist of the matter, I think your position is that, without spacers on the frame, each frame can be lifted out separately from any part of the hive without touching any other frame. If that be true with you, then you have ground for serious objection to spacers on frames. But it is not true with me, and I think the tribe to which I belong is a very large one. For many years I used loose-hanging Lang-

stroth frames, and I thought the combs were built quite straight in them; but when I wanted to lift a frame out of the hive, no matter where it was, I never thought of doing it without first shoving to one side one or more of the other frames so as to make room to lift out the desired frame. It took less time to do that than to take the time necessary to lift out the frame with sufficient care not to do any harm; and even with all the slowness and care possible I never felt sure that some inequality in the combs might not injure bees, to say nothing of the queen. The simple fact is that I always crowded the frames to one side to make room; and the difficulty would have been increased if there had been spacers on the hive like yours, as there were in a few of my hives.

You say, "The advantages of such hives with spacers on hives are so many that I have no doubt it will be popular in a very few years." I doubt. There might be a better chance for it if it were a new thing. But it is many years old. I tried it years ago, and so did others. To speak of nothing else, the one advantage of being able to crowd along on a smooth-sliding tin rabbit, with one push all the frames of the hive is so great that spacers on frames are likely to continue popular.

But please understand, Bro. Stachelhausen, that, if you can lift any frame out of any hive without in any way disturbing its neighbor, you have my full permission to have spacers on your hives, and I'm ready to give you a writing to that effect.

Marengo, Ill.

[Ordinarily the editor would take a hand in this discussion; but as both parties are "heavy weights," as a light weight I have decided to let them fight it out. Go it, meine guten Brüder.—Ed.]

HIVES.

What Bearing they Have on the Question of Swarming; the Large Versus the Small; Do the Largest Hives Prevent Swarming?

BY E. F. ATWATER.

Very interesting to me have been some of the recent articles on the hive-question—particularly those by Mr. Holtermann, and the one on page 657, by Mr. Hand. Let Mr. Hand attempt the management of our nine apiaries, at home, 3½, 4½, 10, 13, 15, 13, 36, and 1½ miles away, and he might no longer doubt that Mr. Holtermann spoke wisely in branding swarming as the bane of modern apiculture. I am a most emphatic believer in large hives in extracting-yards, giving unlimited room up to the flow, and usually 16 L. frame capacity during our mild winters; yet of no fact am I much more positive at present than Aikin's dictum, "Large hives will not control" swarming. If Dadant, France, Snell, Post, and others were to ex-

change localities with me they too, in a few seasons, would surely be brought to realize that, of all the plans yet presented, only the application of some very radical manipulation will give that sure swarm control adapted to a large business. We have progressed to this point—one manipulation in May will control until the arrival of the flow in June, in normal seasons. Then one or two manipulations in June will *prevent* all colonies not having cells from getting the *desire* to swarm, and *cure* all colonies having queen-cells under way. Our new system (a combination and varying of old ideas) keeps bees, brood, and queen all on the old stand—no cessation of laying, yet the desire to swarm is satisfied. During this present week we expect to apply this treatment to at least half of our yard of 125 colonies, 36 miles from home.

"Horizontally contractible" hives say, I have been all through that theory, in practical use too, and I doubt if I shall again use many brood-combs less than 9½ inches deep. While it is true that a large hive does not "always contain a large colony of bees," yet it is just as true that such is far oftener the case than when small hives are used, and such colonies are just as liable to swarm, if not more certain to, than colonies in small hives.

If Mr. Hand's system demands that he "carry around" his little Heddon or eight-frame hive "during the whole year" I would as soon be a porter and handle satchels and trunks. We do not "migrate" to that extent here. After an extensive use of divisible-brood-chamber hives (I use some yet) I am quite sure that Dadant is correct when he says that large deep frames will allow a colony to develop greater strength than a brood-nest containing too many sticks and spaces.

As to swarm control, I hope I violate no confidence when I tell you that one of Mr. Holtermann's fellow-countrymen, who uses the twelve-frame hive with super-ventilators, similar to the Holtermann system, wrote to me that the only way he could control swarming was by a *weekly examination of brood-nests*, and giving room and ventilation as required—italics mine. How much does that say for large hives as non-swarmer? Again, we are gradually introducing a little more Carniolan blood into our yards; but if they *can* swarm any worse than the Italians we shall be surprised.

As they average uniformly stronger, an apiary of a given size would, if left to itself, cast more swarms than an apiary of Italians of the same number; but which is better—a strong colony of part Carniolan blood, or a weak colony of pure Italians? We can well afford the little time required for a positive swarm control if we have strong colonies—colonies with 8 to 20 L. frames well filled with brood when the flow opens.

Nearly every thing else in Mr. Holtermann's splendid articles on pages 365 and 503 receives my hearty endorsement; yet if one wishes very large hives I am not sure that a twelve-frame L. is large enough.

Frank Benton says that the thirteen-frame L. hive is a better one.

May 12 myself and assistant spent at the apiary of W. H. Pennington, of Oregon. For years Mr. P. has had in use hundreds of ten-frame L. hives, and 80 thirteen-frame Dadant hives, the latter equal in capacity to two eight-frame L. hives, and they always averaged the best crops—never had to be fed, yet would sometimes swarm. Surely this is about the limit in size for a single brood-nest, yet ineffective as a positive means of swarm control. By stacking up the regular ten-frame hives, Mr. P. thinks that he secures most of the advantages of the "huge" brood-nests, and avoids some of the faults.

Now let us consider Mr. Aikin's toy hives with the little stubby unmanipulatable frames of the Heddon type. Some one will be advocating a hive composed of two-inch shallow frames, I suppose. This hive has been developed to fit a special system of management—a system of partial or complete swarm control, requiring excessive handling of shallow cases—a system, to give my guess, that will soon be a thing of the past. The Aikin, Alexander, Holtermann idea of a telescope lid shows one point on which men can agree.

Meridian, Idaho.

THE ONE-POUND SECTION. AGAIN.

A Rejoinder to J. A. Green; in Favor of Tall Sections because they Run Close to the One-pound Mark.

BY G. C. GREINER.

After taking up so much space with the one-pound-section affair I almost feel guilty to mention it again; but as Mr. Green may take it that my ammunition for the defense of my position is all exploded, I will, with the permission of all concerned, comply with his request and try to set him on the right track.

Properly speaking we have no one-pound sections; but for convenience' sake, to distinguish them from the smaller denominations, or from the olden-times bulk-honey chunks, and the 6, 8, or more pound glass boxes of a later period, we will call them that.

Mr. Green wants to know, page 725, the size of the one-pound section. That depends very much, as the editor would say, on location and season, and I would add that much more depends on the ability of the individual. Even in a less bountiful honey-flow, with the proper management in the way of strong colonies, judicious adjustment of storeroom, feeding back, etc., we need not have many very light sections unless we aim to have them for next year's baits. So, the size of the one-pound section everybody must decide for himself according to his skill. However, I can give Mr. G. the rule that will work with everybody and under all circumstances. It is this: If our light sec-

tions weigh approximately 22 lbs., our medium 24 lbs., and our heavy ones 26 lbs. to the 24-section crate, and run about like that one year with another, as mine do and have done for years, that is what I call a "one-pound section," and I believe everybody else, unless he is overruled by his own prejudice, would do the same. If Mr. Green's 24 sections weigh only 19 lbs. they are too small for one-pound sections, no matter what their size may be. They should hold one-third more. But I do not wish to say that Mr. G. is making a mistake or is mismanaging his business, but the contrary. If his trade calls for sections of that weight, it is to his own interest to produce them, and it would be perfectly legitimate and honorable to do so; but I don't believe Mr. G. would expect a full pound price for them. We must cater to the demands of the consuming public, be it 16, 12, or 8 oz. sections. What I oppose, and strongly so, is the idea of selling 12 oz. of honey in the shape of a three-quarter-filled one-pound section under the cover of deception, leading the purchaser on in the belief that he is getting a pound of honey. This is what I denounce as a genuine fraud.

Mr. Green asks: "Then why foster this idea of a one-pound section" by such talk? Logically we may not be using just exactly the proper terms; but could Mr. G. tell us in what better way we could describe 16, 12, and 8 oz. sections? Besides, we are simply following up an established old-time custom which dates back to the days when honey was actually retailed by weight in bulk. People call at my wagon and inquire, "How do you sell comb honey a pound?" I give the price per section, and, if satisfactory they will invariably say, "Well, give me one, two, or more pounds," as the case may be, and I hand out that many sections. Now, should I call these people to account with a long lecture, showing them the fallacy of using improper terms, when there is no harm done, and as long as we understand one another perfectly well? I know what they mean, and they know what I understand; and you know it always pleases people to let them have their own way.

Mr. Green is quite right in presuming that I had no experience with more than one size of section. It always has been my aim to produce a section that would give my customers one pound of honey for a one-pound price. The only experience with different sizes I ever had was nearly thirty years ago, when the one-pound package had begun to be more generally called for, and we tried to find out what size of section would come the nearest, taking it one year with another, to hold one pound of honey. After quite a number of years' experimenting back and forth we found that in our case a $4\frac{1}{2} \times 5 \times 1\frac{1}{2}$ section, with $\frac{1}{2}$ -inch beeway, and used between solid wood separators would be the looked-for "one-pound section." In later years, since we have been a little more initiated into some of the mysteries of bee-keeping, I think we can do about as well with

4×5 as we did formerly with $4\frac{1}{2} \times 5$ -inch sections.

In the statement concerning his World's Fair honey, Mr. Green gives us some very good points for his own conviction, providing he will accept the argument and not prove the old saying, "Convince a man against his will, etc.," to be true. He says, "Ten cases of honey, 24 sections to the case, weighing exactly 19 lbs. net." This would make $\frac{19}{24}$ or $\frac{1}{4}$ over $\frac{1}{2}$ lb. for each section. Wouldn't this be close enough for all intents and purposes to call them $\frac{1}{2}$ -lb. sections?

But let us go one step further. If Mr. G. competed for the gold medal with his honey, it is very evident that he selected the very choicest of perhaps several tons of honey. The next grade, therefore, would naturally be somewhat lighter, weighing probably in the neighborhood of 18 lbs. to the crate, or $\frac{3}{4}$ per section. Would Mr. G. consent to call these $\frac{1}{2}$ -lb. sections? To be sure, his next grade, if he has any, would be a little below the average; but all would run close enough to 12 oz. so that we could call them with all propriety a $\frac{1}{2}$ -lb. section to distinguish them from other kinds.

Since writing the foregoing I have taken a few finished sections from some of my colonies. Taking particular notice of their weight, I estimated them to average a trifle over 16 oz., and, to be a little more precise about it, I placed the first 12 sections on the scales. They tipped the beam at $12\frac{1}{4}$ lbs. All the rest were so near like them that no difference could be noticed by the eye. Would Mr. Green consider these entitled to be called "pound-sections"?

If we take into consideration that these sections are of $4\frac{1}{2} \times 5$ -in. pattern we should naturally expect that the regular 4×5 size, which I shall probably adopt hereafter, will crowd the one-pound mark still a little closer.

LaSalle, N. Y.

WHITE AND SWEET CLOVER.

Is there any Difference in the Color of the Honey?

[The two following letters will explain themselves.—ED.]

Mr. A. L. Amos:—I should like a little information on sweet clover. Your article on page 884 inspired this letter. You speak as though the yellow variety, if planted where white clover is abundant, would interfere with the white by the honey being mixed. Now, if the yellow did bloom at the same time as the white, would the mixture interfere in any sense with the sale in any way but by the flavor? Is the color of yellow-sweet-clover honey any different from the white? We have worlds of the white; but this, with other seasons, is not a white-clover year—not a bee working on it. I propose to plant a quantity of either the white or the yellow sweet; and if the flavor of the yellow is the only objection to it, then I will plant both and have a continuous yield. I should

not want any flora that would spoil the white clover when it does happen to blossom and yield.

E. H. DEWEY.

Great Barrington, Mass., July 5, 1906.

Mr. E. H. Dewey:—I suppose that, in that article you mention, I was deferring to a popular idea that a sweet-clover admixture is not desirable. My own opinion is that sweet-clover honey, *white or yellow*, can not injure white-clover honey, because it is as fine in appearance and flavor as the white clover itself.

The honey I am getting now is of a translucent gold color, not unlike Dadant's foundation when you cut into a comb; and as it runs out on the plate it is hardly darker than the white of an egg. It has a slightly greenish cast. In flavor I consider it incomparable; but then I am what might be called "a sweet-clover crank"—certainly an enthusiast.

Of course, I don't get sweet-clover honey pure and simple; but there is enough of it, especially of the yellow kind, to make itself felt if it were objectionable. I have had experience with sweet clover for upward of 12 years; and if it ever fails to yield nectar I have not observed it. It is very dry here now, but the nectar is coming in freely.

Don't take my testimony as to the quality of sweet-clover honey. I can refer you to no less an authority than the late Thos. G. Newman, who wrote in his book, "Bees and Honey," concerning the little white Dutch clover, "Its honey is excelled only by that from sweet clover." When such a man as Newman sets sweet-clover honey in the very front rank, one need hardly be afraid of admixture. My honey always commands top prices here and it comes in competition with the finest alfalfa honey from Colorado and elsewhere.

Now, if you will send your inquiry, together with my reply, to GLEANINGS, it may help some others placed as you are.

Comstock, Neb.

A. L. AMOS.

[Samples of sweet-clover honey—that is, honey from the one source only, that have been submitted to me had a sort of greenish cast, and the flavor was strongly aromatic. But a small amount of this flavor in any good white honey gives it a quality that is delicious. Sweet clover is the best flavoring honey in the world. Any mild white honey can be improved by putting a little of it in.

The bees belonging to the editor of the *American Bee Journal* gathered considerable sweet clover, and every time I visited Bro. York he had on his table a blend of sweet clover and white clover. It was too good to sell, I judge, and therefore he kept it almost exclusively for his own family use.

Our correspondent says he does not get sweet clover pure and simple. My impression is that a pure article would be too aromatic. It is, therefore, fortunate that he has a blend of sweet clover and white clover. The honey referred to by the late Thomas G. Newman must have been a mixed honey rather than the pure stuff.—ED.]

AN AUSTRALIAN BEE LICENSE.

How It Permits the Exclusive Use of Bee Pasturage.

BY R. BEUHNE.

Dr. Miller, some years ago, suggested in GLEANINGS that it might be possible to secure to a bee-keeper in some way the exclusive use of the bee-forage in the radius of the flight of his bees, and it may interest you to learn that, through the efforts of the Apiarists' Association, we have now in force (since March 1) in this State of Victoria a law regulating the bee-keeping industry on State-owned lands. Provision is made two ways in the interests of apiarists—by bee-site licenses and bee-range licenses. A bee-keeper may, on payment of two and a half shillings a year, obtain the right to occupy one or more acres of ground as a site for an apiary on any forest reserve, any other crown lands, or any State-owned land leased to pastoral tenants. This bee-site license gives the apiarist legal occupation; and if there is not likely to be any competition of other apiarists it is all he needs. If he wishes to have the exclusive use of the bee-pasture he may apply for a bee-range license. This license covers a distance of one mile in every direction, and the annual payment is one half-penny for every acre included in this radius, and no other bee-site license or bee-range license is there issued by the government at a less distance than two miles. If any pastoral tenant of the State intends to clear or ring-bark any trees, he is compelled to give notice of his intention to any bee-keeper within two miles, so that such bee-keeper may appeal or protest against the proposed destruction of honey-producing flora, at a land-board.

To prevent monopolies the number of bee-sites or bee-ranges which may be granted to any one person or company is limited to three. Bee-keepers whose apiaries are on privately owned land adjoining State lands may also take out bee-range licenses.

We are at present drawing upon us a good deal of animosity from cattle and sheep men leasing State lands, because we oppose the killing of the trees, which, while it improves somewhat the grass upon which the lessees depend, destroys our almost only honey-resource. In the cases which so far have come before the Department of Lands the decisions have been in favor of the bee-keepers.

These strained relations will disappear with time, and every bee-keeper on State lands can, by the payment of a small sum annually, secure the full return from his range, and keep a possibly neglected and diseased apiary two miles away.

Tooborac, Victoria, Australia.

[What is done in Australia could be done here. If the plan works out satisfactorily across the water, the National Bee-keepers' Association might do well to formulate a recommendation to our national government. There will soon be one or two more articles on this subject.—ED.]

BEE-KEEPING IN MICHIGAN.

A Visit to the Home of E. D. Townsend; the Gasoline Extractor-engine Tested.

BY H. H. ROOT.

Last spring at the Northern Michigan Bee-keepers' convention Mr. E. D. Townsend, of Remus, invited me to make him a visit during the next extracting season, and see something of the conditions of bee-keeping in Michigan. Thinking this would be an excellent opportunity to give the new gasoline-engines for running the extractors a thorough trial I had one sent on ahead by freight, which, fortunately, arrived on the afternoon of July 9, just about four hours before I did myself.

Mr. Townsend has no home yard, his bees being all in out-apiaries scattered around in localities which he finds by experience are

to the yard where enough honey was capped to begin extracting. At first the road led through some of the most extensive potato and bean fields that I have ever seen; but as we got further out from the town every thing began to look more and more wild, until nothing could be seen but the rough underbrush and small trees that had grown up after the lumber had been cut off years before. By this time the road was but a narrow track in the sand. Finally we turned abruptly to the left and followed the road through the brush, until, on turning again, down a little hill, we came upon a clearing in which was the apiary, completely surrounded by young trees. See Fig. 1. A neat-looking honey-house about the center of the apiary made the picture complete. Fig. 2 is a closer view of the building.

It will pay to look at this honey-house more carefully. It seems like a very substantial



FIG. 1.—PARTIAL VIEW OF ONE OF THE OUT-YARDS OF E. D. TOWNSEND, REMUS, MICH.

the best. He has one yard about half a mile south of Remus; another four miles east, one four miles west, and one three miles north, while there is still another much further north, near Kalkaska. Many of our readers will remember Mr. Townsend as a man who insists on having strong colonies for the production of extracted honey as well as of comb honey, and one who constantly preaches the doctrine of producing a better quality of honey. Still, in spite of all this he does very little manipulating of combs; for, as he says, he does not believe in tearing a hive all to pieces every little while just to see how the bees are getting along.

Early the first morning we loaded the little engine on to the wagon, took a can of gasoline, and started on the four-mile drive

building, put up in the ordinary way, but it is more interesting to know that it was made, with two others just like it, in a shop during the winter, and hauled to its present location in a wagon. It is so constructed that it can be taken apart in a very short time. The gable roof, of course, is in two parts, making, with the four sides, only six large pieces to handle. The whole structure is held together with bolts.

Different kinds of building-paper were experimented with for a lining to keep out bees, etc.; but tar paper was finally decided upon, for the reason that it is not only bee-tight but mouse-tight as well. Since the tar paper has been on, no mice or ants have been seen. It was feared that the black paper might make it pretty hot inside, when the



FIG. 2.—A PORTABLE HONEY-HOUSE THAT MAY BE TAKEN APART AND LOADED ON A WAGON IN HALF AN HOUR.

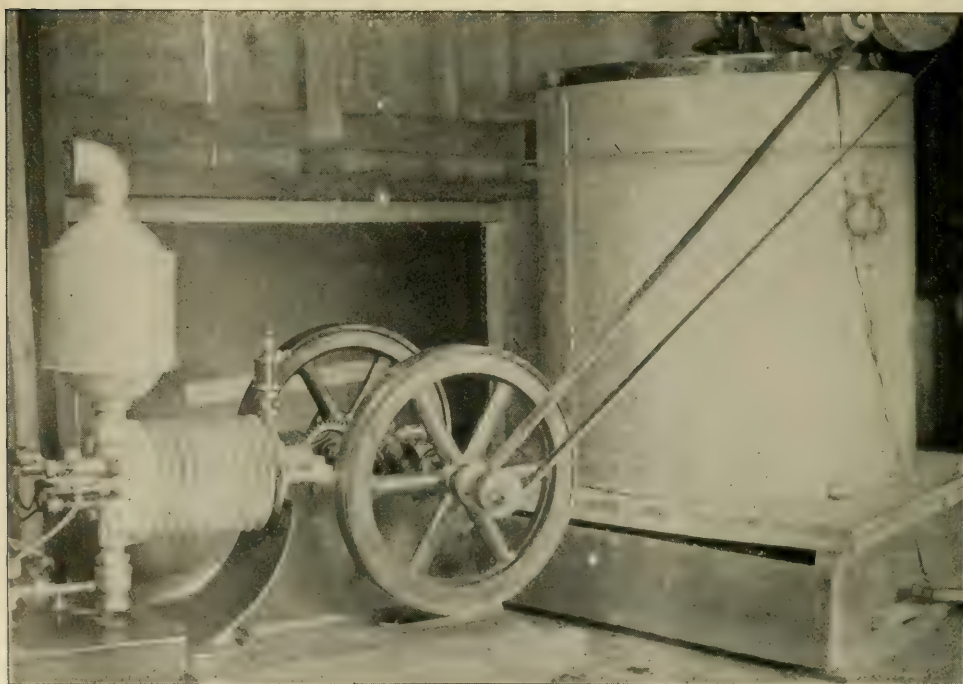


FIG. 3.—A ONE-HORSE-POWER GASOLINE-ENGINE FOR DRIVING A HONEY-EXTRACTOR.

sun was shining bright; but it seemed as cool as any building of its size could be. Of course, the dark walls do not reflect as much light as white ones would; but with the large ventilators or windows covered with wire cloth there is an abundance of light. The smell of the paper is not offensive, and does not make the honey taste in the least.

Well, we carried the engine inside and soon had it connected with the four-frame extractor already in position. (At present Mr. Townsend has a four-frame extractor at each yard, but thinks of purchasing an eight-frame for next year, with an engine, and taking the whole outfit from yard to yard on the wagon.)

A loose belt is used; and to start the reel carrying the combs, it is necessary only to step on the treadle connected by a wire to the idler so that the belt is tightened, and then go about other work, allowing the extractor to run as long as is necessary. After the baskets are reversed with the lever, and the other side of the combs extracted, the reel is stopped by releasing the treadle and applying the brake. See Fig. 3.

Since the engine runs continuously, some might think that too much gasoline is used; but hardly more than a quart is used a day, so the fuel item is not important.

We had absolutely no trouble whatever with the engine. It requires no attention; and after being started it need not be looked after except to fill up the lubricator about once a day. Mr. Townsend's youngest son, a boy about ten years old, was able to start it without any trouble. So, instead of being so warm that the perspiration dropped from our faces, we were fanned by the breeze from the reel.

I believe any one who has done a good deal of uncapping could easily take entire charge of the combs from the time that they enter the extracting-house until they are empty. This depends, of course, upon his skill in wielding the knife and also upon the size of the extractor.

THE UNCAPPING-CAN.

Mr. Townsend's uncapping-can is a cheap affair, but it's a good one too—just a crack-

er-barrel with two sticks nailed across the top to rest the frames on. It stands in a galvanized-iron tub, so that the honey leaks through the staves into the tub.

When the barrel is full, two men lift it on to two sticks over another tub so that it may drain still more.

A COMB-HOLDER.

Many will be interested in the comb-holder as shown in Fig. 4. After the comb is uncapped it is set in the stand as shown, so that the dripping honey will run down on to the galvanized-iron pan and then through the tube in the center to the pail beneath.



FIG. 4.—FRAME-HOLDER FOR CATCHING THE DRIP FROM UNCAPPED COMBS.

The pail is emptied, when full, into the main tank. This saves all drip, and provides a convenient stand for holding the uncapped combs.

GENTLE HYBRIDS.

Every extracted-honey producer—yes, and every comb-honey producer as well, ought to see Mr. Townsend handle bees. One would think he kept only leather-colored Italians or Caucasians—in fact, I don't see how bees could be more gentle. And yet, imagine my surprise to find that they averaged only one yellow band. Some had none,

and some two or three; they were hybrids, and hustlers too. Now, ever since I can remember I have associated in my mind the word "hybrid" with the words "cross," "sting," "stings," etc.; and when I remarked that I never saw or heard of such gentle hybrids Mr. Townsend said, in that quiet way of his, "Well, I have always thought that the gentleness depended almost as much upon the handling as upon the race." I could not help feeling that he was right when I saw the careful way in which he worked. He is in no sense a lightning operator, but at the same time he can accomplish a good deal in a day too. He believes that *continued* careful handling will make any bees gentle, and that time is saved in the long run.

CLEARING THE SUPERS OF BEES.

When ready to take off a super of extracting-combs he carefully removes the cover and blows smoke down between the frames. This is continued until about 90 per cent of the bees have gone down, when the upper story is quickly removed before the bees have time to return, and is set to one side. By the time the frames are lifted out to brush (notice there is no tiresome shaking with this method) there are but few bees on them, and this part of the work then is greatly simplified.

Right here there is a kink connected with the brushing of frames that is worth mentioning. It is not necessary to turn the frame over after brushing one side, for both



FIG. 5—E. D. TOWNSEND SHOWING HOW TO HOLD A FRAME WHILE BRUSHING IT.

sides may be brushed without changing the position of the frame very much. In lifting out a frame, take hold of the top-bar just inside the end-bar, with the thumbs and first fingers; now let go with the right hand and proceed to brush without changing the finger-hold in the least. Fig. 5 will show how the frame is held and brushed. It will be noticed that there is but very little change when the nearest side is brushed as in Fig. 6. A quick sweep is given down first one side and then the other, with but very little effort. This is much easier and quicker than the old way. Possibly there are others also who have "caught on" to this trick.

UNCAPPING; HOW TO SEPARATE THE UNRIPE HONEY FROM THE RIPE.

A careful look at Fig. 5 will show the wide spacing of the frames and the bulged combs. Mr. Townsend is in favor of plain unspaced all-wood frames for the extracting-supers, and uses only eight to a ten-frame super. In this way the combs are all very thick and therefore easy to uncup.

The comb shown in Fig. 5 is only about half sealed. Instead of uncapping the sealed part and extracting all the honey at once, mixing the thin unripe honey with that which is fully ripened, Mr. Townsend always runs such combs through another extractor before uncapping, thus getting all the unripe honey by itself. In the light colonies, the bulk of the honey may be unripe, and the combs, then, should be run first through a four-frame extractor, then uncapped and the smaller amount of thick honey taken out in a two-frame machine. In the strong colonies, on the other hand, the bulk of the honey will be capped over, and the combs should first be run through the two-frame extractor, then uncapped and finally run through the four-frame to remove that which was fully ripened.

QUEEN-EXCLUDERS.

The use of the excluders can best be described by Mr. Townsend in his own words.

About one-half of our extracted-honey colonies are provided with queen-excluding honey-boards. Such colonies work well about two out of three years; but in the swarming season we have to keep a man at the yards where queen-excluders are used, on account of excessive swarming.

Where no queen-excluder is used our first upper story is put on early. This discourages swarming, as the queen has unlimited range through two stories. Now, were we to lift this second story up when filled with brood and honey, and put an empty story of combs in between, the queen would take possession as in the first place. The results would be, were this system of lifting up and putting empties next to the brood-nest continued clear through the season, that the queen would desert the brood-nest and take permanent possession above. Now, to hold the queen below is very simple when you know how. Our first upper story is put on about May 25, usually; and as we have empty combs to hold the crop we do not extract until the last half of July. You will see by these dates that the first and even the second lot of brood has ample time to hatch out and be filled with honey, provided the queen is crowded down below as the honey season advances. This is how we manage when our two-story colony mentioned above needs a third story (second upper story). Place it on top. By this time the queen is crowded out of the second story down into the brood-nest, and will never go into this third or subsequent stories; then, toward the close of the season let them get a little crowded for



FIG. 6.—HOW TO BRUSH BOTH SIDES WITHOUT CHANGING THE POSITION OF THE COMB.

room. This is essential, as we want our honey finished and capped over, for too much room toward the last of the season means large quantities of unsealed honey; and unsealed honey, no matter how long left on the hive, lacks that aroma and fine flavor found only in well-ripened honey.

GETTING COMBS BUILT FROM FOUNDATION.

Mr. Townsend can also describe this better than I can. Here is his plan in full:

When a new yard is being started, and we need extracting-combs for it, as many wired frames of full sheets of foundation are provided as we think we shall need. Now, half of these upper stories of foundation that have full sets of combs are taken to an established yard and exchanged for combs. This leaves two yards with half foundation and

half drawn combs for their upper stories. Now, the upper stories at both of these yards are arranged with two combs on each outside, and four frames of foundation in the center of each of their upper stories. With this arrangement we shall get only one side of two combs bulged, and the same number of frames of foundation correspondingly thin. The honey-knife will level the bulged comb, and the two thin sides of the foundation can be placed facing each other in the center of the upper story, and they will be drawn out into full combs the next time used. This plan is much better than alternating combs with foundation; for with the alternating plan, many times, the foundation comes through the season with very little being done to it, while the combs will be bulged out nearly twice their usual thickness.

HOW TO PUT UP COMB HONEY FOR SHIPMENT.

Some Right and Wrong Ways.

BY E. R. ROOT.

In the half-tone is a carrier of honey opened up as it was sent us by C. M. Nichols, of Addison, Mich. The honey put up by this man is always carefully scraped and graded, well packed, and invariably arrives in first-class condition. In order that others may profit by his experience I took a photo of one of the carriers after it had been opened up, and the same appears below.

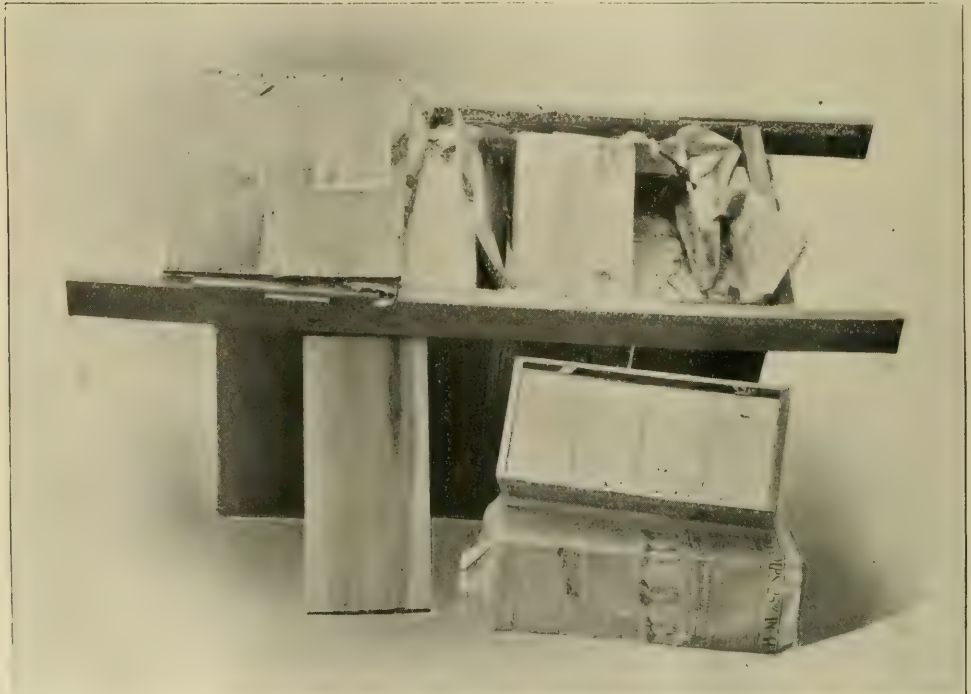
The carrier or crate is the regular style that is furnished by supply-manufacturers. The cases, after being filled with sections, have a separator put back of the last row, and this is cushioned against the sections by means of a couple of rolls of paper. There

is nothing new about this, for it is an old trick of the trade, but it is a precaution too often unobserved.

After the cases have the covers nailed on they are carefully wrapped in newspaper, and packed closely together in the center of the crate. Under and around this compact mass is a cushion of straw and paper so that, if the carrier gets an unusually heavy jar, the honey will receive little or no damage.

It is needless to say that Mr. Nichols' honey invariably brings the highest market price. We do not have to scrape and re-grade it. Indeed, it can be sent out to the trade just as it comes.

While there are many bee-keepers who are just as particular as Mr. Nichols, and who put up just as fine honey, yet there are altogether too many who put up their crop in any old way, in miserable cobbled-up cases, either hand-made or, if made at the planing-mill, are cut with a coarse-tooth saw that tears its way through the wood. First impressions are lasting, it is said, and a consignee who receives a lot of, we will say, first-class honey put up in such cases, is almost sure to knock off a cent or two from the entire shipment. If one desires to do his own work, let him by all means use a block and sandpaper. And that reminds me that nice factory cases are often all smeared up with dirt, dust, and honey drippings. It will take but a few minutes to go over each case with sandpaper, and clean them up; then to keep them from getting



COMB HONEY PROPERLY PUT UP FOR SHIPMENT.



THE WAY VERNON BURT PILES HIS SUPERS OF COMB HONEY IN HIS HONEY-HOUSE AFTER IT IS TAKEN FROM THE HIVE.

fly-specked or dust-covered, each case should be wrapped in paper as shown in the illustration.

Just a little pains, a little extra time, combined with a little brains, will make a difference of one or two cents per pound on honey—a difference enough to equal anywhere from \$2.00 to \$5.00 per carrier.

LETTING COMB HONEY CURE OR RIPEN AFTER IT IS OFF THE HIVE.

A short time ago there was a little discussion on the subject of the storage of comb

honey immediately after taking it off the hive. J. A. Green showed some very neat storage-cases that provide a large amount of ventilation. Others averred they preferred to pile the supers criss-cross one on top of the other as fast they were taken off the hive. Happening to be down to Vernon Burt's apiary I took a peep into his honey-house, and saw how he had his comb honey nicely put away, pending the time when he could grade and scrape the sections. I turned the camera on it, and the result is recorded above.

It is a very simple arrangement, but it is one of the little tricks of the trade that are worth knowing and worth practicing. The supers, when piled thus, allow a free circulation of air between the rows of sections and between the supers.

Those here shown are just as they came from the hive with the fences between the sections. Then at Mr. Burt's leisure he takes down the honey, grades and scrapes it, and, last of all, cases it. But lately he has not had much to case, for his customers come right to his bee-yard, taking the honey at retail direct from the supers.

A REMARKABLE SET OF EXTRACTING-COMBS.

Third-prize Photo, Class B.

BY G. B. WOODBURY.

In producing these combs of honey I wished especially to secure thin strips of comb to be used in jars, such as are shown in the foreground of the photo. I failed to note the time taken to get these frames filled out, but it was not long, for no travel-stain appeared on any of the combs. This honey, put up as described, was awarded a gold medal at Portland, Ore. The frames were prepared with half-inch strips of foundation for starters, and the whole ten put in upper story at once after taking out a full super of extracting-combs. The colony was very strong, all frames drawn together, and

combs straight and almost completely sealed. The colony afterward gave a super of ideal sections, well filled.

Glendale, Cal.

[This is really a remarkable piece of work on the part of one colony of bees—especially so as these fine combs were built from narrow starters of foundation. Had full sheets been used instead, foundation reaching clear to the bottom-bar, the result would not have been so surprising. Mr. Woodbury said the colony was a strong one, and, indeed, it must have been; and in order to get every thing sealed so perfectly, the bees were probably allowed to be cramped for room. As nearly as I can judge from examination of the half-tone, the bees built store or drone comb below the narrow strips of foundation. This would be natural under the circumstances.—Ed.]

THE AMERICAN BREEDERS' ASSOCIATION.

A Special Committee on Breeding Bees and Other Insects.

BY STEPHEN N. GREEN.

Here is an organization that deserves the most hearty support of every bee-keeper. The question of better *bees* has been greatly neglected. Every periodical devoted to bee culture is crammed with information regarding new appliances, new methods of work, and new discoveries—all very important and



THIRD-PRIZE PHOTO, CLASS B "A REMARKABLE SET OF EXTRACTING-COMBS FROM ONE COLONY BELONGING TO G. B. WOODBURY, GLENDALE, CALIFORNIA.

necessary in their places, but how few and far between are articles dealing with the real vital subject—an improved insect!

Great strides have been made in the past century in animal-breeding. Plant-breeding in less than a decade has become a science; but bee-breeding? Has the bee been improved within the past fifty years? Some may think so, but there are solid reasons for believing that it is actually deteriorating.

In St. Louis, in December, 1903, there was a meeting of a company of gentlemen, and the result was the organization of the American Breeders' Association. Its President is Hon. James Wilson, Secretary of the Department of Agriculture, Washington. Its officials and membership include the names of those ranking high in scientific and practical life all over the world—men who have these interests at heart.

They recognized that, in dealing with animals and plants, the methods varied greatly; still the same basic laws of life were the same, and animal and plant breeders have much in common, and can gain much by co-operating; hence with a common president and attendant officials they established an animal and plant division with respective chairmen.

The proceedings and papers read at this meeting and the one following, in February, 1905, are published in a cloth-bound book of over 200 pages. Any one at all interested in this subject will find this volume worth many times its cost. This book may be obtained by sending \$1.00 to the secretary of the society, Prof. W. M. Hayes, American Breeders' Association, Washington, D. C., asking for Vol. I, A. B. A.

It is interesting to note in this book that among its over 700 members there is only one name given as being interested in bees, and this bee-keeper is from the far West—Oregon.

On Jan. 19, 1906, at Lincoln, Neb., occurred the third meeting of the society. A change of plans was decided upon. Instead of splitting the membership into two divisions, separate committees were formed, representing the different problems that needed attention. Among these committees is one on "breeding bees and other insects." Below is a list of the members of this committee and the objects in view.

Dr. L. O. Howard, Department of Agriculture, Washington, D. C., Chairman.

Prof. A. J. Cook, Berkeley, Cal.

Dr. Herbert Osborne, Columbus, Ohio.

E. F. Phillips, Washington, D. C.

S. N. Green, Medina, Ohio.

A. I. Root, Medina, Ohio.

Louis P. Magid, Tallulah Falls, Ga.

J. P. Moore, Morgan, Ky.

G. M. Doolittle, Borodino, N. Y.

The duties of this committee are, first, to investigate and report on methods and technique of breeding bees and other economic insects; second, to devise and help make effective broad plans for encouraging those who engage in this work, that improved forms may be made available to all growers.

The problems of the silk-raisers are similar to those of the bee-breeder. Mr. Magid, a member of the committee, and also the president of the Silk-culture League of America, states that silk-raisers would gladly join with bee-raisers in dealing with their common problems. It seems to me that both the Silk League and the National Bee-keepers' Association should draw up resolutions commending the work of the American Breeders' Association, as well as the institutions themselves, becoming members.

At the Lincoln meeting there was a paper read on bee-breeding, by Dr. E. F. Phillips. This paper, together with others on different subjects, will be incorporated into a volume which is sent free to all members of the association. This volume will also contain a list of members as well as a breeders' directory, in which will be listed the names of those interested in cattle-breeding, bee culture, etc., each under its respective head.

Surely every bee-keeper owning ten colonies or more of bees is enough affected by this movement to invest with profit a dollar in this work. To have before you the written results of the ablest minds, whose work touches so closely your occupation is well worth your consideration. Honey-producers, queen-breeders, supply-houses, and their agents give this association their support. Send one dollar to Prof. W. A. Hays, American Breeders' Association, Washington, D. C., and in due time you will receive the volume referred to above. By this you will help bee-breeding to be pushed to the front with the rest, and in time the results accomplished by the work will be most gratifying.

Program announcement of the 1907 meeting of this association has just been received. The meeting will be held at Columbus, Ohio, January 15, 16, 17, and 18, 1907. No doubt a very interesting program is being prepared, and the meeting will be attended by those interested from all over the United States.

I might add that neither GLEANINGS nor myself receive in any manner a commission for dues sent in. It is only with the desire to forward this great work that this article was written.

Medina, O.

HOW TO BUILD A BEE-CELLAR.

How to Winter Bees in a Cellar.

BY N. D. WEST.

Continued from last issue.

"Mr. West, if you were going to build a new bee-cellar not connected with a house that has a stove in it how would you do it?"

"Mr. Jones, I would suggest digging a cellar 8 feet deep, 14×24 feet for 100 stands of bees. I would have the bottom so drained with a four-inch tile that it could not fill up with water. This will also help to ventilate the cellar. I would rather have a spring of good live water in one corner of the cellar,

and have the water run on two sides of the cellar around the bees. If such a cellar is made warm enough, bees will winter well and remain quiet until late in the spring. I have one such cellar. Formerly I had a board floor under the bees; but the past two years I have dispensed with the board floor, and had my cellar bottom covered with flag-stone and cement except the ditch where the water ran that was left open. The bees have wintered well. I would make the walls 20 inches thick, and lay them double in cement as far down as there is any danger of freezing. I would have two or three windows for convenience when the bees are not in the cellar. I would have an outside door 4 feet wide at one end of the cellar. I would also have another outside door to cover the cellar-way; or if the cellarway goes in on a level, then I would have the doors 18 inches apart to keep out the cold. I would not have the cellar wall protrude over about 8 inches above the ground.

"I would put a building over the cellar. The sills should lie on the wall in cement, so as to make it tight. Where the floor timbers are laid on the wall, saw off short pieces from the same kind of timber and place them just even with the inside of the wall, and between the floor timbers. Nail these pieces fast. That will form an air-chamber between these blocks and the sills. Then I would make the floor double, and fill in with eight inches of sawdust between the floors and make the rest of the building for a store-room. I would have a trapdoor or some other kind of door to open into the building over the bees, to be used when needed for ventilation. I don't care very much whether the cellar is a dry one or not, so far as the bees are concerned."

"Mr. West, would you confine the bees with wire cloth while in the cellar?"

"No, sir. I close the entrance while carrying them into the cellar, and I make quick work of it; and after all are in and properly piled up I would light my smoker and fill the cellar quite well with smoke, and then I would as quickly as possible remove the entrances from the hives and close up the door and make the cellar dark."

"What temperature is best?"

"I prefer from 40 to 45 degrees."

"Mr. West, you say you don't care very much whether the cellar is wet or dry, or in a clay soil or a dry sandy soil."

"Not very much. I don't want stagnant water in the cellar."

"What would you cover your hives with in the cellar?"

"Mr. Jones, that depends very much on the cellar. You will have to learn how to winter your bees in the cellar that you use. In a dry sandy soil, with a warm cellar, I would use nothing but a plain board cover. If the cellar is damp and a little too cold I prefer two or three thicknesses of burlap with a Heddon slatted honey-board tacked on over this. I also have a couple of sticks across the top of the frames to make beeways under the quilt."

"Mr. West, when do you carry your bees into the cellar?"

"About the 20th of December."

"When do you carry them out?"

"About April 1."

"Do you carry any out before, and carry them back into the cellar again if any should get the dysentery?"

"No, sir; not very often. It would disturb the rest of the bees; and I should lose more than I gain. While the bees are in the cellar I disturb them as little as possible—especially so the latter part of the winter."

"Mr. West, how do you carry your bees into the cellar?"

"My cellar that I have previously been describing, under my house, where my son David now lives, there I carry the bees in on a bee-carrier, one man going ahead and one after. We carry three hives at a time. The bee-yard is back of the house, and on a level with the cellar bottom—no going up and down stairs. See Fig. 5."



FIG. 5.—HOW N. D. WEST CARRIES HIS BEES INTO THE CELLAR.

"Mr. West, when you draw bees from your out-apiaries to winter, do you put them into the cellar at once?"

"No, sir. I unload them at a convenient place near the cellar, not often more than twenty rods away, and let them get one or more good flights before I put them into the cellar."

"I believe you draw bees on a wagon to the cellar sometimes, do you not?"

"Yes, sir. Some of my apiaries are twenty rods from the bee-cellar; and, in fact, I draw my bees from the apiary to this nearby cellar. I have a lumber-wagon, and I make a platform large enough to carry 16 colonies on the bottom tier. I use a bolster-spring under the platform."

"Don't the bees fly out while moving them?"

"No, sir. My hive-bottoms are fast and the entrances closed."

"Will not the bees smother?"

"No, sir. We make quick work of it. The bees are loaded as quickly as possible; and when we get them to the cellarway we run them from the wagon down a chute into the cellar. One man in the cellar takes the hives out of the way as fast as two men can run them down. Then two men pile the hives up in the cellar, while one man gets another load; and it takes three men and a team about 1½ hours to put 100 colonies into a cellar."

"Mr. West, do your bees get noisy in the cellar in the spring, when the weather is warm outside?"

"Sometimes they do."

"What do you do?"

"I open the outside door at night, when the weather is cooler outside than in the cellar. Never open the door when the south wind is blowing hard. I have one cellar with water running in a ditch on three sides of the bees, and this is the best cellar I have to winter bees in."

"Do you ever feed bees in the cellar?"

"I never have, worth mentioning."

"How much more honey will it take to winter a colony of bees out of doors than in a good cellar?"

"From 3 to 10 lbs. It depends. If you mean in well-packed chaff hives, some years there will not be very much difference."

"Are your bees that are wintered in the cellars as strong by the 15th of May as those wintered outdoors in chaff hives?"

"Yes, Mr. Jones; when I put good colonies of bees that are well supplied with plenty of good honey into my cellars I feel as confident of wintering them as I do other stock on my farm. The chief thing to look out for is to see that the day is just the right kind, when the bees have their first flight, after being carried out of the cellar in the spring of the year. Mr. Jones, I have now given you some of my experience that I have found to be good in wintering bees in such cellars as I have described. I trust you will now understand what I consider the requirements for the successful cellar wintering of bees. Be sure to build the cellar large enough—better too large than too small. You can control temperature and ventilation better in a large cellar, and keep the bees more quiet late in the winter, if the weather should be very warm for some days at a time. I would build a pretty good building over a bee-cellar, and use the building for a shop or for a room to store bee-supplies, or use it for a dwelling-house, and locate it where it will be most convenient for the purpose for which it is used."

Middleburgh, N. Y.

[I wish to emphasize especially Mr. West's last point, viz., be sure to have the cellar large enough so that you can control temperature and ventilation better.—Ed.]

THE CHAMBERS NON-SWARMING DEVICE.

The Possible Reasons for Failures: Strong vs. Weak Nuclei for Rearing Queens; Why a Queen-breeder should Have a Good Many Imported Breeders.

BY J. E. CHAMBERS.

I note Mr. Burns' failure⁷ with the non-swarming device, p. 824. I think his failure was due to one of three causes. As all bee-keepers should know, bees in certain seasons and localities swarm out when the young queen takes her flight. The remedy for this is to put a frame of open brood in the lower hive at the time the cells are cut. Lack of open brood is frequently the cause of this swarming-out at this stage of the manipulation. However, I am seldom troubled in this part of the country by swarming out.

Another possible cause is failure to get every cell but one. Yet there is another cause; and from the tenor of Mr. Burns' letter I think he used the older model, illustrated in the issue for Nov. 15, 1905. This older model had no tin slides to enable the operator to cut off communication between the upper and lower hives; and in that case it sometimes happened that the old queen above and the young one below would try to get together through the zinc-covered holes. The piping of the young queen would then be almost sure to alarm the bees that were able to pass back and forth through the zinc-covered holes to such an extent as to cause swarming; but with the tin slides communication can be cut off until the young queen has mated. Then, as I suppose all experts know, the young queen raised in the hive will supersede the old one certainly. A frame of young brood given at the time the cells are cut, with the tin slides shoved in, will obviate every possible chance of swarming out. I do not know why a careful operator should fail to get the most satisfactory results. I have never failed in a single instance.

In this connection there is one thing I wish to caution all parties about; that is, do not have a small trap chute, for the reason that, where the colonies have many drones, as they hatch and try to take flight they lodge against the zinc exit and clog up the passage so that the bees can't get out; and, while smothering will not often be likely to result, yet the upper hive or hives will not be able to empty out the young bees that are daily hatching.

I also note on p. 826 that Mr. Yates takes me to task for using too many imported queens in cell-building and drone-getting. He says it is useless to use so many fine queens when home-bred ones are just as good for cell-starting, etc. I am surprised that any breeder should think that the whole object in using imported queens is to get cells, or that I have ever recommended others to use even one imported queen. My object in using them is to get a large number of pure drones; and not alone to get them, but to have young drones coming on all the time,

and to have the colonies in such strong prosperous condition that no attempt will be made to annoy or drive the drones off. All breeders know how nearly impossible it is to get queens in weak nuclei to lay in drone combs.

Another important thing is that Mr. Yates has to put a new comb into his little hive in order to get eggs or brood for cell-starting, and he has to do this four days before he starts cells; but if he starts a batch of cells each day he will have to do a lot of calculating to have things just right.

I am much interested in testing queens for gentleness and prolificness, as well as for longevity, and the bees for gathering honey and building comb; and I do not suppose that even Mr. Yates will claim that much can be done along these lines with a nucleus. As to the wear and tear on queens in large hives, I think the poorly nourished and fed queens in the little hives are almost or quite as short-lived as are the queens in large hives; and especially is this true in poor seasons. Another thing he forgets is that the use of imported queens in large numbers insures plenty of pure drones, and, consequently, more young queens mate successfully and in a shorter length of time. This, I am sure, effects a considerable saving in time and money.

Another thing is, I have found that there is, and not without reason either, a feeling of confidence among most bee-men in the breeder who uses only imported stock; yet still another thing, he says home-bred stock is just as good; but I say not—at least in this locality; for in two or three generations the home-bred stock begins to show red bands, while the direct progeny of imported queens does not. Again, I know from a good many tests that colonies headed by daughters of best imported mothers get more honey than those three or four generations removed; and I also know they are gentler. However, Mr. Yates should know that, with the Chambers cell-starting hive, he can use any kind of bees, and take his four days to fix up for getting a few larvæ. If he wishes to keep his breeder in a toy hive he can just as well use one kind of bees as another; but personally I prefer to keep mine in hives large enough to test thoroughly their prolificness, honey-gathering, comb-building, and docile qualities, as well as length of life.

I do not attempt to dictate to any one concerning the kind of stock he shall use, nor the style of hive; but if Mr. Yates imagines that I have not tried a little hive, and found it wanting, in my practice at least, he is very much mistaken. Imported queens by the dozen are not very high, and certainly most breeders worthy of the name feel a pride in owning and using such queens—at least I do, and consider that I have been well repaid for all the money I ever spent for imported queens, and that is quite a nice little sum. At any rate, I expect to test my queens in large hives for all the qualities mentioned, and I fully believe that I shall get larger results than he who keeps his queens cramped

up and poorly fed and nurtured in a little toy hive. Aside from all this I know that, in a poor season, queens in weak nuclei suffer from want of the proper number of young bees to feed and comb them—that is, unless they are fed daily, and their larvæ are seldom found floating in the rich food, as are the larvæ of strong colonies, all of which has an important bearing on the qualities of the resulting queens. I never saw a colony too strong to suit me, either for drone-getting or for cell-building; and I fully believe it as important to rear and keep drones in powerful colonies as it is to rear queens in such colonies.

In conclusion I wish to mention a warning in connection with the use of the Chambers cell-building hive. Don't allow any cells to hatch in the hive; for, just as sure as you do, the young queen will work through the zinc and supersede the old one below. Some of the wise ones will tell you that they can't go through zinc of the Dr. Tinker kind; but try it and you will be wiser—and sadder too.

Vigo, Texas.

[A distinction should be drawn between the very small miniature baby nuclei and those of larger size like the twin boxes using frames one-third Langstroth size. But even these should not be used for any purpose other than mating queens. For cell-building we use and recommend the strongest colonies we can get, stimulated by feeding to a high pitch of prosperity. For testing, a full colony should be used also, as a good queen would hardly show her capacity in a nucleus.—ED.]

A YEARS WORK IN AN OUT APIARY				
Section Honey	41	163		<i>By</i> G. M. DOOLITTLE.
Swarm Candy	42			
Home Use	27			
Total		1632		

CHAPTER XIII.

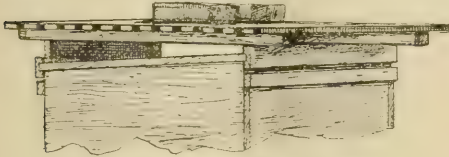
CLOSING WORDS; FURTHER SUGGESTIONS TO THE PLANS GIVEN IN THE PRECEDING CHAPTERS.

(Concluded from last issue.)

And I wish to speak a little more about using "bait" sections in the first super put on at time of "shook" swarming. I prefer to use at least twelve of these, so that the bees will immediately enter the sections with their loads of honey that the queen will oblige them to remove from the combs they are shaken on, so that she may have room for her eggs. *Failing here, at the start, would cause a failure in the whole, for this honey must be removed if the queen is to keep right on with her prolificness; and by having a place for the immediate storing of this honey in the first super above the honey-filled brood-nest, the bees not only carry this honey out of the queen's way, but they*

also carry that gathered from the field to the sections, this causing the immediate drawing-out of the foundation in the sections, other than the baits, so that there is a start made all along the road toward success within one hour after the bees are shaken from their brood. Here is one of the *great* advantages of this plan, and one of the things *original* with it.

Another thing, which I see I failed to mention in any of the accounts given of the different visits, which I consider a great help in any apiary, is shade-boards. I am convinced that a colony of bees will do much better work where the hive stands right out



A DOOLITTLE SHADE-BOARD.

in the sun during the whole season, except as it is shielded during the middle of the day by a shade-board. I make this board of half-inch lumber, 20 inches long, nailed to two strips $\frac{3}{4}$ thick by $1\frac{1}{2}$ wide by 28 inches long, covering the whole with a sheet of 20×28 tin. Roofing-paper will answer nearly as well as the tin, if kept painted. Near one end of this shade-board, and before putting on the tin, I nail, on the under side, a piece of $\frac{3}{4}$ stuff 6 inches wide by 20 long, nailing down through the board into the edge of this twenty-inch piece. When the board is on the hive, this last-named piece rests, by its lower edge, on the back part to the cover to the hive, while the cleats rest on the front part to the cover. This gives this shade-board a "pitch" toward the front, or south side of the hive, so it will carry off all rain, shade the hive mostly from 10 A.M. to 2 P.M. each day, and allows the air to circulate freely all over and about the top of the hive, so that the bees are never driven out of the sections through extreme heat, as is often the case where hives stand in the sun without any shade, even though the cover is painted white. It matters little what color these shade-boards are painted, on account of the circulation of air under them; still, where I paint hives at all I prefer the color to be white.

I feel that I ought not to close this work without saying a few words regarding the automobile for the apiarist, inasmuch as I have mentioned it several times when telling of my visits to the out-apiary. At times I think the one I have (an eight-horse-power single-cylinder Pierce Stanhope, and I think it as good as any, or I would not have purchased it), an expensive luxury. At other times I consider it the nicest thing in the world to travel in, both for pleasure and profit; and at other times I consider it almost a necessity for me in my apicultural work. The time when I consider it an expensive

luxury is when the roads are in a condition not suited for its use, on account of deep mud and snow, which is fully six months in the year in this locality. If I lived in a city or a country where the travel on the roads did not cut them up so the mud is from three inches to a foot deep, or where the snow did not fall or drift from one to ten feet deep, this "expensive luxury" would not play such an important part. Then the auto could be used nearly if not quite all the time, thus saving the keeping of a horse, wagons, and sleighs. But as it is, I must keep these in addition to the auto, at an expense of from \$200 to \$300 a year. The times when I consider it both pleasurable and profitable is when the roads are good, enabling me to go to and from the out-apiary, and elsewhere, in less than half the time consumed by the horse, with no trouble from flies tormenting, bees stinging, or fright from any strange thing along the road, as is very often the case where a horse is used as a means of conveyance. And I can carry as many supplies to the apiary, or bring home as much honey with it, at a trip, as I can when using the horse.

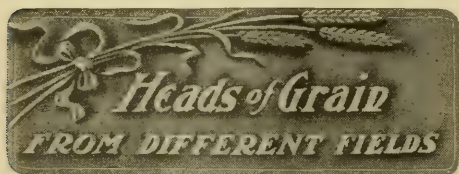
In all of these hauling operations, blankets are used to keep from marring and injuring the auto. The times when I consider it a necessity is when I wish to drive right up to or into the apiary for loading or unloading stuff; when I am short of time, and must get to any place very quickly, and when I wish power for running machinery, although I have not so much need of this as formerly. At no time do I appreciate the auto more thoroughly than when I drive it right into the bee-yard for loading and unloading heavy stuff. The auto is low down, so I do not have to lift things so high in loading as with a wagon. Then with the horse I must do a lot of lugging and carrying myself, or else get some one to help me draw the heavily loaded wagon to a safe distance from the bees, and, even at the best, have a constant care not to get the horse stung. Nothing of the kind with the auto, for I have never known of a bee stinging it.

Then if the washing-machine, grindstone, churn, feed-cutter, emery-wheel, planer, buzz-saw, etc., are to be used, just back the auto up to the proper place, "jack up" one of the hind or driving wheels, and "block" the other, so as to make the auto stationary, connecting by belt the jacked-up wheel and the machine you wish turned, when every thing is ready for "the start." Does the machine need to be run slow? Set the spark-lever at *slow*, or at the place you put it for slow running when on the road. Do you wish a 3000-a-minute gait of your buzz-saw or planer? Set the spark-lever at a 25-mile-an-hour gait and you are at home in the matter.

The main thing in running machinery with the auto is to know how to time the matter of oiling the latter. The instruction-book which comes with the auto will tell us how many miles it is to be run to once oiling of certain parts. But the auto is not making

"miles" now, but revolutions. By getting the number of inches the revolving wheel is in circumference, and dividing the number of inches there is in a mile by it, we can ascertain the number of revolutions the wheel would make in going a mile on the road. Then by multiplying this by the number of miles we were allowed to run for once oiling, we shall have the number of revolutions the jacked-up wheel can make without danger from lack of oil. Now with a speeder find the number of revolutions the drive-wheel is making per minute when the spark-lever is set for different degrees of speed, when it is easily told how many minutes or hours can be safely run on one charge of oil or grease. Where any apiarist lives in a location where the auto can be run the most of or all of the year, he can well afford to let his horse and wagons go, and purchase an auto; but if in a locality like mine, then it is best to ask, "Can I and my family afford both," before buying one?

FINIS.



POULTRY VERSUS BEES, AGAIN: BEES LIKED BETTER.

Since you have published so many articles on poultry versus bees I feel like adding my experience to that already given. I can not unite fully with Mr. McGlade, neither can I see the rosy side of chicken-raising with Mr. Pearson. I was born on a farm, and I began to help with the chickens at a very early age. Later I took sole charge of the poultry business at our home. I had a good incubator and brooders; also good thoroughbred stock—part of the time Light Brahmas, and afterward the White Wyandottes. I was fairly successful in hatching the chicks, and I think I usually raised 95 per cent of those hatched. My hens laid well, and we had a good market for broilers. I loved my chickens, and I cared for them faithfully. They paid expenses and something more, but I am not sure that I was paid for my labor.

When Mr. McGlade said he worked hard enough to build seventeen miles of railroad, and spent all his money on feed, oyster-shells, lice-exterminators, etc., I laughed, and said he was very nearly right.

Now, my experience with bees has been of very short duration, so that I feel I know nothing about the financial side of the business; but this much I can say—that, whereas you may have to work hard over your bees for six months, you must attend to your chickens *every day* in the year; and the

more inclement the weather, just so much more attention your chickens require. The work for bees is clean and pleasant. Perhaps I need not say how I regard the work for chickens.

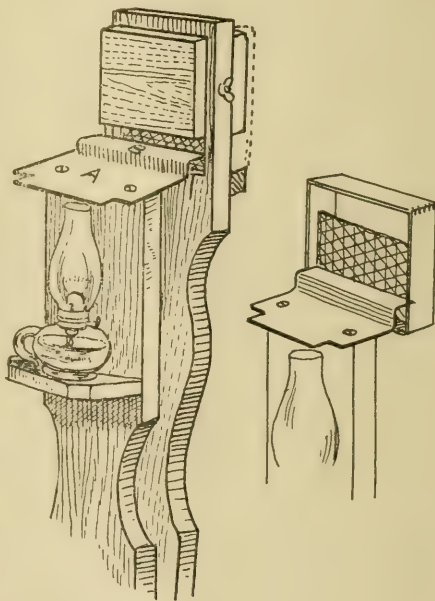
In conclusion I must say that I keep *both* bees and chickens, and I expect to continue to do so, as I am very fond of the products of each. But if I should choose only the work that is agreeable to me I would take bees every time, and I believe I can make them pay quite as well as chickens, if not better.

SUSAN E. WILLIAMS.

Moorestown, N. J., March 26.

PUTTING FOUNDATION STARTERS IN SECTIONS; AN ATTACHMENT FOR THE DAISY FASTENER.

The accompanying drawing shows a device I am using to put starters in the bottom of sections. I find that, if I use more than $\frac{1}{2}$ inch, it will fall over when it gets warmed up in the hive, and then you have an awful mess. I also find that it is almost impossible to put on less than an inch with the Daisy fastener or any other that I have seen, without burning your fingers and getting it on crooked. I took the plate off my Daisy fastener, and took it to my blacksmith and had two holes drilled in it so I could fasten my device on with half-inch stove-bolts.



I use half-sheet starters. I first put the half-sheet in the bottom in the regular way, say in 100 sections, then I fasten on the sheet-iron piece shown at A; put the section in the same position it was in at first; press the parts (of Daisy) together, when the sheet of foundation will be instantly cut off about $\frac{1}{2}$ inch above the bottom of the section. I go over the 100 this way; take off the device, then put the rest of the half-sheet in the top

place to get a queen early next spring in case a queen in some hive dies through the winter.

B. A. AMMONS.

Mannington, W. Va.

[The unsealed honey to which you refer would doubtless be ripe; but if exposed in a damp place it would take on moisture.

I should think those five frames would hold enough stores for all the bees the combs will accommodate.—ED.]

THE SIDE ENTRANCE; THE ADVANTAGE OF PLACING THE CONTRACTING STICK IN THE MIDDLE, LEAVING A SMALL ENTRANCE AT BOTH ENDS.

In reference to your editorial, page 368, in regard to side entrance for colonies wintered outdoors, I think you would have found it to work all right if you had placed the closing stick in the center, leaving an inch entrance *both* sides; and, still better, to have an empty super *under* the brood-chamber. This plan has worked well with me in the last four or five winters of my bee-keeping experience. I lost only one colony out of 30 the last winter.

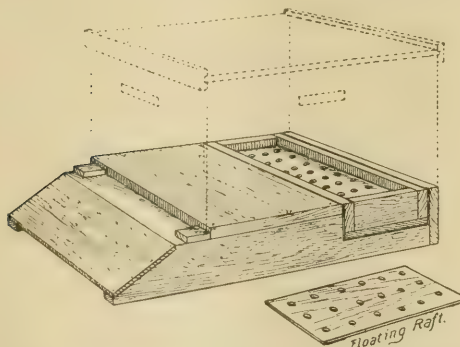
L. POSEY.

Torch, O.

[A double entrance, perhaps, would be better; but entrance in any case should be directly in front of cluster in the hive to get best results. I don't believe that the super under the hive is any advantage.—ED.]

A MODIFICATION OF THE ALEXANDER FEEDER.

I send you a model of my bottom-board bee-feeder. I see nothing on the market like it except the Alexander feeder, and my feeder is an improvement or a better plan than the Alexander feeder, as you can slide the



box in its place out of the weather, and just pull it out a little, and fill and push back out of the way, and not molest the bees, and it is out of the way of robber bees. The box can be made as you make the Alexander feeder, only my feed box is made out of 2x6 lumber. The length of the feed-box is equal to the width of the bottom-board; and when not in use just turn it upside down and it answers for bottom-board. I have no saw to cut grooves, so I cut the feed-box out, then take a thin piece of board and soak it soft;

then I take a hole-punch and cut it full of holes so the bees can go and fill their honey, and suck and not drown. I call it the Shockey bottom-board feeder, as it seems to me that this is the best and most convenient bee-feeder out; so if it is a good thing let bee-keepers have the benefit of it.

Long, W. Va.

IRA SHOCKEY.

[Possibly the only drawback to your idea would be the extra cost of the bottom-boards, and the inconvenience of having new fixtures around. Your feeder, however, would not have to be blocked up at the back, and the bottoms could be fastened to the hive-bodies as usual.—ED.]

BEEES SLOW TO ENTER SUPERS ARE POOR WAX-MAKERS.

I have found out to my satisfaction that bees that do not like to enter the supers are poor wax-makers, and that is the reason they will not enter the supers. They are unable to build the comb to store the honey in. I believe it is as necessary to breed bees that are good wax-makers as it is those that are extra good for honey. What do you and Dr. C. C. Miller and G. M. Doolittle think about it?

GEO. W. DEYO.

Laws, Cal., July 16.

[I have to confess I don't know, and therefore I defer to the other fellows.—ED.]

IMPORTANCE OF CLEAN HONEY-CANS.

My location is not extra good here for the production of honey; but this is a good place to sell honey, and to supply the demand I buy about 1000 lbs. of extracted honey. In one lot there were two sixty-pound cans that had to be strained over before the honey was fit to be used. Now, if old cans can not be made perfectly clean, new ones should be used, for dirty honey is a stumblingblock in the way of consumers.

W. T. DAVISON.

Velpen, Ind.

SWEET CLOVER FOR BEES AND FARM STOCK.

I should like to say a few words for sweet clover. I finished extracting on the 15th. I got 2500 lbs. of sweet-clover honey from 60 hives. There is but little if any white-clover honey mixed with it. I have thirty acres of this sweet clover on my place. It is good cattle pasture in the early spring and late fall.

S. R. FLETCHER.

Onawa, Ia., Aug. 16.

GENTLE CARNIOLANS.

Mr. A. I. Root:—I again have a small apiary of my favorites, the Carniolans—no smoke needed, no swarming; work from daylight to dark. Colorado honey crop will not be more than forty per cent of an average.

S. W. MORRISON.

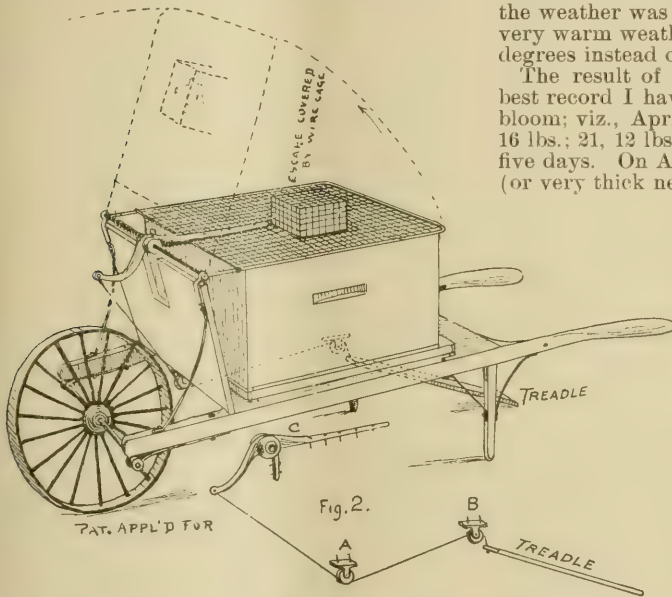
Grommet, Col., Aug. 13.

[Friend M., I am glad you are enjoying yourself in your old age with some gentle bees.—ED.]

AN AUTOMATIC COVER FOR COMB-CARRYING BOXES ON WHEELBARROWS.

I herewith submit a drawing showing my automatic cover attached to a Daisy wheelbarrow for the purpose of covering carrying-boxes when extracting. It is so constructed as to enable the operator to use both hands in handling the combs, without the least delay, by placing his foot on the treadle which plays between the handle of the wheelbarrow or on either side as desired. In transit it is hooked up to either handle of the wheelbarrow. When the foot is placed on the treadle, the cover of the box is raised by means of the small cord passing over the pulleys to the lever C. A coiled-wire spring on the hinge-shaft returns the cover quickly to its place.

On the under side of the cover is a strip of felt that extends around and serves to keep the scent of honey from outside bees, as well as to take off the jar caused by the cover coming in contact with the edge of the carrying-box. In the center is a $1\frac{1}{4}$ -inch hole over which are two small wire-screen fun-



nel-shaped tubes, one $\frac{1}{4}$ inch larger than the other, with small holes at the top, and over these is placed a wire-screen cage 4x6 in., for the purpose of holding all the bees that might get into the carrying-boxes during working hours, after which time the cage may be opened and the robber bees allowed to return to their hives. I have made a number of tests with this device, and find that it saves about half the time that it required in using a canvas or sack.

By a conservative estimate with a full crew that takes the honey from seventy to eighty colonies in a day, this automatic lifting-device, when attached to the wheelbarrow, will save from two to five hours a day, say-

ing nothing about the annoyance of robber bees on windy days when the common covers now in use are often blown off, and time lost in putting them on again; further, it can be detached or attached in a very few minutes to the Daisy, thereby giving the use of the barrow for any other kind of work.

WILLIAM LOSSING.

Phoenix, Ariz., March 16, 1906.

[Our readers will, perhaps, remember that the editor visited Mr. Lossing, and showed one of his apiaries, some five or six years ago. He is one of the extensive honey-producers of Arizona, and therefore a man who speaks from experience. The device he describes I am sure is a good one, especially as it leaves both hands free to put combs in the box, where they can be shut in free from robbers.—Ed.]

ORANGE-BLOSSOM HONEY.

As you recently asked for information about orange-bloom I will report our experience for this year. As usual there was an abundance of bloom for about a month; but the weather was too cool except five days of very warm weather, April 18 to 22, about 90 degrees instead of 70 as usual.

The result of this hot spell gave me the best record I have ever made from orange-bloom; viz., April 18, 14 lbs.; 19, 11 lbs.; 20, 16 lbs.; 21, 12 lbs.; 22, 8 lbs.; total, 61 lbs. in five days. On April 20 I could shake honey (or very thick nectar) from the blossoms. I

notice on page 200 A. I. Root tells of a location having 200 acres of orange-trees within three miles. Tell him one of my apiaries which furnished the above record has more than *ten times* 200 acres of bearing orange-trees within three miles. FRANK McNAY.

Redlands, Cal.

[It seems from the above that orange-bloom, like most other honey-plants, must have every thing just right to favor an abundant flow of nectar. I gather from it,

also, that there are a great many seasons when bees get little or nothing from orange-trees; and it is only occasionally that there is an abundant flow. I am sorry the writer did not tell us how many colonies he had in his apiary at this time; and did this one colony mentioned do more than any of the rest?—A. I. R.]

UNFINISHED SECTIONS; HOW TO GET THEM CLEANED OUT.

I see on page 1130 Rev. W. L. Palfornon goes to a lot of trouble to have his unfinished sections cleaned out. Put on an empty super, turn in one corner of the quilt, set in the unfinished sections, put on the cover,

and the bees will do the rest, and there will be no inciting to rob.

Byron, Ill.

FRANK R. RANDALL.

[We have just received an article by Dr. Phil. Max Boelte, in which an entrance feeder arranged to hold three sections at a time is described. This will appear in GLEANINGS soon.—ED.]



If I regard iniquity in my heart, the Lord will not hear me.—PSALM 66:18.

I had nearly half an hour to wait for my train. I had just received two milage-books from the railroad companies on our advertising contract, and I began looking over my folders to see if the two books would take me through the Black Hills of South Dakota and back to Madison, Wis. I was much surprised and troubled to find it was almost 500 miles to Omaha, and a full 500 more to the further points of the Black Hills. This being true, my two books would land me only a thousand miles from home, and I should be obliged to pay cash for my return at whatever the railroad companies saw fit to charge me. It was a hot day, and nearly train time. I had been perspiring before, and this discovery set me to perspiring harder. Just at this time several newsboys began pushing their papers before my face, and one very diminutive one urged so importunately I got vexed, and said, "No, no! I don't want any of your papers—get out of my way."

I noticed this little chap seemed to feel hurt; but I was in a "peck of trouble." I looked my maps and books over again, and it seemed to me there *must* be some mistake in my figures; but there it all stood in hard black and white. With the sweat dropping from the end of my nose, my old, old prayer, "Lord, help," burst forth almost of itself, as it usually does when I begin to think there is no other way out. Well, *this time* there was a very swift answer to my little prayer. I wiped the sweat from my brow and took another look at my milage-book. I almost said out loud, "Why, you blundering old idiot!" I had all the time been calling my two books 500 miles each, when they were really 1000 miles each.

The prayer was answered, and I fervently thanked God, even if it was a deliverance from only *imaginary* trouble; and, by the way, are not a good many of our troubles of *this kind*? But just as I began to laugh and look happy again I felt there was something still I could not exactly define that clouded my peace. What was it? Oh, yes!

conscience was upbraiding me for being cross to that little speck of a newsboy. Sure enough, there he was yet, near by.

"Sonny, I beg your pardon. I think I *do* want your last paper, after all. How much is it?"

"Only one cent."

"Why, dear me! I haven't a thing less than a dollar."

"I'll get it changed, mister, at the ticket-office."

I saw him standing on tiptoe of his little bare feet as he pushed the coin up into view of the ticket-man; but he soon returned with a disappointed look on his face, saying that the ticket-man was "too busy," but he said he would borrow the change of some one and come round pretty soon if I would stay there and keep my dollar. I forgot all about him, until just as my train pulled in, and then he came up with his little fist hardly able to cover the handful of coins, saying:

"Mister, if you count this you will see there is just 99 cents. Now you give me the dollar and here is your paper."

The little chap had worked toward half an hour to sell a paper for which he received only *one cent*, and he probably had to find some one who would trust him to the extent of 99 cents until he found me and got back. As I looked into his honest face I breathed a prayer that the Holy Spirit might protect his honest energetic little soul from the contaminating influences of this great busy trafficking world. Some of you may suggest I might have given him at least a nickel; but I think I did right. He was learning business and independence, and he neither needed nor asked charity.

While the porter was getting my berth ready I went over my figures again with the 2000 miles at my disposal, and was a little disappointed to find I was *still* about 200 miles short.

Next morning as the Pullman conductor handed me my milage-book I saw, as soon as I opened it, that not enough milage had been removed. It was a little queer, but there was a mistake in my favor of just about *two hundred miles*. I am *ashamed* to admit, dear friends, that for a brief time I tried to argue with myself that it would be all right to keep still and thank—well, who?—that the conductor had blundered. It was only for an instant, however. How could I ever use my little prayer, "Lord, help," again, had I kept still? I held it up before the gentlemanly Pullman conductor, and his eyes had in them a funny twinkle as he said:

"Why, you are *ahead* so much. If I were you I wouldn't kick—you are all right, *sure*."

"I may be all right, but the railroad company is not. Can you have this made right?"

"I can't do any thing with it; but if you insist I will ask the train conductor to see to it; but I advise you to let it drop and call it your good luck."

Whenever he passed I saw that same twinkle in his eye, and, feeling sure he would do nothing about it, I hunted up the other conductor. He laughed at me, and so did

my seat-mates. They all said, "Let well enough alone." Some one suggested I could tear out 200 miles and throw it away if I was so exceedingly conscientious; but I replied:

"No, friends, that would be like burning up good money. I will use the extra mileage, and it will come in handy, I assure you; but I will write at once and tell the railroad company to charge it up to our advertising account."

I did so, but I did not feel really satisfied about it until the following letter came to hand:

Mr. A. I. Root: This will acknowledge receipt of yours of the 1st inst., and I thank you for calling my attention to the fact that conductor pulled short mileage from your advertising mileage ticket on your recent trip. I have charged your account with \$4.80, the value of mileage (192 miles at 2½¢ per mile).

A. A. MILLER, G. P. A.
Chicago, Milwaukee & St. Paul Railway.
Chicago, Ill., Sept. 3.

There is still another point to be considered in this matter, and I am sorry so many Christian people are liable to make a mistake about it. It has been urged that this conductor may lose his place just because I have insisted on having the amount charged to me. Now, even if this *be true*, and I feel sure it is not, it is surely *not* right to advise and teach any one to profit by the mistakes of others. Whenever any man or woman undertakes to transact important business, it is right that the employer should know how many and how grievous these mistakes are. If the mistake I have reported is only one of a good many, it may result in dismissal. If, however, it is one a very good man *happened* to make in the rush of the excursion season, I am sure it will be overlooked.*

Can a professing Christian consistently profit by some mistake or blunder of one of his fellow-men? In other words, does it not behoove us to "let the world see it *means something* to be a Christian"?

*Not only do railroad managers, but the proprietors of large manufacturing and mercantile establishments, etc., go to great pains to locate and check (not only mistakes, but) *every thing* irregular. Floor-walkers are employed, and detectives or something in that line to keep careful watch that they may nip in the bud any disposition to pass by or cover up mistakes and delinquencies. A man or woman who succeeds in covering up blunders is not likely to amend her ways as would the one who is found out and promptly reproved or made to stand the consequences. In fact, the grafting business, bank failures, the defalcations, etc., are largely the outgrowth of neglect along this very line. When a bank is wrecked, or we have a railroad accident resulting in a loss of life, etc., investigation often shows that incompetent or unscrupulous men have been kept when they ought to have been "spotted" long ago, and either reformed or dismissed; and yet good Christian people recommend covering up a bad blunder for fear the blunderer may lose his place if promptly reported and corrected. A very bright Christian young lady said to me a few days ago concerning this matter, "Why, Mr. Root, I never report mistakes or errors of my fellow-clerks. I should get them into a great deal of trouble if I did so." Of course, no one would recommend making a fuss about trifles. But where a loss of property is involved, and the culprit seems disinclined to own up and make up any loss, it is unquestionably a duty, even though it be an exceedingly unpleasant one, to report irregularities. Where the blunder is going to put *money* into our own pockets if we keep still, it seems to me such practice is a pretty big stepping-stone to downright fraud and graft.

Just one more incident before closing this Home Paper. At the Minnesota State Fair I met a Mr. Radcliffe. I regret I can not give his full name and address. While we sat down on a bench in the shade, Mr. R. told the following, as nearly as I can remember:

About thirty years ago he was keeping bees in California, and he wanted one of the best imported Italian queens. He sent \$7.50 for a select tested imported queen, which came in good order; but as she failed to do well, examination with a magnifier showed a parasitic insect clinging to her body. With the help of his wife and a needle the insect was removed, but she was soon missing. Nobody knows whether this insect came with her from Italy, or came from his own hive. As we guarantee only safe arrival he decided it was his loss, and ordered a second one at a lower price, \$4.50. He says, however, that when I received the \$4.50 and statement as above, I insisted on bearing half the loss and sending another \$7.50 queen. In some way there remained \$1.50 to his credit, which he told me to keep, as he was quite satisfied. The next January he received a postal card, partly printed, reading something as follows:

"Friend Radcliffe. We find on our books a credit to you of \$1.50. Shall we remit this, or do you wish it still to stand to your credit?"

He said he showed it to his wife, and laughed about it, and let the matter drop; but each year came a credit-card like the above, until he told us to apply it to GLEANINGS, and then said to his wife that he would take GLEANINGS the rest of his life, just to encourage a man who took as much pains to hunt up a man and notify him of a *credit* as he did to hunt up a man and collect a *debt*. Said I: "Mr. Radcliffe, are you a professing Christian?"

"I am, Bro. Root."

"Well, then, Bro. R., you know I did this, not to recommend our firm, but to exalt and hold up the name of the Lord Jesus Christ."

"I know it, Mr. Root, I know it; and that is why I love you and your teachings."

Dear friend, this little incident resulted in getting a subscriber who has stood by us for thirty years. It was a profitable investment from a money point of view. You may lose a little money for the time being in doing right in God's sight; but in the end it will be "treasure laid up in heaven, where moth and rust doth not corrupt, and where thieves do not break through nor steal."

Once more: Peter once said to the Master, "We have left all and followed thee." Peter implied, although he did not say so, "What shall we have as a reward for relinquishing all these things that the world is clamoring for?" Jesus told him that he and every one else who make a sacrifice for Christ's sake should receive "now in this time," meaning in this present life, houses, brethren, sisters, lands, etc., a hundred fold, "and in the world to come, eternal life."

"If Goods are wanted quick, send to Pouder."

Established 1889

Bee-Keepers' Supplies

Distributor of Root's Goods from the best shipping-point in the Country. My prices are at all times identical with those of The A. I. Root Company, and I can save you money by way of transportation charges.

Special Notice!

During this month (October) I am offering a special discount of six (6) per cent for cash orders for Bee-supplies for next season's use. After November 1st the discount will be 5 per cent.

**New Metal-spaced
Hoffman Frames
are Here in Stock**



**Headquarters for the
Danzenbaker
Hive**

**Dovetailed Hives, Section Honey-boxes,
Weed-process Comb Foundation,
Honey and Wax Extractors, Bee-smokers,
Bee-veils, Pouder Honey-jars, and,
in fact, Every Thing used by Bee-keepers.**

BEESWAX WANTED!

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight. Always be sure to attach name to package.

If you wish to secure finest grades of Honey with which to supply your neighbors, write for my market Quotations of the Indianapolis honey market, free.

Catalog Free

Walter S. Pouder
513-5 Massachusetts Av., Indianapolis, Ind.

At St. Louis

A complete line of Root's Bee-keepers' Supplies. Unexcelled shipping facilities for reaching the Middle West.

ADDRESS

Blanke & Hauk Supply Co.

202-204 Market Street
St. Louis, Mo.

ALSO MANUFACTURER OF AND DEALER IN

Dairymen's and Poultrymen's Supplies

Low freight. . . Prompt shipments.
Factory prices. . . Write for catalog.

Send Us Your Order

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company

H. G. ACKLIN, MANAGER

1024 Mississippi Street, St. Paul, Minn.

6 per cent Discount During October!

In order to liven up business during the dull months we will give six per cent off all supplies, in the catalog, wholesale or retail, during October for goods for next year.

Jobbers for
Central : Pennsylvania
— for —

ROOT'S GOODS

Now's the time to save money on goods for next season. Send for catalog. Best shipping facilities in the State.

Frank W. Prothero
Dubois, : : : Pennsylvania

DO YOU KNOW

That the sale of Dittmer's Foundation has increased so much that we were forced to double our melting capacity in order to fill orders promptly?

There is a Reason for This

It is because Dittmer's Foundation is tough, clear, and transparent, and has the natural color of beeswax.

AGENTS FOR DITTMER'S FOUNDATION

W. D. Soper.....Jackson, Mich.
Bee and Honey Co.....Beeville, Texas
E. H. Taylor..Welwyn Sta., Herts, Eng.
E. Grainger & Co....Toronto, Ont., Can.

Our warehouse is well stocked with all kinds of bee-keepers' supplies.
Beeswax always wanted.

Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dove-tail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trester Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.



Michigan Distributors

—FOR—

**G. B. Lewis Co.'s Beeware,
Dadant's Foundation.**

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service.

ADVANCED BEE-VEIL. Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

A. G. Woodman Co., Grand Rapids, Mich.

Dear Sirs:—Your advanced bee-veil just arrived, and is, as advertised the best on the market. Find enclosure for ten more veils
Platteville, Wis., April 14, 1906. *N. E. FRANCE.*

**A. G. Woodman Co.,
Grand Rapids, Mich.**
Beeswax Wanted.

We Manufacture

the finest, whitest, no-drip basswood **SHIPPING-CASE** on the market to-day. Covers and bottoms are of **ONE PIECE**. Everything is **POLISHED** on both sides, and a better case can not be had at any price. We can furnish them in single or carload lots to fit any number or style of section. Large quantities of all the standard sizes on hand. . . . As a special offer we will sell you 25 cases to hold 24 sections, complete with **NAILS, PAPER, and GLASS** at \$4.00. Write for prices on larger quantities. Furnish corrugated paper if desired. We can furnish you with any thing you need in the apiary. Our catalog is free. . . . **PROMPT SHIPMENT and SATISFACTION GUARANTEED.**

Minnesota Bee-supply Company
Nicollet Island, No. 20, Minneapolis, Minnesota

BEE-SUPPLIES

LEWIS GOODS AT FACTORY PRICES

Best of everything the bee-keeper needs. Large and complete stock. **SEVEN PER CENT DISCOUNT.** Prompt service. Catalog free. Get our prices before ordering.

C. M. SCOTT & CO., 1004 E. Washington St., Indianapolis, Ind.

Established 1881

YES!

Same Place 1906

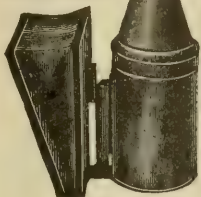
THIS IS THE MAN

WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year. ♡ ♡ ♡ ♡ ♡

Geo. E. Hilton, - Fremont, Mich.

BINGHAM
Original
Direct Draft
CLEAN
Bee Smokers



Pat'd 1874, '82, '92 & 1903

Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and last; don't spit fire; don't go out; don't daub themselves all over. We are the most extensive exclusively bee-smoker makers in the world.

T. F. Bingham - Farwell, Mich.

Chico, California, October 28th, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.
J. M. RANKIN.

Third Photo Contest

We want bright interesting photos to illustrate GLEANINGS. Send in those you think suitable, and you will stand a chance of one of the prizes below.

PRIZES

Class A.—Photos of general interest, excluding swarms and apiaries. Prizes: First, \$5.00; second, \$3.00; third, \$2.00; fourth, A B C, cloth.

Class B.—Photo of swarms. Prizes: First, \$3.00; second, \$2.00; third, A B C of Bee Culture; fourth, GLEANINGS one year.

Class C.—Photo of apiary. Prizes: First, \$3.00; second, \$2.00; third, A B C of Bee Culture.

Special.—Photos that do not win prizes but which we can use will be awarded a prize of \$1.00 each.

CONDITIONS

Contest closes November 1st.

All photographs should be marked "For Contest," and have name and address attached. Prize-winning photos become our property. No photo returned unless stamps are sent. We prefer unmounted prints toned to a light-red-dish color on solio paper.

The A. I. Root Company

Photo-contest Department
Medina, Ohio, U. S. A.

Swarthmore Books!

BABY NUCLEI (2d ed.)—The second edition of this popular treatise is off the press. This book thoroughly covers the field of small mating under management. The experience of twenty years in mating young queens in baby nuclei is given. A delightful little book—good printing, enjoyable reading, and easy understanding. Price 25 cts. postpaid.

SIMPLIFIED QUEEN-REARING.—A revised edition of this book just out. It tells the honey-producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just an effective and economical plan for the bee-keeper who works for profit. Price 25 cts. postpaid.

INCREASE.—Don't depend entirely upon swarming for your increase. It's too slow and uncertain. Swarthmore tells of a way in his delightful little book entitled "Increase"—a natural way, simple and safe, no labor, little trouble. Colonies formed on this plan will work like prime swarms, and store a surplus. Price 25 cts. a copy postpaid.

CELL-GETTING.—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life. Price, postpaid, 50 cts.

SWARTHMORE QUEEN-REARING TOOLS.—Complete outfits or separate parts. Write for price list.

FOR SALE BY

The A. I. Root Company

ALL BRANCHES AND AGENCIES

Banking by Mail

4 : per : cent : Interest

NEARLY every man has a little money that he would like to have safely invested outside of his business, but in such a way that it would give him no worry, would be readily available should he need it, and at the same time earn a fair rate of interest.

Deposits of \$1.00 and upward are accepted by mail or in person, and interest allowed at the rate of 4 per cent, compounded every six months.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system. Write for the booklet to-day.

Assets over One-half Million



MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

THE "BEST" LIGHT

Made in Over 100 different styles.

100-Candle Power Light at a cost of 2c per week.

More brilliant than Acetylene or Electricity. No Grease—Smoke—Dirt or Odor.

Agents Wanted Everywhere.

THE BEST LIGHT CO., 306 E. 5th St., Canton, O.

SAVE HALF YOUR FUEL

BY USING THE

Rochester Radiator

Fits any Stove or Furnace.

Guaranteed to do all we claim or money refunded.

Write for booklet on heating homes.

Rochester Radiator Co.,
50 Furnace St., Rochester, N. Y.

Price from \$2.00 to \$12.00

For hard or soft coal, wood or gas.

SAVE YOUR BACK

Save time, horses, work and money by using an

Electric Handy Wagon

Low wheels, broad tires. No living man can build a better.

Book on "Wheel Sense" free.

Electric Wheel Co. Bx 95, Quincy, Ill.

JOSEPH HORNE CO.

Pittsburgh, Penn.

Elastic Cotton Felt Mattresses

The mattress which is best thought of to-day is the Elastic Felt Mattress. There has been considerable mystery thrown about the manufacture of this mattress on the part of certain manufacturers. We will be frank and tell you that a felt mattress is simply one in which the cotton is felted in by layers instead of being put in promiscuously.

Our Elastic Cotton Felt Mattresses are the equal of any on the market to-day, and they are all sold for popular prices. All weigh 45 lbs.

Of course we guarantee the mattresses we sell, and pay the freight on any of the following to any point east of the Mississippi River.

J. H. Co.'s Special Elastic Felt Mattress	\$15 00
"St. Regis" Electric Felt Mattress	: 14 00
"Ritz" Elastic Felt Mattress	: : 12 00
"Savoy" Elastic Felt Mattress	: : : 8 50

We have an excellent cotton mattress—not a felted mattress, but a thoroughly good article—filled with the best grade of picked cotton, full double-bed size, for which we ask only \$8.75.

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it six months on trial. Sample free.

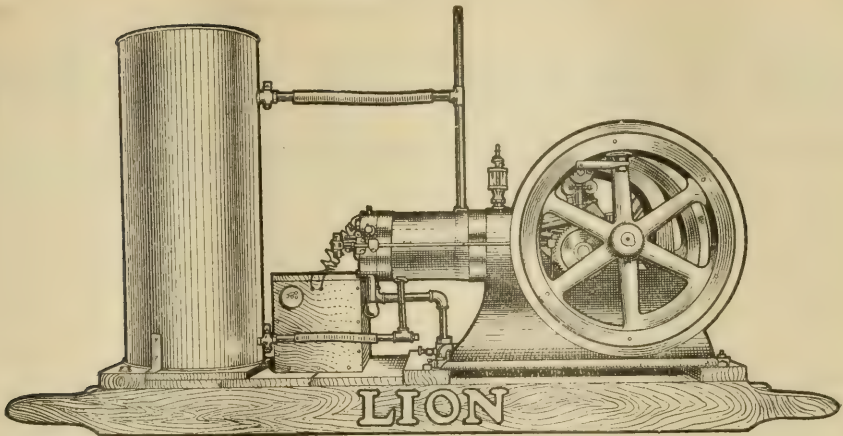
The Southern Fruit Grower, Box 1, Chattanooga, Tenn.

Over Half a Century of Fair Dealing has given our products that prominence which merit deserve. We still offer everything of the best for Orchard, Vineyard, Lawn, Park, Street, Garden and Greenhouse. Catalogue No. 1 free to purchasers of Fruit and Ornamental Trees. No. 3 free to buyers of Holland and other Bulbs, Hardy Plants and Vines, Roses, Ferns, Araucarias, Palms and Greenhouse Goods in general. Try us. Will give you a square deal and guarantee satisfaction. Correspondence solicited. 55 years; 44 greenhouses; 1200 acres.

THE STORRS & HARRISON CO.
Box 275, PAINESVILLE, OHIO

450,000 TREES

200 varieties. Also Grapes, Small Fruits, etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. LEWIS ROESCH, Fredonia, N. J.



IT'S READY TO OPERATE

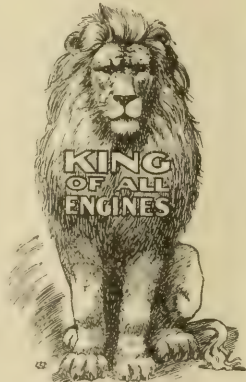
There's no firing-up—no waiting for steam with a **Lion** Gasoline Engine. It is **always ready to operate**. Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

The Lion Engine

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

We sell direct from factory to buyer, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion** engine and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion** engine. It is free if you mention this paper when you write.

Lyons Engine Company
LYONS, MICHIGAN



HONEY-JARS!

A neat package is a great help to the sale of your extracted honey. A glass jar is the favorite for many markets. Some retail trade demands one style and some another. We can supply you with what you want.

Simplex Honey-jars

This is a new jar with glass screw-top and rubber gasket fitted to the taper screw on jar, which seals absolutely airtight. We consider it the handsomest jar we sell for one pound of honey. Your honey in these jars is sure to attract attention and have a ready sale in any grocery.

We are now prepared to offer Simplex jars in partitioned cases of two dozen each, ready to reship, when filled, at \$1.00 per case; ten-case lots or over, at 95 cts.; fifty-case lots at 90 cts. We can ship either from Medina, Chicago, New York, Philadelphia, and, after Sept. 1, from Mechanic Falls, Me.



SIMPLEX JAR

No. 25 Jars

This is our standard jar—holding one pound of honey. We have sold this jar for years, and in larger quantities than any other honey-package we ever handled. It has opal cap with rubber ring and tin screw rim. Put up in re shipping-cases of two dozen. Prices same as Simplex jars quoted above.



NO. 25 JAR

Tip-top Honey-jars

This is a new-style jar sealed with a rubber ring under rim of a glass top held securely with spring-top fastener. This fastener is applied to a great variety of bottles and jars used for different purposes. We have selected two styles among them all as being most suitable for honey. The one and two pound square jars may be had with spring top fastening instead of cork at 75c per gross extra. We furnish in two sizes. Half-pound, 45c per dozen; gross, \$4.50. One-pound, 50c per dozen; gross, \$5.00.



TIP-TOP JAR

Tumblers

There seems to be an increasing demand for a cheap tumbler to put up a half-pound of honey to retail at 10 cts. We have secured a stock of such tumblers at a price which enables us to offer them at \$4.00 per barrel of 24 dozen. This is less than 1½ cts. apiece. For less than barrel lots we can not repack them for less than 25 cts. a dozen; or we will put them up 4 dozen to the case with partitions ready to reship when filled, at \$1.00 a case; 10-case lots at 95c.

Mason Fruit-jars

These are very largely used for canning fruit, and are often used for honey as well. As we buy them by the carload, we can make the following prices at Medina, all put up complete with porcelain-lined caps and rubbers, in cases of one dozen:

SIZE	Doz.	6 doz	12 doz.
Pint	\$ 52	\$3 00	\$5 75
Quart	55	3 10	6 00
½-gallon	75	4 10	8 90

Triumph wrench for Mason caps, 15c each; by mail, 25 cts.

Ball's waxed rings, better than rubbers, 5c dozen; postage 3c.

Sample Mailing-blocks

Price each, 6c; by mail, 8c.

These are small wide-mouthed glass bottles, which hold ½ oz., with cork, put up in a mailing-block, with top which screws on and is easily removed.

Honey-labels

We print them in large and small lots; over fifty styles. Write for sample-book and prices.

Prompt Shipment

All of our branches and agents are well supplied. Write the one nearest you.

The A. I. Root Company, Medina, O.

BRANCH OFFICES IN THE UNITED STATES

44 Vesey St., New York City

144 East Erie St., Chicago

10 Vine St., Philadelphia, Pa.

Mechanic Falls, Me.

1100 Maryland Avenue, S. W., Washington, D. C.

1635 Genesee St., Syracuse, N. Y.

1024 Miss. St., St. Paul, Minn.

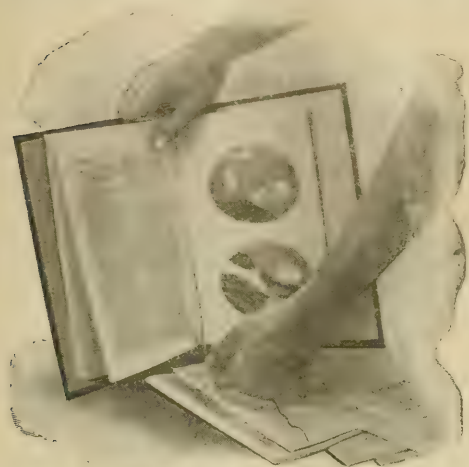
BEE-KEEPERS OF NORTHERN NEW YORK

Buy your shipping-cases, etc., of
A. H. Reeves, Perch River, Jefferson Co., N. Y.

and save freight charges, and time.
A complete stock on hand ready for
shipment. Comb honey wanted in
no-drip cases; also beeswax. . . .

A Good Thing for Gleanings

Along with a lot of "trash" (which each reader can
"cut out" for himself) most of the current magazines
have so much "good stuff" in them that it seems a



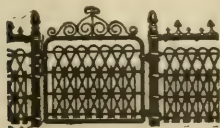
pity all of it should go quickly into the rubbish heap
—if there were only some convenient economical way
of preserving the part one cares for.

There is a way, and GLEANINGS has found it, and
with pleasure shares the knowledge of its discovery
with its readers.

It is well named the "Perfect Pamphlet Preserver."
On the shelf it looks just like a book. Holds
one number or a volume. Its methods of use are as
simple as tying a shoe.

We are so pleased with the article that we have had
a lot of them made with title stamp, in very attractive
form, and will be glad to supply the "Preserver"
to readers who want it, at about the actual cost of
the manufacture—25 cts., by mail 7 cts. additional.

The A. I. Root Co., Medina, O.



LAWN FENCE

Many designs. Cheap as
wood. 33 page Catalogue
free. Special Prices to Com-
merces and Churches. Address
COILED SPRING FENCE CO.
Box 448 Winchester, Ind.

Northeastern and New England BEE-KEEPERS

Order goods now. Don't delay. Have
them ready when you need them. We
keep a full line in stock at Medina
prices. Save both time and freight
by ordering of us. Beeswax wanted.
Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

HONEY-JARS

No. 25, with burnished cap, heavy clear
glass, per gross, \$5.00; 3 gross, \$13.50.
11-ounce nickel-cap jar, gross, \$4.00;
3 gross, \$11.00.
1-lb. square jar with cork, gross, \$5.00.
Heavy cartons, \$5.50 per M.
Italian queens, 75c. Catalog free.

I. J. Stringham
105 Park Place, N. Y. City
Apiaries at Glen Cove, L. I.

Something New in Honey-jars...

Cook's Square Jar combines a new fea-
ture that improves the package and
reduces the cost, and is the best and
cheapest one-pound glass package made.
Send for circular and full catalog of
hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and
only Reliable goods sold. 10 cents brings
sample jar by mail.

65c for 25 NAMES—for names and P. O. of 25 farm-
ers and 15c (stamps taken) we will send for 2
years the Farmer's Call—regular subscription price,
40c a year. F. C. is a weekly, 25 years old; 1300 pages
a year; sample free. Farmer's Call, Quincy, Ill.

Fire Sale Bee and Poultry Supplies

Come or send, and save 25 to 50 per cent on slightly damaged goods. **NEW LEWIS GOODS** at factory
prices by return freight. Golden Italian or Red-clover queens by return mail. Untested, 75c; select
untested, \$1.00; tested, \$1.25; select tested, \$2.25. Full colonies in up-to-date hives, and nuclei.

Six per cent Discount for October Orders

H. M. Arnd, Propr. York Honey & Bee Supply Co. (Not Inc.)
Long Distance Telephone, North 1559. 191 and 193 Superior St., Chicago, Ills

QUEENS

By Return Mail at the Following Prices for the Balance of this Season. Golden or Leather-colored Italian. . . . The Season will soon Close, so Hurry in Your Orders. . .

Grade of Queens	1	6	12
Select Queens.....	75	\$4 00	\$7 00
Tested Queens.....	1 00	5 00	9 00
Select Tested Queens.....	1 50	8 00	15 00
Breeders	3 00	15 00	
Straight Five-band Breeders	5 00		

Safe delivery and satisfaction guaranteed of all queens. Any queen not satisfactory may be returned any time inside of sixty days and another will be sent gratis.

Address all Orders to

Quirin-the-Queen-Breeder,
Bellevue, Ohio.

When a Thing Needs Doing

NOW is the time to do it. How about those worthless queens? Will you tolerate them for another season, when the best of stock can be obtained so readily? Laws' bees and queens are bringing the best of reports. I could fill many pages of testimonials, but give you only one. Mr. T. P. Robinson, of Bartlett, Texas, says: "Dear Sir.—The car of bees shipped June 20th are now all safely landed, and I have overhauled the entire lot. The bees are from 25 to 40 per cent better than contract, and you ought to hear my wife's exclamations of delight at seeing those fine yellow bees so quietly nestle between the combs at the very approach of smoke. I can certainly recommend you. . . ."

Leather and Golden Italians, Holy Lands, and Carniolans—single queen, \$1.00; six for \$5.00. Quantity lots, prices on application.

I also manufacture the Hoffman frames, both new and old style, at \$16 00 per M; single-story eight frame hive complete, 75c; 1½-story for extractor, \$1.00. Price list on application.

W. H. Laws, Beeville, Bee Co., Tex.



**Fine, Young, Prolific
Three and Five Band
ITALIAN QUEENS**

by return mail; untested only 45c,
or \$5.00 a dozen; tested, 65c.

J. S. FAJEN, Alma, Mo.

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy-Lands, Italians.

The JENNIE ATCHLEY CO.,

Box 18, Beeville, Bee Co., Tex

MOORE'S - STRAIN - OF - ITALIANS

as Red-clover Workers.

Wm. S. Slocum, Newport, R. I., writes: "My friend, W. O. Sweet, West Mansfield, Mass., asked me about two years ago where he could get good queens, and I referred him to you. To-day he called on me and said he noticed the colonies with your queens were storing much faster than others. He went immediately to his red-clover field, and saw bees working there freely."

Untested queens, 75c each; six, \$4 00; dozen, \$7 50.

Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00.

Safe arrival and satisfaction guaranteed. Descriptive circular free.

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Ky.

Yellow from Tip to Tip !!!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce Golden queens and beautiful bees; non-swarmers, very gentle, and hustlers for honey. Single queen, \$1.00; three queens, \$2.50; six, \$4.50, or \$8.00 per dozen. Large select breeding queen, \$2.00 each. Every thing guaranteed.

H. ALLEY, - - - Wenham, Mass.

Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:

Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

H. M. PARKER, Jr.

James Island, South Carolina

CARNIOLANS our SPECIALTY

WE HAVE been breeding this wonderful race of bees for over twenty years, and during all this time we have been making very careful selections, and we now claim to have one of the best and purest races of Carniolan bees in this country.

They are very gentle, hardy, and prolific; the best of workers; they come out of winter quarters healthier and stronger in bees; they build up very rapidly in the spring, are great comb-builders, and their sealed combs are of snowy whiteness.

**Also Breeders of Golden and
Leather Italians**

No foul brood or other bee-diseases here. Bees and queens guaranteed to arrive in good condition at your postoffice in the United States or Canada. Descriptive price list free.

PRICES.—Untested queen, 75c; six, \$3.90; doz., \$7.00. Tested, \$1.25. Best breeding, \$2.50. Best imported,

F. A. Lockhart & Co.,

\$4.00. One L-frame nucleus, 75c; two-L-frame nucleus, \$1.50; three-L-frame nucleus, \$2.00. Add price of queen wanted to nucleus. Special prices quoted on large orders to dealers.

Banater Bees from Hungary

This wonderful new race of bees takes the lead over all other races, all points considered, that we have seen. The three colonies we are testing are strong in bees; do not offer to swarm; are great honey-gatherers; build snowy-white combs, and are very gentle; in fact, no smoke is needed to handle them. They resemble the Carniolans in color, though somewhat darker. We have never seen a race of bees with so many desirable qualities. We shall breed a limited number of queens for sale, and have started a queen-rearing apiary five miles from other bees, and expect to have laying bees ready to mail by July 15. Price \$5.00 each. Pure mating and safe arrival guaranteed.

Lake George, New York

Orders Filled Promptly by Return Mail

Queens from our fine strain of three-band Italians will not disappoint you. Bees are gentle, and the best of honey-gatherers. Queens are large and prolific, and every one guaranteed. Untested, 50c; \$6.00 per dozen. Tested, \$1.00.

J. W. K. SHAW & CO.
Loreauville, Iberia Par., Louisiana

Untested Queens! Golden Italian

75 cts. each; six for \$4.00; an extra fine one for \$1.00. Warranted purely mated and good queens. . . .

J. B. Case, Port Orange, Fla.

IMPROVED Red - clover Italians

for honey-gathering, hardiness, and non-swarming can not be surpassed. I breed for business the bees that will fill your hives with honey. Untested queens, 50 cents each. Safe arrival and satisfaction always guaranteed.

H. C. Clemons, - Boyd, Ky.

Queens! During October I will sell warranted purely mated Italian queens at 50 cts. each; selected warranted, 75 cts. each. If these are not the equal of anything you can buy in the country for honey-gathering you can have your money back. Satisfaction guaranteed. Queens by return mail. **L. H. ROBEY, Worthington, W. Va.**

ITALIAN : QUEENS !

I am offering choice queens of the Italian race at 75 cts. each. Golden or leather-colored daughters of an imported mother. Make your choice. Write to-day. **Robt. B. McCain, Rt. 3, Yorkville, Ill.**

MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, 75c; six, \$4.00; twelve, \$7.50. Tested, \$1.25; six, \$6.00. Twelve, \$11.00. Best breeders, \$2.50. Safe arrival guaranteed.

W. H. Rails, - - - Orange, Calif.

Red-clover and Italian Queens!



Average untested, 65c; two for \$1.00. Select untested, 75c. Fine tested queens, \$1.00 each. Four-frame nuclei, fine queen, in painted hive, \$3.75. Remember we guarantee our queens to work red clover as well as white clover. Get my circular.

Queens sent in rotation; 50 and 100 at special prices.

G. Routzahn, Route 3, Biglerville, Penn.

DAUGHTERS from my famous \$100.00 Red-clover breeder, also Golden Italians, 50c; tested, \$1.00. **H. A. Ross, 1709 Up, Second St., Evansville, Ind.**

Queens from 50 Cents Up!

Bred from Root's Imported Italians.

Write for prices, stating wants. . . .

C. M. Church, Arnold, Pa.

BEES and QUEENS

BY RETURN MAIL.

**The Three-banded
Long-tongued Strain
of Italians.**

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

Superior Qualities.

Honey-gathering, size of bees, non-swarming, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price

Quality Our Motto.

1300 colonies to select from.

Untested queens..... 75c; 6, \$4.25; 12, 8.00
Select untested queens..... 1.00; 6, 5.00; 12, 9.00
Tested queens..... 1.00; 6, 6.00; 12, 11.50
Select tested queens..... 1.50.
Breeding queens, \$3.00 to \$5.00.

Yours for best service,

**The Victor-Knolle Apiary Co.,
Hondo, Texas.**

Better than an Island

This place is just as good as an island for breeding queens, for there are no other bees within five miles, and so pure mating is guaranteed. It is better than an island when you order queens, for the fastest trains stop here, and hence queens are not away from the colony long enough to impair their usefulness. Safe introduction is guaranteed if you follow my special directions. The best bees known are the Banat Caucasians. The gentlest bees known are the Caucasians. The nicest bees known are the Golden Italians. Banat Caucasian queen, \$3.00; Caucasian queen, \$1.50; Golden Italian queen, 75 cts.

Dele Collins, Ph. D., Emporium, Pa.

Superior Queens!!!!

—Before June 15— —After June 15—

Italian and Carniolan

Untested..... 75c; \$8.00 per doz. 60c; \$6.50 per doz.

Tested..... \$1.00; 11.00 per doz. 75c; 8.00 per doz.

Select Tested... 1.25; 12.00 per doz. 1.00; 11.00 per doz.

Caucasian

Untested..... \$1.00; \$11.00 per doz. 75c; \$3.00 per doz.

Tested..... 1.50; 16.00 per doz. 1.00; 11.00 per doz.

Select Tested... 2.00; 20.00 per doz. 1.25; 12.00 per doz.

Write me a postal card for my circular.

Chas. Koeppen, Fredericksburg, Virginia

ITALIAN QUEENS

bred from best of honey-gatherers, either three or five banded or Golden races. Untested, 65c each, 3 for \$2.00, 6 for \$3.75, 12 for 7.25; tested, \$1.00 each, 6 for \$5.00, 12 for \$9.00; select tested, \$1.50 each; breeders, \$3.00 each.

J. W. Taylor, Beeville, Bee Co., Texas

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rate. This department is intended only for bona-fide exchanges. Exchange for cash or for price lists, or notices offering property for sale will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To buy in California, apiary of about 200 stands of bees. Must be cheap. Give all particulars in first letter. AMOS FEELEY, Piru, Cal.

WANTED.—Bee supplies in exchange for 300 colonies bees. Ad. elsewhere. Manufacturers write if interested. LEO F. HANEGAN, Glenwood, Wis.

WANTED.—Photos for our third contest. For particulars see ad. on page 1203.

THE A. I. ROOT CO., Medina, Ohio.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.

OREL L. HERSHISER,

301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange a town lot in Clairton, Allegheny Co., Pa., for farm land near Youngstown or Warren.

Box 21, Wilson, Pa.

WANTED.—Auctioneer to sell stock of bee supplies at San Antonio, Texas, during coming national convention.

W. H. PUTNAM, River Falls, Wis.

WANTED.—To correspond with parties located in mild climate needing reliable man to assist in apiary.

GEO. M. FARWELL, Temple, N. H.

WANTED.—Cuban bee-keepers, a practical bee-keeper of twenty years' experience with 500 colonies in four apiaries will be in Havana, Cuba, Nov. 12, 1906. Any one in need of an active working apiarist, write me your propositions and I will try to call on you.

LOCK 24, Hazelton, Iowa, U. S. A.

For Sale.

FOR SALE.—400 acres choice citrus fruit land.

ALBERT GUNN, Cespedes, Camaguey Prov., Cuba.

FOR SALE.—80 acres good Iowa corn soil. Or will rent, trade, or consider offers.

Box 42, Colo. Iowa.

FOR SALE.—My apiary complete in the great irrigated alfalfa belt; no failure yet. See GLEANINGS of Dec. 15, 1903, page 1051.

C. K. C., Lovelock, Nev.

FOR SALE.—Telephones. First-class, slightly used Standard phones, less than half price.

G. A. WATT, Bellevue, Ohio.

FOR SALE.—Large black and tan fox-hound; also runs rabbits or muskrats. Price \$15.00.

R. H. COLEGROVE, Remus, Mich.

FOR SALE.—Twenty acres of choice corn, potato, and strawberry land; fair buildings; forty colonies of bees in good location.

F. MATTHEWS, Route 6, Ithaca, Mich.

FOR SALE.—160-acre farm in Phillips County, Kan. Well improved, well located, 5½ miles from good market; fruit, pasture, and farm land, alfalfa. Clear title. Price \$5000 cash.

Box 344, GLEANINGS.

FOR SALE.—New 650-volt ½-hp. motor; just the thing for small power using electric-line current. Also Goodell foot-power lathe.

G. A. WATT, Bellevue, Ohio.

FOR SALE.—An out-apiary of about fifty colonies of Italian bees in large non-swarming hives cheap. I never saw bees swarming from these hives in the last twenty years, not even in the production of comb honey.

G. H. ADAMS,

Mill St., Bellevue Sta., Schenectady, N. Y.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to

FRANK S. STEPHENS,
Paden City, W. Va.

FOR SALE.—Seeds of honey-plants—seven-head turnips, motherwort, catnip at 5c a package, postpaid; still a few sections at reduced price; 24-lb. shipping-cases, complete, 14c.

H. S. DUBY, St. Anne, Ills.

FOR SALE.—Will sell my valuable ten acres of fruit and truck farm for one-half what it is really worth. One mile to center of good town of 7000; best market known for fruit, truck, and honey. Write for price and description. Great bargain here.

J. B. DOUGLAS, Mena, Arkansas.

FOR SALE.—Forty-acre ranch, fenced but unimproved except small frame house; fine spring near house; good soil, no alkali, fine alfalfa and fruit land. Also for sale, 100 or more colonies bees. Location very good for alfalfa and sweet-clover honey. Good reason for selling.

R. S. BECKETT,

Grand Valley, Garfield Co., Colo.

FOR SALE.—New power emery-wheel shaft; best grade, heavy, strong build; has chuck for drilling; attached and automatic stop feed; especially designed for queen-cage making; will take a circular saw at one end and drills at other, or may be used for grinding and brushing. Cost \$18.00, will sell for \$10.00.

E. L. PRATT, Swarthmore, Pa.

Bees and Queens.

FOR SALE.—400 colonies pure Italian bees in lots to suit. Write for prices.

F. A. GRAY,

Redwood Falls, Minn.

FOR SALE.—Queens. I breed a superior strain of fine golden-all-over Italians. Untested, 75c; tested, \$1.00.

T. L. MCMURRAY, Ravenswood, W. Va.

FOR SALE.—Ten colonies Italian bees in new Root eight and ten frame Dov'd or Danz. hives; strong colonies in perfect condition.

MRS. W. S. WINGATE,

3013 Fremont Ave., Sou., Minneapolis, Minn.

FOR SALE.—Fifty colonies bees in fine condition at a bargain. Extractor and one set extracting combs. Stamp for reply.

WOOD BEE-HIVE CO., Lansing, Mich.

FOR SALE.—Thirty colonies of bees and my entire outfit for \$50.00; an A B C of Bee Culture in the bargain. Any one wishing to buy, call on

SAMUEL WILHELM, Leetonia, Ohio.

FOR SALE.—75 colonies in good shape for winter. A bargain. Also spare combs and supers, hives, extractors, etc. Must sell this fall. Write for list and details.

W. R. ANSELL,

274 Midway Ave., St. Paul, Minn.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season.

W. N. CANNON, Greenville, Ala.

FOR SALE.—Queens. To close out for the season I will sell fine bright Italian queens at 45 cts. each or six for \$2.50; also 50 colonies of fine Italian bees in eight-frame Dovetailed hives. Ask for prices.

W. J. FOREHAND, Fort Deposit, Ala.

Blacks and Hybrids.

FOR SALE.—Good prolific mismated Italian queens at 25 cts. each.

W. F. STUART, Ottawa, Kan.

Poultry Offers.

FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free.

A. H. DUFF, Larned, Kan.

Special Notices by A. I. Root.

BATTERY-TESTERS FOR TESTING THE STRENGTH OF DRY BATTERIES.

After my Special Notice on page 1137 was printed, a lot of orders came in. In fact, we were soon sold out, but we now have a good supply. There was some complaint because I did not tell how to use them, and no instructions came with the instruments. The apparatus is so simple I hardly thought any instructions would be necessary. I would say, however, that the metal plug is to be removed from its socket. The plug is placed on one pole of the battery, and the open end of the metal tube on the other pole. If the battery is in good order the little coil of wire, or lamp, will glow like an incandescent globe. If the battery is partly exhausted the coil will show only redhot. This testing should be done in a rather dark place—that is, if possible, not under the full light of the sun. If this little coil shows redhot at all, the battery is of some value.

Caution.—Be careful about submitting this little instrument to the test of several batteries combined, as that would probably result in burning out the coil. It is intended to be used on a single cell, and not on a battery made up of a group of cells. Price by mail, postpaid, \$1.00.

UNCOOKED FOOD, PURE WATER, ETC.

In my recent trip out west the uncooked food was all right until I got dysentery, probably by being obliged to drink water containing alkali or other minerals. After that the uncooked food did not answer worth a cent. I first came down to milk toast; but for three or four days I left out the toast and lived on scalded milk and nothing else. After my digestive apparatus got so I could take solid food, a good old-fashioned beefsteak seemed to stand the racket while traveling better than almost any thing else. I wrote home to our folks to keep back the article on page 1196, but it was too late. I want to be honest and fair in this matter of diet, even if it obliges me to change my mind and take back some things I have said.

Now a word in regard to pure water to drink. Some of our large cities furnish distilled water at a moderate price to people who can not stand, especially while traveling, the drinking-water containing various minerals. At one time in my travels I went to a druggist and paid 50 cts. per gallon for distilled water, and it was a good investment, because I got relief immediately. This distilled water, the druggist told me, was shipped in from *Milwaukee*. I suppose, however, it was *not* "the drink that made Milwaukee famous." Now, would it not be a big step in the way of assisting the health of the great public, especially the traveling public, if the United States would make some arrangement whereby people who have discovered the importance of distilled water could get it in any considerable town, say at a nickel a glass or less? It would be a very great boon indeed to me if I could get a drink of pure water as easily as I can a glass of lemonade wherever I happen to be.

Convention Notices.

The annual meeting of the Southern Bee-keepers' Association will be held in Atlanta, at the State Fair grounds, October 11 and 12. All interested are invited to attend. Further particulars may be had of the president, J. J. Wilder, Cordele, Ga.

The annual meeting of the Northern Illinois and Southern Wisconsin Bee-keepers' Association will be held at the court house in Rockford, Ill., on Tuesday, October 16, 1906. Meeting begins at 9 A. M. and lasts all day. All interested in bees are invited to attend. Cherry Valley, Ill. B. KENNEDY, Sec.

The fifteenth fall convention of the Connecticut Bee-keepers' Association will be held in the Connecticut State Capitol, Hartford, room 50, on Friday, October 12, 1906, beginning at 10:30 A. M.

The Association is not only seeking to promote scientific and practical bee culture, but is aiming to advance the interests of both producers and consumers of honey by spreading truths of general interest, and correcting false impressions concerning apiculture. Fruit-growers, farmers, horticulturists, and, in fact, all of us, are debtors to the honey-bee to an extent that would be amazing if there were statistics to

show, or if it were possible to measure, the value of the service of these little creatures in fertilizing the bloom of the plants and flowers, their work being always beneficial and never injurious.

SOME OF THE TOPICS FOR DISCUSSION.

1. Which is the better place to winter bees—on the summer stands or in the cellar?
2. How large an entrance is best for colonies wintered outdoors?
3. What is the best way to increase in large hives? in small hives?
4. What is the best method for uniting weak colonies?
5. Will cutting out all queen-cells but one prevent after-swarming?
6. When shall we requeen, and what is the best method of introducing new queens? What, if colony has been long queenless?
7. Is there any positive proof that any one ever overstocked a locality with bees? If so, what is the proof?
8. What hive is best for both summer and winter—a large, medium, or small one?
9. Have the blacks any good qualities lacking in Italians?
10. The relative merits of blacks and Italians.
11. What is the best race of bees to keep for profit?
12. How shall we manage colonies in order to get the largest amount of completed section honey?
13. How shall we market this comb honey?
14. Is it more profitable to run for comb than extracted honey in this section?
15. What can Connecticut bees be made to do toward paying off farm mortgages?
16. To what shall we charge the poor season—to bad weather or to failure of flowers to produce nectar?
17. Sale of adulterated honey in Connecticut and its prevention.
18. Advisability of joining the National Association in a body.
19. What can we do to advance the Connecticut Bee-keepers' Association this coming year?

J. ARTHUR SMITH, Sec.

Box 38, Hartford, Conn.

The Southwestern Ohio and Hamilton County Bee-keepers' Association held its annual meeting August 27, and elected the following officers for the ensuing year: President, John H. Kroger; Vice-president, H. Shaffer; Secretary, Henry Reddert; Treasurer, C. H. W. Weber. Executive Committee, John H. Sommers, Wm. Shmees, Charles Weber, Frank Hemmesle, John Hoffmann.

The following "committee on law" was appointed by the President, to serve one year: John H. Kroger, Cincinnati; C. H. W. Weber, Cincinnati; John Hoffmann, Mt. Healthy, O.; John Sommers, Fairmount, O.; Henry Shaffer, Westwood, O.; J. G. Creighton, Harrison, O.; E. R. Root, Medina, O.; George Rost, Cincinnati; Frank Hemmesle, Hamilton, O., and Mr. Christ Bruner, Hamilton, O.

The work of this committee will not be an easy task in the future, as the bills to be brought before the next legislature now in the process of formation, in the interests of the bee-keepers of this State will show. Mr. Gustave R. Werner, the attorney for this association, a very well-known jurist of this city, will be requested to draw up the various enactments to be presented to the next general assembly.

All bee-keepers not members of this association are kindly requested to become members thereof by sending their names and addresses to the Secretary, who in turn will send an application-blank to each. This society is growing fast, and we want the bee-keepers of the entire State, both male and female. The more heads, the more opinions and better conclusions.

HENRY REDDERT, Sec.,

1628 Tremont St., Cincinnati, O.

Golden Queens.

My goldens are yellow from tip to tip. Every queen is worth a dollar, but I have a large number of them and offer them cheap. One, 65 cts.; 3 for \$1.95; 6 for \$3.75; 12 for \$7.50. No finer or better queens can be had at any price. They are reared right. Have had 35 years' experience in rearing queens. I insure satisfaction in every particular. Try at least one of my all-golden queens, and see how promptly I can serve you. Send for circular. It's free.

Daniel Wurth, 1111 North Smith St., San Antonio, Texas.

PATENTS.

Twenty-five Years' Practice.

PRINDLE & WILLIAMSON,

Second Nat'l Bank Bldg., Washington, D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.

BROWN PAYS THE FREIGHT

HEAVIEST FENCE MADE

All No. 9 Steel Wire. Well Galvanized. Weighs 1/2 more than most fences. 16 to 85c per rod delivered. We sell all kinds of fence wire at wholesale prices. Write for fence book showing 110 styles. The Brown Fence and Wire Co., Cleveland, Ohio.

FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 5 styles and heights of farm and poultry fence. It's free. Buy direct. Write today!

COILED SPRING FENCE CO.
Box 101 WINCHESTER, INDIANA.

COILED SPRING FENCE

Closely Woven. Can not Sag. Every wire and every twist is a brace to all other wires and twists full height of the fence. Horse-high, Bull-strong, Pig-tight. Every rod guaranteed.

30 DAYS FREE TRIAL

and sold direct to farmer, freight prepaid, at lowest factory price. Our Catalogue tells how wire is made—how it is galvanized—why some is good and some is bad. Its brimful of fence facts. You should have this information. Write for it today. Its Free.

KITSELMAN BROS.,
Box 21 MUNCIE, INDIANA

POULTRY DISEASES

25c Book Free

Conkey's book on poultry diseases contains just the information you need to keep your flock strong and healthy—and that means to **Get Paying Results**. The regular price of this valuable book is 25c, but we are offering it free for a limited time to those who will send 4 cents for postage and give us the names and addresses of two other poultry raisers. Write for it today.

THE G. E. CONKEY CO., 815 Ottawa Bldg., Cleveland, Ohio.

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers Pump, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.,
Ashland, Ohio.

ASHLAND PUMP AND HAY TOOL WORKS

You Need It.

If you have only a few chickens;
If you are at all interested in poultry;
If you are breeding for fancy points;
If you cater to the market trade;
If you are in the business on large scale, you need

Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. **AT HALF PRICE** for a short time to introduce it to readers of Gleanings. Send 25 cts. and get it a year; or if you send us \$1 for a year's subscription to Gleanings in Bee Culture we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal Dept. 14, Dayton, Ohio.

\$1.00 WILL PAY FOR TEN YEARS!

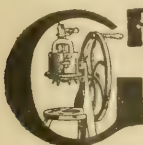
120 copies and no less than 3840 pages (size 8x 11 1/4 inches) of valuable poultry, pigeon, and pet-stock reading, costing us thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

Poultry Item, Sellersville, Bucks Co., Pennsylvania

DO YOU RAISE CHICKENS?

If so, you will find the Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cents a year. If you have poultry to sell. The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb



GREEN BONE MAKES EGGS

Lots of them, because it is rich in protein and all other egg elements. You get twice the eggs, more fertile, vigorous chicks, earlier broilers, heavier fowls, bigger profits.

MANN'S LATEST MODEL BONE CUTTER

10 Days Free Trial. No money in advance.

cuts all kinds of bone, with adhering meat and gristle, easy, fast and fine. Automatic feed, open hopper, never clogs. Cat'lg free.

F. W. MANN CO., Box 37, Milford, Mass.

A New Factory

and also a new firm name,
but in the same place with
the same management. We
have just put in a complete

Weed Process Comb Foundation Factory

of the very latest type, and
we are now ready to work
up wax for western bee-
keepers at low prices. . . .
We want several thousand
pounds of beeswax at once,
and will pay top market
price for same. Let us hear
from any one having wax
to offer.

Buck & Wilson, Augusta, Kan.

Butler County

Y
O
U

C
A
N

M
A
K
E

I
T

P
A
Y

By sending for our
forty-page catalog.
It gives full partic-
ulars about scores
of different hive-
combinations and
other supplies that
we always keep in
stock. We have
handled

ROOT'S GOODS
for twenty years.
They are the best.
Don't fail to write
us about your
wants for next
season's use.

**John Nebel & Son
Supply : Company**

**High Hill, Missouri
Montgomery : County**

MR. TEXAS BEE-KEEPER

I would like to talk to you *personally*.

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's *better* in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you supplies with the utmost promptness.

Then, too, I have installed a complete Weed-Process Foundation factory. I can turn out 500-lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when at San Antonio. You are *always* welcome. I have fitted up my office with plenty of desks and chairs, with writing material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein - San Antonio, Texas

1322 South Flores Street

Gloves for Handling Bees

Something New. Something You Want.

Our specially prepared Gloves soften the hands, and prevent and cure chapped hands. The fabric contains a preparation which prevents the gloves from becoming hard and stiff. We furnish them without armlets or sleeves for using in sweeping, gardening, or general housework, driving, or outdoor work. They are just the thing for driving in the rain, as they are absolutely waterproof. If worn at night they keep the hands soft and white. All their points of excellence can not be here enumerated, but they never fail to give the greatest satisfaction. To introduce them, we will send by mail or with other goods at the following low prices:

Bee-gloves—long arms, fleece-lined in two sizes—large for men, small for ladies.....	35 cents
Men's gauntlets, fleece lined	35 cents
Ladies' gauntlets, fleece lined.....	35 cents
Ladies' unlined for wearing at night or doing light housework.....	40 cents
Early-order discounts on bee-supplies (excepting above and a few other articles) as follows:	
6% for cash with order before November 1st	5% for cash with order before December 1st
4% January 1st	3% February 1st

If you haven't our 1906 catalog send for one and a free copy of The American Bee-keeper (50c a year).

The W. T. Falconer Manufacturing Co., Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once; as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 124 West Liberty St., Savannah, Ga.

Dadant's

Foundation

It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!
No Sagging; no Loss.
Twenty-eighth Year.
We Guarantee Satisfaction.
Wax Worked into Foundation.

Bee-supplies of All Kinds

Beeswax Wanted at all Times.
Send for Our 1906 Catalog.

Dadant & Sons, Hamilton, Ills.

Root Goods

for the West

Send for my complete catalog. Write to-day.

I have been in the business over twenty years, and carry the largest stock in the West. Many thousands of dollars' worth of goods now on hand ready for distribution.

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS. My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Jos. Nysewander, Des Moines, Iowa
565, 567 West Seventh Street

GLEANINGS IN BEE CULTURE

VOL. 34

OCT. 15, 1906

NO. 20.



"The Proof of the Pudding"—Honey as a Food.

THE A.I. ROOT CO.,
MEDINA — OHIO

BEE-KEEPERS

We carry the largest stock of goods in the Middle West. The low freight rates from

Toledo

will save you money. We will buy your HONEY and beeswax, and pay highest market price. It will pay you to correspond with us when your crop is ready to market. No shipment is too large for us. Carloads a specialty.

Queens! Queens!

We have a yard at Toledo with 100 colonies and over, which we use for queen-rearing only; besides several out-yards which we run for honey, also for extra bees and brood, and queens are mailed same day order is received.

Our 70-page Catalog

is sent free to any one asking for it. No matter whether you keep one colony or five hundred. We also handle a large line of poultry supplies, and sell eggs for hatching. Our 1906 mailing list is sent with every catalog. Don't buy until you have seen it.

Griggs Brothers

523 Monroe St. : Toledo, Ohio

European Bee-keepers!

Save Time and Expense

by sending direct all your orders and correspondence to our exclusive agent for the European continent and its colonies. . .

EMILE BONDONNEAU

142 FAUBOURG - ST. DENIS, PARIS

Prompt Service
and Satisfaction
Guaranteed. . . .

The A. I. Root Company

CENTRAL AND NORTHERN PENNSYLVANIA

Distributor of Root's Goods from the
Best Shipping - point in this State.
WHOLESALE - AND - RETAIL

I sell at catalog prices, and, with the low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also rear Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

E. E. PRESSLER, WILLIAMSPORT, PENN.

Headquarters for

Bee - Supplies.

"Root's Goods at Root's Factory Prices."

If you want to purchase bee-supplies, THE BEST MADE, order from Cincinnati, as you will save the freight charges and time it takes for goods to be shipped from Medina to Cincinnati. Cincinnati is one of the best shipping-points, particularly for the South. I keep all the time a large stock on hand and can ship promptly on receipt of order.

A Special Discount *le* *le*
le *le* *le* **on Early Orders**

Will buy or sell **HONEY** extracted or comb

If you have honey to sell describe quality or mail sample with lowest price delivered Cincinnati. If in need, state quality and quantity wanted and we will cheerfully quote you prices.

Beeswax Wanted!

We all the time pay highest market price on delivery of goods.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Markets.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firm ly attached to all four sides, the combs unsoiled by travel stain, or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

PHILADELPHIA.—Comb honey has been arriving quite freely, and the demand is quite brisk at this time. Prices seem to have an upward tendency. The outlook is for still higher prices. We would advise parties who have comb honey to ship to send it in at once and sell it while the demand is on, for September, October, and November are the big honey months. We quote: Fancy white comb, 16 to 18; No. 1, 14 to 15; amber, 12 to 14. Fancy white extracted, 8 to 9; light amber, 7 to 8. We are producers of honey, and do not handle on commission.

WM. A. SELSER,

Oct. 8. 10 Vine St., Philadelphia, Pa.

ST. LOUIS.—There is a good demand for extracted as well as comb honey. The receipts are not large, and the choice goods are sold on arrival. We quote fancy white comb at 14; No. 1, 12½ to 13; light amber, 12 to 13; dark and broken, 8 to 10. Extracted light amber, 6½; Spanish needle and white clover would command 7, but the receipts of this description are inadequate; Southern, in barrels and half-barrels, 5 to 5½. Beeswax, prime, 28½; all impure and inferior, less.

R. HARTMAN & CO.,

Oct. 8. 14 So. Second St., St. Louis, Mo.

CHICAGO.—The receipts of comb honey are quite large, and there is also a good demand for it, so that prices are well maintained at 15 to 16 for No. 1 to fancy. Any thing short of these grades is not selling freely, and ranges from 1 to 3 cts. per lb. less. Buckwheat, 12½; dark grades, 8½ to 10. Extracted white, 6½ to 7½; amber, 6 to 7; dark, 5½ to 6. Beeswax, 30.

R. A. BURNETT & CO.,

Oct. 8. 199 So. Water St., Chicago, Ill.

TOLEDO.—The market on comb honey remains firm. The demand is fair, and receipts equal to the demand. Fancy white comb honey in a retail way brings 15 and 16, with very little demand for low grades. Extracted white clover in barrels brings 7½ to 8½; cans, the same. Beeswax, 26 and 28.

Oct. 8. GRIGGS BROS., Toledo, Ohio.

INDIANAPOLIS.—Fancy and A No. 1 white comb sells for 16 to 17, and demand is good; fancy amber, 11 to 12, with slow demand; No. 1 white, 13 to 14, demand not good. Best grades of extracted honey in 60-lb. cans brings 8 to 9, and demand is good, but higher prices will retard the market; amber extracted bringing 6½. Good average beeswax sells here at \$33.00 per 100 lbs.

WALTER S. POWDER,

Oct. 8. 513 Mass. Ave., Indianapolis, Ind.

BUFFALO.—Honey is now doing extra well here, and very little arriving. Buyers are looking for choice to fancy comb. We quote you fancy white comb 15 to 16; A No. 1, 14 to 15; No. 1, 13½ to 14; No. 2, 12 to 13; buckwheat, 11 to 12. White extracted, 7 to 8; amber, 6½ to 7; dark, 5 to 5½. Beeswax, 30 to 32.

W. C. TOWNSEND,

Sept. 29. Buffalo, N. Y.

SCHENECTADY.—There is a lively demand for both comb and extracted, and stock is moving off at a great rate, and prevailing prices are firm. Fancy clover, 15 to 16; No. 1, 13 to 14; buckwheat, 11 to 12. Extracted, light, 6½ to 7½; dark, 6 to 6½. Write us before shipping.

C. MACCULLOCH,

Oct. 9. Schenectady, N. Y.

KANSAS CITY.—The demand for both comb and extracted honey is good. We quote No. 1 white comb, 24-section case, \$3.00; No. 2 amber, \$2.75. Extracted white, 6½ to 7; amber, 6. Beeswax, 25.

C. C. CLEMENS & Co.,

Oct. 9. Kansas City, Mo.

ST. PAUL.—Fancy honey, 15 cts.; No. 1 white, 14; No. 2, 11 to 12. No other goods traded for on this exchange. Dark honey not wanted.

W. H. PATTON,

Oct. 8. Sec. Bd. of Trade, St. Paul, Minn.

NEW YORK.—The demand for comb honey is very good, especially for fancy stock, and arrivals now are quite heavy. We quote fancy white at 15; No. 1, 13 to 14; No. 2, 12 to 13; buckwheat 11. Extracted in good demand and prices are somewhat firmer. We quote California white at 7½, light amber at 6½ to 7, and amber 6. Southern honey in half-bbls. in good demand and finding ready sale at from 55 to 65 cts. per gallon, according to quality. Beeswax is somewhat weaker, and 30 is about top price.

HILDBRETH & SEGELKEN,

Oct. 9. 82-86 Murray St., New York.

WANTED.—Beeswax. We are paying at this date for pure average beeswax delivered at Medina or any branch office named below, 27 cts. in cash or 30 cts. per lb. in exchange for bee-supplies, less transportation charges. We can not use old combs. Pack securely and address plainly. Be sure to send bill of lading when you make shipment, and advise us how much you send, net and gross weights. Ship to home office or nearest branch named below.

THE A. I. ROOT CO., Medina, Ohio.

Chicago, 144 East Erie St.; New York, 44 Vesey St.; Philadelphia, 10 Vine St.; Washington, 1100 Maryland Ave., S. W.

Honey and Wax Wanted and For Sale. See Classified Ads. on Page 1331.

FANCY WHITE EXTRACTED HONEY

CRATES 2-60 LB. CANS, 8c

TWO OR MORE CRATES, 7½

LARGER LOTS, WRITE FOR SPECIAL PRICES. ALL F. O. B. CINCINNATI. CASH WITH ORDER. SAMPLES 10c. TO PAY POSTAGE.

THE FRED W. MUTH CO.

No. 51 WALNUT STREET, CINCINNATI, OHIO.
SEND FOR CATALOG OF BEE SUPPLIES WITH SPECIAL DISCOUNT.

BUCKWHEAT HONEY!

Our clover and raspberry honey is all sold—went at 8 and 8½ cts., according to quantity—but we still have 6000 lbs. of buckwheat. Right here let me say that this buckwheat honey was left on the hives until it was all sealed over, and is thick, rich, and ripe—far

superior to the thin, rank stuff often found on the market. You needn't take my word for it—send for a sample. It is put up in 60-lb. cans, two in a case, and the price is 6 cts. a pound.

W. Z. HUTCHINSON, Flint, Michigan.

EVANS & TURNER, Columbus, Ohio,

are in the market for white comb honey, and especially want some fine stock from Wisconsin, Michigan, Indiana, and New York. They would also like to hear from Iowa producers. Write fully what you have; and if you care to name price, do so, stating about what time you will be ready to ship.

Chas. Israel & Brothers 486-490 Canal St., New York

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments Solicited. Established 1875.

FOR SALE.—Extracted honey, strictly pure, buckwheat, 6½c; clover mixed, 7c, in 60-lb. cans and 150-lb. kegs. This State production; best flavor.

H. R. WRIGHT,

Wholesale Commission, Albany, N. Y.

To Florida and Return, \$25.00.

THE above low rate has been placed in effect for the ROUND TRIP from CHICAGO to TAMPA, and other Florida points, to enable people from the Northwest to visit the FLORIDA STATE MID-WINTER FAIR, to be held in Tampa, Nov. 14th to 29th. Also rate of \$20.00 for the ROUND TRIP from CINCINNATI, LOUISVILLE, EVANSVILLE, CAIRO, ST. LOUIS.

This affords an excellent opportunity to examine within a small space the resources of the entire State, as well as to familiarize yourself with the attractive opportunities existing for a location in a section endowed by Nature with a most delightful climate—thus enabling work to be carried on throughout the entire year. The lands are peculiarly rich and very productive, and visitors to the Fair will see fine displays of citrus fruits and early vegetables in addition to the surprising exhibits of Florida live stock. For full information, descriptive literature, and copy of "Seaboard Magazine," address

J. W. WHITE,
General Industrial Agent, Seaboard
Air Line Railway,
Department F, Portsmouth, Virginia.

SAVE HALF YOUR FUEL

BY USING THE

Rochester Radiator

Fits any Stove or Furnace.
Guaranteed to do all we claim
or money refunded.

Write for booklet on heating homes.

Rochester Radiator Co.,
50 Farnace St., Rochester, N. Y.

Price from
\$2.00 to
\$12.00

For hard or
soft coal,
wood or gas

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

A GOLD MEDAL

at the World's Fair,
St. Louis, 1904.



**UP-TO-DATE,
STRONGEST,
COOLEST,
CLEANEST.**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

N. E. FRANCE, Plattville, Wis.

SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, I can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel is all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."

GRANT STANLEY,
Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

F. DANZENBAKER, MIAMI, FLORIDA

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"



The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.,
Ashland, Ohio.



Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

E. R. ROOT
Editor

A. I. ROOT
Editor Home Departments

H. H. ROOT
Asst. Editor

Department Editors:
DR. C. C. MILLER, **J. A. GREEN,** **PROF. A. J. COOK,** **J. E. CRANE,**
LOUIS H. SCHOLL, **G. M. DOOLITTLE,** **W. P. ROOT.**

J. T. CALVERT, Business Manager

A. L. BOYDEN, Advertising Manager

Circulation 30,000. Reaches every State and 60 foreign countries.
Established in 1873. Sixty-four pages. Semi-monthly.
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

Terms---\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.

Postage is Prepaid by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of **THE A. I. ROOT COMPANY, MEDINA, OHIO.** Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required

Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for **GLEANINGS** with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS., 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr Jones *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 5/-.*
Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publisher.

Find enclosed.....for which please send me *Gleanings in Bee Culture*.....months, and.....as per offer.....
Please continue sending *Gleanings* until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY.....STATE.....

DATE.....
If you want *Gleanings* discontinued at expiration, check here

Paroid Roofing—

Read This Trial Offer on the Roofing That Lasts the Longest.

Here's Our Offer:

BUY one lot of Paroid; open it; inspect it; apply it to your roof, and if then you are not satisfied that you have the *best* ready roofing made, send us your name and address, and we will send you a check for the full cost of the roofing, including the cost of applying it.

PAROID is the best ready roofing ever made. You can *prove* it to your own satisfaction from a sample, but a *better way* is to *use it*. All we ask is that you *try it*, and we make the way easy.

Is there *any* offer we could make fairer than that?

Could we *afford* to make such an offer if we were not *sure* that Paroid is better than other ready roofings?

It is better; we *are* sure; and this is *why*:

Four things enter into the making of a good roofing:

The *felt*; the *saturation*; the *coating*; and the *method of laying*. Paroid excels on all four points.

* * *

The *felt* is the foundation. If it is not right to start with, no treatment of any kind can make it into a good roofing.

We *know* that our felt is right because we make it in our own mills (established in 1817.)

We make it because we cannot buy a felt elsewhere *good* enough for Paroid.

Other manufacturers who buy their felt in the open market—wherever they can get it cheapest—necessarily take big chances at the very start.

We couldn't give you the money-back guaranty we do if we did not make the complete roofing under our direct supervision.

* * *

Paroid roofing is not merely *dipped* in a solution, but is *soaked* in a water proofing mixture of our own, which renders every fibre of it—through and through—absolutely water proof.

* * *

And then the *coating*. Paroid is coated on *both* sides with a *smoother*, *thicker*, *tougher* and more *flexible* coating than is on any other roofing made.

There is no room for doubt about it. You need not take our word for it. Use your own judgment. Compare Paroid with other kinds. You will find that *Paroid* is the only roofing that doesn't

break when you give it a short bend. If you can *freeze* the various samples you'll have a still better test, and you'll find Paroid the only flexible roof in a zero temperature, while others crack like an icicle. * * *

But even the best roofing must be *properly applied*.

In every roll of Paroid you will find a complete roofing kit, with a supply of *square*, *rust-proof*, *water-proof* caps. The only rust-proof cap made.

These caps are patented. You get them *only* with Paroid.

Being square, they give you larger binding surface and so hold the roof more securely.

Being water-proofed on *both* sides, they do not *rust* and *work loose* and cause a *leak*, as all other caps do, sooner or later.

* * *

And when the roof is laid, you not only have a *good* and *durable*,

but you have a *sightly* roof. Its smooth, uniform surface, makes it the best in appearance of all ready roofings.

* * *

And there you are:

The best felt for a foundation;
The best and most thorough water proofing saturation;

The best and most flexible coating;

The most *sightly* ready roofing made;

And a positive money-back guaranty.

Will you try it on these terms?

* * *

They are some of the reasons why Paroid has stood the test of time for the United States Government, for railway, factory, farm and poultry buildings.

It lasts longest. It gives best service. And we stand back of it. May we send you samples and prices?

F. W. Bird & Son, 20 Mill Street, East Walpole, Mass.
1420 Monadnock Bldg., Chicago, Ill.

Cut Out and Mail This Today.

Please mail me your book of plans for farm buildings and samples of Paroid. I enclose 4 cents for postage.

Name _____

Address _____

GENERAL CORRESPONDENCE.....	1297
Disposing of the Honey Crop	1297
Bee-keeping for Beginners	1298
An Old Bee Book	1299
Althea as a Honey-plant	1303
The Betsinger Wire-cloth Separator	1303
Swarming—the Control of it	1305
Golden Anniversary of a Veteran Bee-keeper	1306
Proof of the Value of Honey as a Food	1307
Wintering Bees	1309
Cellar Wintering	1310
Cellar Wintering of Bees	1312
NOTES OF TRAVEL	1314
OUR HOMES	1317
CONVENTION NOTICES	1319

Koeppen, Chas.	1328
Laws, W. H.	1328
Lockhart & Co., F. A.	1328
McCain, Robert B.	1329
Moore, J. P.	1328
Quirin-the-Queen-Breeder	1329
Rails, W. H.	1329
Robey, L. H.	1328
Taylor, J. W.	1329
Victor-Knolle Apiary Co.	1329
Wurth, Daniel.	1329
Classified Advertisements.	
Bees and Queens.	1330
For Sale.	1330
Honey and Wax Wanted.	1331
Honey and Wax for Sale.	1331
Help Wanted.	1330
Poultry Offers	1331
Situations Wanted.	1330
Wants and Exchange.	1331
Comb Foundation.	
Dadant & Son, back cover.	
Dittmer Gus.	1321
Fences	
Coiled Spring Fence Co.	1324
Kitselman Brothers.	1324
Honey for Sale.	
Hutchinson, W. Z.	1279
Muth, Fred W. Co.	1278
Wright, H. R.	1279
Household Specialties.	
Horne Co., Joseph.	1324
Rochester Radiator Co.	1279
Stromberg-Carlson Tel. Co.	1285

Honey-buyers.	
Israel, Charles, & Bros.....	1279
Evans & Turner	1279
Machinery	
Electric Wheel Co.....	1324
Empire Mfg. Co.....	1322
Lyons Engine Co.....	1325
Medina Concrete Co.....	1327
Myers & Bros., F. E.....	1279
Miscellaneous.	
Bird, E. W. & Son.....	1281
Prindle & Williamson.....	1322
Publishers, Agricultural-paper.	
Southern Fruit Grower.....	1324
Farmer's Call.....	1329
Poultry Supplies	
Conkey, G. E. & Co.....	1332
Humphrey.....	1332
Mann Co., F. W.....	1332
Standard Bone-cutter Co.....	1332
Publishers, Bee-journal	
Falconer Mfg. Co.....	Back Cover
Root Co., The A. I.....	1280
York & Co., Geo. W.....	1285
Publishers, Poultry-paper.	
Ohio Poultry Journal.....	1332
Poultry Gazette.....	1332
Poultry Item.....	1332
Seeds and Trees.	
Storrs & Harrison Co.....	1324
Roeh. Lewis.....	1324

ADVERTISING TALKS

BY THE AD. MAN.

ADVERTISE ALL THE TIME.

To get the fullest returns from advertising you should keep your name before your prospective customer the year round. This means running your ad. in every issue when you have been accustomed to only part—the rush season.

But you say this is expensive.

To meet this one objection to the plan, we will start a new classified department entitled "Bee-keepers' Directory," for the exclusive use of all-year-round advertisers. Under this heading we will accept suitable ads limited to 2, 3, or 4 lines at the following rates:

2 lines for 24 issues and GLEANINGS one year	\$5.00
3 " " " " " " " " " " " "	7.50
4 " " " " " " " " " " " "	10.00

Cash in advance. Ad's can be changed only during the first issue of January, April, July, and October. It is intended that only bona-fide notices offering for sale bees, queens, or bee-supplies, and offering honey or wax for sale, or "wanted," appear under this head. We reserve the right to reject or modify any ad, that is not eligible to these special rates. Specify "Bee-keepers' Directory" when sending order.

Do you know what this offer means? First, you can place your card before GLEANINGS readers at less than half our flat rate; 2. You receive GLEANINGS one year free; 3. Your ad. will appear in nearly a million separate copies of GLEANINGS. Just think of these opportunities to reach your prospective customers!

This column is distinctly for the benefit of our readers. It is maintained at a loss to us, as we could fill the space with matter at our regular rate.

This opportunity will doubtless be quickly grasped by queen-rearers and supply-dealers whose advertising appropriations are limited, and who desire best returns from a small investment; also by large advertisers to supplement their regular advertisements and to place their names in a department sure to be scanned by the prospective buyer.

Did you notice the advertisement of the *Youth's Companion* appearing on page 1326? It is hardly necessary to introduce this paper to the bulk of our readers—they have all heard of it, and most have read it one time or another.

But are you a subscriber now? Perhaps you have children in your family to whom it would prove a source of unending delight. It's good reading for every one. Its pages next year will include stories from the pens of the best writers in the world. Write for announcements or a sample copy. Better still, subscribe. *Mention Gleanings when you write.*

CIRCULATION OF GLEANINGS.

A paper for bee-keepers must have bee-keepers for readers. Conceded.

And these gentlemen are *exclusively* bee-keepers? No!

The percentage of exclusive bee-keepers is very small among those who keep bees. It is safe to say that 90 per cent of GLEANINGS' readers are directly interested in farming. They live on farms.

GLEANINGS is a technical paper. It does not appeal strongly to children or the hired help. It reaches the head of the home, and it comes very close to him because of its special character.

See what a splendid medium GLEANINGS is for the general advertisers catering to farmers' necessities. It is doubtless as efficient as a *general farm* paper having a much larger circulation. We have had our advertisers tell us so—and they know.

LAST CALL.

Our *third photo contest* is scheduled to close November 1. As yet the entries have been very light; and if you have a picture of any value you are almost certain of winning one of our prizes. Look over the lot of pictures you have. May be you have one—for instance, a family group excelling those appearing in recent numbers. We should be glad to get it. There are many views around every bee-keeper's home that will interest GLEANINGS' readers. If you haven't had them taken yet, don't let this beautiful October weather slip by without doing so, and enter them in our contest before too late. See particulars in ad. on page 1323.

The attention of our readers is particularly called to the advertisement of the Seaboard Air Line R. R. on page 1279 of this issue. Our Philadelphia manager lately called our attention to the importance of the fair at Tampa, Fla., suggesting that we make a display of our goods there. While we were not able to arrange for this, we are very glad to bring the fair to the attention of our readers, as it will undoubtedly afford an opportunity to judge of the resources of Florida very much better than can be obtained in any other way. The great attractions of the fair, coupled with the exceptionally low rates made by the Seaboard Air Line R. R., will interest a good many of our readers who are thinking of visiting Florida.

CERTIFICATE OF MERIT.

GLEANINGS was awarded a certificate of merit by the Worcester County, Mass., Bee-keepers' Association at their annual meeting, Sept. 24—26, 1906. It is only one of the many ways in which our subscribers and friends show their regards for the magazine we are making. We are trying to make GLEANINGS the best magazine of its kind published. It is a pleasure to know when we are in a measure succeeding.

CLASSIFIED ADVERTISEMENTS.

Notice the arrangement of our classified columns. We are going to make this one of the most interesting and profitable departments in the paper.

ADVERTISING - RATES

Twenty cents per agate line flat.
Classified columns—bonafide exchange or want ads.—15c a line, others 20c a line.
Discount for cash in advance, 5%; if paid in 10 days, 2%.
No objectionable advertising accepted.
Forms close 10th and 25th of each month.
Guaranteed circulation per issue, 30,000.

GLEANINGS IN BEE CULTURE
MEDINA, OHIO

Seasonable Goods!

Non-drip Cases

The kind we call "Root Quality"—none as good.

Glass and Tin Packages

for extracted honey. A neat package means a fancy price.

Honey-extractors

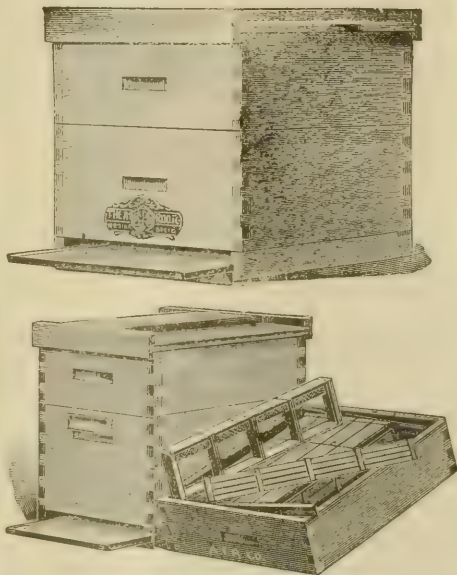
The Cowan No. 15 will give you years of honest service. You need one.

During this month (October) we are offering a special discount of six (6) per cent for cash orders for Bee-supplies for next season's use. After November 1st the discount will be five per cent.

**We Have the
Largest Stock of Bee-supplies in Michigan
and all ROOT QUALITY**

**M. H. Hunt & Son, Bell Branch, Michigan
Wayne County**

ROOT'S HIVES!



Look Good.

Are Good.

Good Results.

Do you know a good thing?
Do you use a good thing?
Our catalog describes them.
Six per cent discount during
October.

**The A. I. Root Co.
Syracuse, N. Y.**

10 WEEKS 10c COPIES FOR

We want every reader of GLEANINGS IN BEE-CULTURE to get acquainted with the

Weekly American Bee Journal

Certainly it would pay any bee-keeper to read it regularly. And in order that those who are not now getting it may do so, we want the opportunity to send it for 10 weeks for only 10 cents (stamps or silver.) That would be at least 160 pages of bee literature for just one dime. We offer the last 10 numbers of 1906 for 10 cents as a "trial trip." You will want it for all of 1907 after the 10 weeks, we are sure.

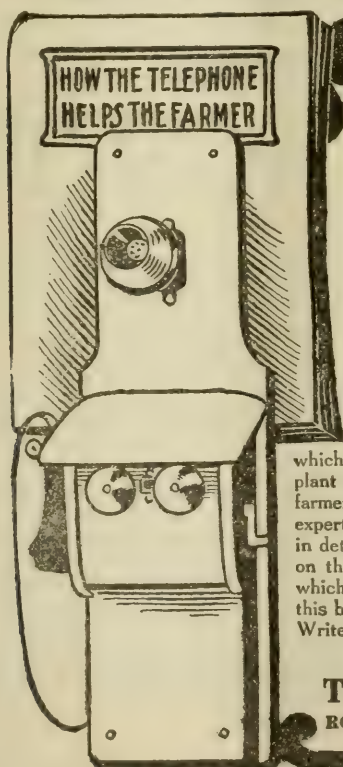
SOME OTHER SPECIAL OFFERS TO NEW SUBSCRIBERS

The Weekly American Bee Journal from the time your new subscription is received to the end of 1907—and your choice of one of the following:

1. With Doolittle's book, "Scientific Queen-Rearing" (bound in leatherette) both for\$1 25
2. With Dr. Miller's "Forty Years Among the Bees," both for 1 80
3. With Dadant's "Langstroth on the Honey-Bee," both for..... 2 00
4. With Root's "A B C of Bee-Culture," both for..... 2 00
5. With a Standard-Bred Italian Queen, both for..... 1.50
(Queen mailed either before Nov. 1, 1906, or in May or June, 1907.)
6. With Gold Fountain Pen, both for..... 2 00
7. With Novelty Pocket Knife (your name and address on one side, and Queen, Worker and Drone on the other side) 2.00

A sample copy of the Weekly American Bee Journal free. Ask for it. Address all orders to

GEORGE W. YORK & CO., 334 Dearborn St., Chicago, Ill.



You Want This Free Book

Of course you need a telephone. You need it for business, for the family, in sickness, in case of fire, or in danger of any kind. The question is—how can you get one on your farm? This little book which we send free the same day we get your request answers the question perfectly and tells you how to get the greatest convenience of the twentieth century so easily and cheaply that it becomes a positive saving and a money-maker, instead of an expense. It tells all about

Stromberg-Carlson Telephones

which are made in the largest independent telephone plant in the world. These are the best instruments for farmers' lines, because they have been constructed by experts for this particular purpose. They are described in detail in the booklet, together with full information on the organization of farmers' lines, the manner in which they are built, cost of material, etc. You want this book, F36 "How the Telephone Helps the Farmer." Write for it today.

**Stromberg-Carlson
Telephone Mfg. Company**
ROCHESTER, N. Y. CHICAGO, ILL.

HAVE YOU READ BEE PRANKS?

This is a pamphlet compiled from newspaper clippings containing many laughable and wonderful anecdotes which have actually happened in connection with bees. . . .

The book also contains, in nutshell form, what the great poets and other writers have to say about these interesting little insects. . . .

WE GIVE IT FREE FOR THE NAMES AND ADDRESSES OF FIVE BEE-KEEPERS if sent direct to G. B. LEWIS COMPANY, WATERTOWN, WIS., U. S. A.

WE WANT AGENTS FOR THE NEW ENGLAND AND SOUTHERN STATES EAST OF THE MISSISSIPPI

To buy our goods outright by the carload.
Liberal inducements and exclusive territory.

G. B. Lewis Co., Watertown, Wis.
Bee-keepers' Supplies.

GLEANINGS

IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

OCT. 15, 1906.

No 20



IN REPLY to Geo. W. Deyo's question as to poor wax-makers not entering the supers, tell him I agree with the editor.

THAT DOOLITTLE shade-board, p. 1253, is a fine thing. I wonder, however, if nearly the same results can not be obtained with less expense and trouble by the right kind of double covers.

IN EUROPE there is general complaint of a bad year. [The year has been bad everywhere except in localities. Considerable honey was produced in York State, but apparently it was disposed of locally, for there was not enough to overflow into the great markets.—Ed.]

PLEASE TELL Dr. Aulick, p. 1254, that we have no trouble with $\frac{3}{8}$ -in. bottom starters toppling over (we use thin, not extra thin, foundation), and there has never yet been a case of burnt fingers in putting them in with the regular Daisy fastener as rapidly as they can be handled.

IN SPRING "a whole lot of dirt, dead bees, and often mold and fifth," are not generally found on my bottom-boards, especially since the furnace is in the cellar. Some of them are just as clean as in the summer; the others are cleaned out just as soon as set down outdoors in a very short time by scraping loose and tipping up. Say, Bro. Doolittle, weren't you just a bit carried away by poetic frenzy when you talked about stimulating brood-rearing by the "sweet summer side" of a board?

DEUTSCHE IMKER advises a correspondent, who complains of brittle foundation, to mix with his wax one per cent of honey, stirring thoroughly before pouring into the mold. The bees show special preference for such foundation. [There may be something in this, but I doubt it.—Ed.]

"THE PIPING sound is generally attributed to young queens anxious to escape from their cells,"—*Irish Bee Journal*, p. 51. There is some confusion as to terms. Better say the piping is made by the free virgin, and the quahking by the virgins still in their cells. [You are correct. But sometimes correspondents and editors alike mix the terms.—Ed.]

HOW MANY can tell the age of a larva by looking at it in the cell? When just hatched it lies curved in the bottom of the cell, a straight line from head to tail, being a little more than $\frac{1}{4}$ as long as the diameter of the cell. At one day old it is still in the form of a semicircle, but has grown so that the line from head to tail is a little more than $\frac{1}{2}$ the diameter of cell. At two days old it lies head touching tail, forming a complete circle whose diameter is nearly $\frac{1}{2}$ the diameter of the cell. At three days old it occupies $\frac{3}{4}$ of cell-diameter. At four days old it fills the entire diameter of the cell. These important data I got from Dr. E. F. Phillips.

R. HAWORTH asks where I got that "fireless stove." Didn't get it—made it. Any one can make one. Take an old trunk or box; paste paper over any cracks, and it's not a bad plan to paper it all over; pack in hay or excelsior, three or four inches deep in the bottom; set in the vessel or vessels to be used, and pack in solidly all around them hay or excelsior, packing clear to the top of the vessels. Now make a cushion the size of your box, stuffed solid to lay over the vessels to fill completely the rest of your box. The cushion should be at least three inches thick—the thicker the better. Over all must be a

tight-fitting cover. The material to be cooked must be brought to the boil and kept there until entirely heated through, then quickly put into the box and covered up. Oatmeal put in at night will be hot in the morning. At dinner to-day I ate chicken, cooked in the hay-box, that was delicious. It was put in about 8 o'clock in the morning, taken out just before dinner, floured and browned in butter in the frying-pan. [From the number of favorable reports I have seen of this fireless stove, I should say it was an unqualified success, and a great fuel-saver. We are planning to have one put in our house.—Ed.]

AN INTERESTING SIGHT I saw this morning, Sept. 21. A bee that appeared to be quite young was busily digging away at a dandelion blossom; but its rather deliberate movement attracted my attention. At first I thought it might be a sick bee; but looking closely at it I saw that it was using its tongue all the time. I touched it with my finger, but it paid no attention to it. I pushed it around two or three times; but as soon as I left it, it began digging away again. After watching it about a minute I laid my watch on the ground to time it. It seemed to be cleaning away the pollen a little; but I could see nothing accumulating in its pollen-baskets. After 14 minutes it flew away. Dandelions were rather plentiful; and, timing other bees, I found they spent from 8 to 30 seconds on a flower—a longer time than I had supposed. Was that the first blossom my young bee had ever seen? and did it suppose none was to be found elsewhere?

I DON'T WANT to injure the man who invented the reversible bottom-board; but in comparing it with bottom-racks I think Bro. Doolittle omits some points, p. 1234. With the rack, two or three times as much airspace is allowed under the bottom-bars, and I count this of so much importance that it would settle me in favor of the rack if there were no other advantage. If I understand him rightly, Bro. Doolittle favors reversing because it obliges him to heft the hives "by which we *know* which require feeding if any do." Why, bless your heart, Bro. D., can't I heft it just as well with the bottom-board on, lifting it only once instead of your twice, saving the drawing and nailing of staples and adjusting of hive on bottom-board? But, really, I count depending on hefting *alone* a very slipshod way of doing things. You can't trust it within several pounds. A hive is a good deal heavier when you're tired than when you're fresh. I don't generally raise the hive when I heft it. If I pull enough to know that it feels as if it were nailed to the ground, and feel sure that it is away beyond the danger-point as to weight, then nothing further is needed. But if there is any sort of question about it, then it must be actually weighed. The scales may show it 5 pounds over the necessary weight; but hefting will not tell me *for sure* whether it is over or under. [We do not depend on "hefting." Before putting the bees up final-

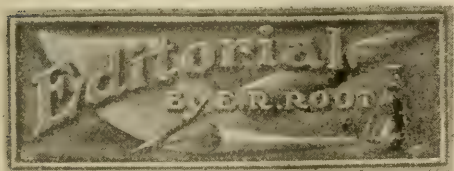
ly we examine every comb, then mark on the record the amount of feed, if any, that will be required to give the necessary stores.—Ed.]

I AM HOPEFUL that Mr. Wardell has given us the true secret of failure when putting weak colonies over strong ones, p. 1229. It looks reasonable that allowing the weak colony to remain over the strong one some time before any intermingling of bees would be conducive to good fellowship, for the same reason that a strange queen is caged on introduction. I have puzzled no little over that sentence at the top of the page which tells of partly lifting the cover, and have come to the conclusion that the semicolon after "partly" has no business there, allowing us to lift entirely the cover which was partly sealed to the excluder. Why would it not make a still surer thing to have wire cloth between the two colonies for two or more days in advance? or, perhaps, combine the plan for uniting that originated in this locality? Put a piece of heavy manilla paper under the excluder, having in it a hole large enough for one bee to pass. [You are right. The semicolon should not have been there. It was not in the copy, and after it crept into the type it was marked out, but got overlooked.]

Your suggestion of putting some sort of barrier between the upper and lower story is all right. It occurred to me that perhaps it might be best in the case of some bees, at least, to put a wire-cloth screen between the upper and lower story for a couple of days, then replace with perforated zinc. This would prevent the bees from getting together too soon.—Ed.]

ANOTHER "if" might well be added in that Cuban discussion, page 1232. "If" it turns out that Cubans can send in duty-free honey at prices with which we can not compete, what then? Well, if they can, let 'em. Bee-keepers are not the only people in the world; and if it will be better for the country at large to import its honey than to produce it, we bee-keepers can make a living some other way. But I have no real fear that I should get a cent less for honey if Cuba should become one of us. Besides, Cuba is not going to be annexed. [We do not need to be afraid of that last "if," even should annexation become an accomplished fact. The poor seasons that Cuba has been having for two or three years back have put bee-keeping in her borders in a decidedly bad way. Thousands of colonies have died out from neglect or starvation; disease has killed other thousands, and it will be a long time before the bee business recovers itself in Cuba. The time was when there had not been a break in the good seasons for many years. If Cuba, like California, is to have only now and then a good year she will never be able to break the market in our great cities any more than California has been able to do in its good years. When the Golden State does have a good season she is able to produce honey as cheaply as Cuba, and de-

liver it in Chicago for less money than Cuba could deliver the same grade of honey, even with the duty off. But late reports indicate that the administration is decidedly against annexation. The Cubans themselves do not want it, and Uncle Sam is apparently not in haste to assume new burdens in addition to those he already has.—ED.]



EDITOR YORK, of the *American Bee Journal*, is getting up a special car of bee-keepers to go to San Antonio, Texas, leaving Chicago November 6th, arriving in ample time to attend the convention. Those interested would do well to write Mr. York at once and make the necessary arrangements for transportation.

SOME new and special departments, as well as some special articles, will appear in the next few months. If GLEANINGS has been indispensable to our 30,000 readers, we feel sure that, during the next few months, it will contain some of the best matter that was ever published. Our subscription-list continues to grow apace—such a steady and satisfactory growth that we feel warranted in putting in these columns the very best matter that can be obtained, regardless of cost.

If you have neglected to feed your bees, avoid giving them feed in cool weather during the day. If the weather is too chilly for the bees to venture out, it is a sad mistake to force them out into the open air by giving them a big feed during daylight hours. The feed should be given at night, or at least when it is so dark that no bees will rush out. If feeding is to be done during the day, let it be practiced when the atmosphere is warm, otherwise there will be a tremendous loss of bees that fly out and become chilly, unable to get back.

CUBAN HONEY.

It begins to appear now that President Roosevelt is decidedly against the annexation of Cuba, and Congress will probably take the same view. Whether annexation would reduce the price of amber and dark honey in the United States on account of the cheaper Cuban honey that would be imported can not now be determined. But as annexation probably will not come, there is no use in crossing the bridge before we get to it.

HONEY AS A FOOD—THE PROOF OF THE PUDDING.

In this issue we are able to present two quite notable pictures of family groups—one of I. R. Good, so well known to our older readers, and his family, as shown on p. 1307. The other picture shows Mr. Wilson Strock and his family on the front cover page. Both families are large users of honey. Mr. Strock says his children always have all the honey they wish to eat; that the whole twelve are enjoying good health, and that the last visit of the doctor was six years ago when the youngest came to the household. But honey alone is not entirely responsible for this excellent showing. No tobacco or intoxicants are used by any of the family, all of whom meet daily around the family altar.

But these two families that we present in this issue are by no means an exception. There are hundreds of other families just like them, and just as good looking, among the subscribers of GLEANINGS. We feel proud of our greater family of bee-keepers; and while there may be some black sheep among them they are few and far between.

Nature study, getting close to the things that God has made, can not help making all such students lovers of that great Creator who made every thing so perfect. No wonder bee-keepers and their families are such nice people.

THE NATIONAL PURE-FOOD LAW AND ITS EFFECT ON BEE CULTURE.

This is already beginning to have its effect, as will be evidenced by a copy of a letter from a large wholesale grocery concern in a nearby city which we here give, but whose name and address we omit for obvious reasons:

Gentlemen:—We are writing you again as regards the purity of the strained honey which we are receiving from you; that is, while we have no doubt as to its purity, still, in view of the new food law which soon goes into effect, some of our customers are demanding of us a guarantee of purity, and we, of course, have to give it; but we should feel easier if you would write us a warranty also.

You can see that buyers over the country generally (for this is only a sample of what we are now getting) are going to be extraordinarily careful as to what they take on. The national pure-food law (the one referred to in the letter) in connection with the laws existing in the various States, is going to make a misbranded honey, or an adulterated honey not properly labeled, a scarce article. The risk of violation is too great to take any chances. This ought to have the effect of stiffening the market during seasons of scarcity. You will note by comparing our Honey Column that the honey market is getting to be much firmer.

We furnish a warranty? Of course, and we were glad to do so in the case above mentioned. We don't buy except of reputable producers, and it would behoove all others to be equally cautious. In the meantime the glucose-mixers are "hunting their holes and pulling the holes in after them." 'Tis

well. Possibly there will be a millennium in beedom, even in our day. We shall see.

THE MEETING OF FOUL-BROOD INSPECTORS IN SAN ANTONIO, TEXAS, NOV. 12.

ONE of the most notable meetings ever held in the interests of bee culture will be that immediately following the big National convention at San Antonio. I refer to the meeting of the foul-brood inspectors, to be held Nov. 12. A provisional program is given elsewhere in this issue under the head of Convention Notices.

In view of the fact that foul brood and black brood are on the increase in many sections of the country, this will be a very important meeting. Dr. E. F. Phillips, acting in charge of apiculture, of the United States Department of Agriculture, will be present at that meeting; so will also Dr. G. F. White, bacteriologist, who has been studying bee diseases in the Department. Besides these two there will be a number of foul-brood inspectors from the various States.

The ravages of black brood and foul brood will be considered from every point of view, and doubtless plans will be formulated, looking not only toward better legislation, but the enactment of laws in those States where there is no protection for the bee-keeping interests.

THE BIG NATIONAL CONVENTION AT SAN ANTONIO, TEXAS.

SECRETARY W. Z. HUTCHINSON sends us the following letter from Udo Toepperwein regarding the National Bee-keepers' convention soon to be held in San Antonio, and accommodations that will be offered:

We have made arrangements for the National, Nov. 8, 9, 10; have selected the Market Hall in this city to hold the convention. This is a very good hall. It will seat 1000 people. We have selected the Grand Central Hotel as headquarters for the bee-keepers. These people guarantee to accommodate 50 bee-keepers, and think they can accommodate 100. For those they can not accommodate they will find nice rooming-places in the neighborhood of the hotel. In this way all bee-keepers can have a chance to stay not far from the convention hall. The hotel has 100 rooms, all very fine, and furnished nicely. It is a brand-new hotel, and we have secured special rates for bee-keepers at 50 cts. a berth and 25 cts. a meal. The restaurant is separate from the hotel, but all under the same management. I believe that the bee-keepers will be highly pleased.

We have also planned a trolley ride and a Mexican supper, and the San Antonio people will elect the sweetest lady between 16 and 20 to be queen of the convention, and this lady will be introduced to the bee-keepers, and presented with a handsome gold watch on the stage at the fairgrounds.

Thursday, Nov. 8, is bee-keepers' day at the fair, and advertised that way by the Fair Association. I believe it would be a good idea to go ahead and advertise the convention, so that we shall have a good attendance.

The Grand Central Hotel, which is to be headquarters for bee-keepers, is only one block from the I. G. & N. passenger station, so it would be well to mention that bee-keepers had better buy their tickets so as to arrive over that road, then they will have only one block to walk to be at home. While all of the roads connect with the other depots, and pass by the hotel, yet it is more convenient simply to step off and walk one block.

UDO TOEPPERWEIN.

San Antonio, Texas, Sept. 20, 1906.

The Texas people, as I know from personal experience, are a hospitable set. They

will doubtless entertain on a scale that was never attempted before. It will be a grand time for the bee-keepers of the North to see a part of the sunny South as typified in some of the best bee country in the world. Then this great State is so broad that it has room for all—no need of bee-keepers encroaching on the territory of another. While Texas has had a poor season, or two of them, in fact, her honey resources rank the highest of any of the States, taking one year with another. The United States census report places the State in the lead, and all other evidence puts it there also. If there is any bee-keeper who is in ill health, and must make a change, let him go to Texas and see for himself the great people located there.

OUR CANADIAN DEPARTMENT.

OUR readers will have noticed that in the last issue we introduced a Canadian Department, the same being conducted by Mr. R. F. Holtermann, of Brantford, Canada. Mr. H. needs almost no introduction to our readers. For a number of years he edited the *Canadian Bee Journal*, but resigned his position to go into evangelistic work. Then he took up bee-keeping, and is now one of the most extensive honey-producers in Canada, and, I might say, in all North America.

He is peculiarly well fitted for the position of a department editor. In the first place, he has been a bee-keeper in a large way for many years; has traveled over Ontario as a lecturer on bees; was the experimenter for the Ontario experiment station; and during the time that he was engaged in that work he gathered a good deal of valuable knowledge concerning our pursuit. In addition to all this he has been keeping bees for the money there is in them, and has made it too. This necessarily accentuates the practical side of the man, and consequently his writings will have the value of both the scientific and the practical, based on the knowledge gained from a long and varied experience, and not on that gained from a few colonies kept only for experimental purposes. GLEANINGS, therefore, believes it is fortunate in securing for its Canadian readers, as well as those in the United States, as a member of our editorial staff a man so well fitted for the position.

ARE BEES REFLEX MACHINES?

WE are glad to announce to our readers that we have secured the translation of an exceptionally valuable paper by Dr. H. von Buttel-Reepen, a German scientist and a bee-keeper, on the subject, "Are Bees Reflex Machines?" Nothing published since the days of Huber goes more closely into the habits of bees, and explains *why* they do certain things, than this work. While the title, "Are Bees Reflex Machines?" might suggest a complicated scientific discussion, yet I am glad to say that it is one of the most interesting discussions on bee-life, and some of the varied phenomena connected with their movements, that has ever been

published. It explains satisfactorily many of the questions that baffle some of our best authorities.

Dr. E. F. Phillips, of the United States Department of Agriculture, in writing about it says that he considers it "one of the best scientific papers on bees that has appeared in recent years," and that "it combines as do few papers the results of both scientific and practical work."

The author, Dr. H. von Buttel-Reepen, is at the Zoological Institute, Oldenburg, i. Gr., Germany. He is President of the Naturwissenschaftlichenverein (Natural Science Union), of Oldenburg; President of the Bienenwirtschaftlicher Centralverein für das Herzogtum Oldenburg (Central Apicultural Union for the Duchy of Oldenburg); Honorary President of the Imkerverein (Bee-keepers' Union), Oldenburg; honorary member of the Bienenwirtschaftlicher Centralverein für die Provinz Hannover (Central Apicultural Union for the Province of Hannover), etc. From this it will be seen that he is in very close touch with the practical bee-keepers of Germany. He is also one of the co-editors of a "Lehrbuch der Bienenzucht" (Guide-book in Apiculture). He is also the author of a large number of scientific papers of great value.

The paper has been translated by Miss Mary H. Geisler, of Philadelphia, Pa., and the translation has been gone over by Dr. E. F. Phillips, of the United States Department of Agriculture. In addition to this the entire English translation has been examined by the author, Dr. von Buttel-Reepen, who has made some corrections in the translation, and has also added considerable to what appeared in the German editions, thus bringing the paper right down to date.

The table of contents indicates an exceedingly interesting array of subjects to be discussed.

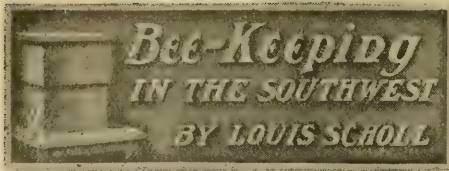
The Hive Odor and the Reactions Resulting from it.
Modification of Reaction toward the Hive Odor.
The Swarming-out of a Queenless Colony.
Intensifying the Reaction.
Overcoming the Reaction toward Hive Odor.
The Odor of the Queen.
The Brood Odor.
The Indifferent Odor of Young Bees.
Failure of the Hive-odor Reactions in Queens and Drones.
Abnormal Hive Odor.
The Means of Communication in Bees.
Investigations with Colonies from which the Queens are taken.
Behavior of a Queenless Swarm.
Disregard of a Queen in Open Air.
Hearing Capacity and Sensations of Sound present.
Experiments on Swarms.
The Infecting Influence of the Swarm-tone.
The Enticing Note of Bees.
The "Teeting" and "Quacking" of a Queen.
The Queen's Tone of Fear.
Memory of Place in Bees.
The "Paths" of Bees and their Direction.
Disappearance of the Memory for Location through Narcotization.
The Box Experiment.
The Loss of Memory for Location through Swarm Dizziness, etc.
Association of Impressions.
Memory for the Feeding-place in the Hive.
Conduct of Bees in the Buckwheat Season.
Are Bees Attracted by the Color of Flowers or by the Nectar?
Place Perception in the Queen.
Memory for Locality in Scouting Bees.

The Eyes of Bees.
The Flight of Orientation.
The Finding of the Hive through the Senses of Sight and Smell.
Bethe's Tree Experiment.
Special Capacity for Orientation in Bees.
The Influence of Weather Conditions on the Sense of Sight, therefore on the Ability to Orient.
Influence of Color on Bees.
Some Further Contributions to the Natural History.
The Flight of Bees into a Room.
The Behavior of Robbing Bees.
The Origin of Hostile Conduct.
The Vanishing of Instincts with the Decrease in the Strength of a Colony.
Reactions toward Flight.
The Formation of the Honey-comb.
The Play Instinct in Bees.

USING TWIN NUCLEUS HIVES, TWO-STORY, FOR GETTING HONEY FOR TABLE USE, ETC.

ON page 1107 Dr. Miller makes two "jabs" at his old friend A. I. Root. Now, doctor, my motive in playing with a toy hive, as you call it, was to see how much could be done with them by women, children, and old people in the way of getting honey for the table, as well as enjoyment and amusement. As I grow older I get impatient with complicated unwieldy things. A big hive with supers, etc., is too much; but this toy hive as I used it in Northern Michigan has nothing about it but a hive-body and frames; and I suggested that, for a limited amount of comb honey for use on the table, we could dispense with sections entirely and let the bees put the surplus in the frames in the upper story. The plan worked so well that on several occasions when my two boys expressed a wish for some honey I would pick up a plate and a knife, and go out and get it while they were seated at the table. I suppose we could put in some foundation or foundation starters where we cut out the chunk of honey put on the plate; but if we expect to cut it right out again as soon as the bees get it full, what difference does it make, except that they would get along faster with foundation? and even if they should build drone comb in these little frames in the upper story, provided such comb were cut out *again* for the table when capped, would that do any harm? and is not drone comb really better in the sections than worker comb? There is less wax for the amount of honey contained. By the way, I got results so quickly from the bees in those little hives I rather think that, if I were to stay only a month in one locality, if in a month when honey was coming in, I could start a little hive and get honey for the table, and at the same time have the most attractive thing in the way of a curiosity for the juveniles of any thing that can be gotten up. Now, doctor, you had better get some twin hives and then invite the little folks of your Sunday-school to come over and see them, and see how easily they can be operated with a race of gentle bees.

*By the way, doctor, we still make and sell drone foundation purposely for section boxes, and we have quite a few customers who insist on having the drone.



THE NATIONAL COMING TO TEXAS.

The National is now coming to Texas.

Oh! it was tried to attract their attention,
But Texas was so far away

We didn't have the convention.

Then 'twas promised for nineteen-five;

But did they come to Texas? Nay!

For a yellow-fever scare was on,

Although yellow jack was 500 miles away.

But the National's now coming to Texas,

For it has been mentioned loud,

And the Texans are making preparations

For taking good care of the crowd.

A lengthy program has been made,

A day at the fair for those who wish,

And for the "tender feet" will be prepared

A supper of many a Mexican dish.

There will be busy sessions too,

And then a "busy-bee" trolley ride;

Speaking, and stereopticon views,

And many other things besides.

Yes, the National is coming to Texas,

And it's hoped for a great big meet;

For the Texans welcome you, brethren,

With a welcome that's hard to beat.

Broomweed (*Gutierrezia Texana*) is in bloom in most parts of the State where rains prevailed during the summer months. In some localities the lack of rain caused the broomweed to dry up, although there was a good stand in the spring. This plant furnishes a good amount of honey in the late fall months, blooming from September until frost during favorable seasons. The bees store up from it for winter a golden honey, but strong-flavored, sometimes tasting quite bitter.

Fall increase has been practiced by me in preference to any other, although some increase is made in the spring when desired. But during the broomweed flow in September or October it's necessary to take out only one of the shallow sections of my divisible-brood-chamber hives containing the old queen and brood, place it with bottom and top on a new stand, and add an empty shallow extracting-super with empty or partly drawn combs over the lower section. Then stuff the entrance with moss, green weeds, or grass, to hold the old bees for a few days. On the old stand leave the rest of the sections with brood, and introduce a laying queen. If only one section remains on the old stand, place a shallow extracting-super with empty or partly drawn combs over it also as the other. Try it.

A short crop in Texas for 1906. Bountiful rains helped to improve conditions in the

late summer and fall. Bees in North Texas had to be fed for weeks until a light flow from mesquite in June relieved them. Other portions of the State where mesquite prevails have fared a little better, while bees outside of mesquite range, and without any other source, were starving. Horsemint yielded and helped out pretty well where there was a stand this year, and even in some localities rains during its bloom cut that crop short. Bees have been working on cotton since July; but the Mexican cotton-boll weevil cuts this source off about August 1, as the increased numbers, puncturing the "squares" or buds of the cotton-plant, causes them to drop off before they develop far enough to secrete nectar. Broomweed is now in bloom in most localities, and bees are storing up for winter pretty well so that not very much feeding will have to be done. All in all, however, the crop is short for this State.

Reports from the Southeastern States are to the effect that the honey crop has been good for that section of the country—"the best in years" in some localities. Georgia has had a favorable season, from reports that were sent me from correspondents in that State. Several localities in other South Atlantic States were reported from very favorably. The Western States fared less favorably. New Mexico prospects were good; but grasshoppers were numerous in some localities. For Arizona, prospects were fair only; Nevada not very good, while Utah reports were for fair and very good prospects. As a whole, the South has a scant supply, and honey commands a fair price. Texas market quotations are one cent higher at present than last season, and the demand for honey is good.

In connection with the above it will be well to take into consideration the fact that there was also a short supply of fruits and other materials for preserving purposes in many localities, which generally indicates an increased demand for honey and syrups. Some honey is being shipped into Texas from other Western States, mostly extracted.

PREPARATIONS TO ENTERTAIN THE NATIONAL AT SAN ANTONIO.

The committee on arrangements of the Texas Bee-keepers' Association recently met in San Antonio for the purpose of making plans for the entertainment of the National Bee-keepers' Convention, November 8, 9, 10, during the International Fair. Those present were Prof. H. P. Atwater, Industrial Agent of the Southern Pacific; Judge I. M. Pascal, of San Antonio; W. O. Victor, President Texas Bee-keepers' Association; Udo Toepperwein, its Vice-president; Edward W. Knox, President Texas Nurserymen's Association, while Louis H. Scholl, Secretary-Treasurer of the Texas Bee-keepers' Association, being still confined to his bed in Santa Rosa Hospital, in San Antonio, was called upon by a special committee for his advice

and suggestions concerning the matter of entertaining the National.

Lengthy discussions took place, and a partial program was arranged, which, however, will be sent to the General Manager of the National Association to be further considered and completed. The plan as suggested, subject to change or rearrangement, is about as follows:

FIRST DAY, NOV. 8, A. M.

Address of welcome by President of Texas Bee-keepers' Association.

Address of welcome to San Antonio.

General program. Routine business.

NOON.

The afternoon on the fairgrounds, on account of "bee-keepers' day" at the fair.

SECOND DAY, NOV. 9, A. M.

Morning and afternoon sessions; 4 P. M., free trolley ride for bee-keepers; 6 to 8 P. M., Mexican supper served by the Texas Bee-keepers' Association; 8 P. M., evening session, including an address by Judge Pascal, on "The Bee-keeping Resources of Texas."

THIRD DAY, NOV. 10.

General program. Adjournment.

There were several other suggestions and matters brought up for discussion relative to making the entertainment a creditable one; and as soon as the program is completed it will be given in its entirety for the benefit of the readers. It will be noted that the subjects for discussion have not been inserted yet in the above brief outline.

One day preceding the convention there will be a foul-brood inspectors' meeting.

SHAKING BEES OFF COMBS.

Quite numerous have been the discussions of late about the handling of frames when shaking bees off combs. Editor Hutchison, in *Bee-keepers' Review*, wants all wood frames with thick long top-bars, or frames with "long ears" as he calls them, to allow for a good hold when shaking bees. Dr. Miller has wide flat-top-bar projections that allow finger-room for two fingers below; and Editor Root takes hold of the frames by the top-bars inside of the end-bars, and others have still other ways. My attention was first called to this in one of Mr. Doolittle's articles several months ago, with an illustration showing how he takes hold of the ends of the top-bars, as shown in Fig. 1. This method was used by myself for a number of years; but the accidents connected therewith, as shown in the drawing, turned me toward something better. Too many heavy combs would go down with the bees; and this with both Hoffman and the old-style all-wood frames. In the former the ends would split off if the grain of the wood ran in that direction, and with the latter the ends would break off at the intersection of the top and end bars. Then there were the shortened staple-spaced ends of the top-bars of the latter Hoffman frames. A good hold could not

be had on them, as the ends were so short in the first place; the staple underneath these was in the way of the fingers, and to this

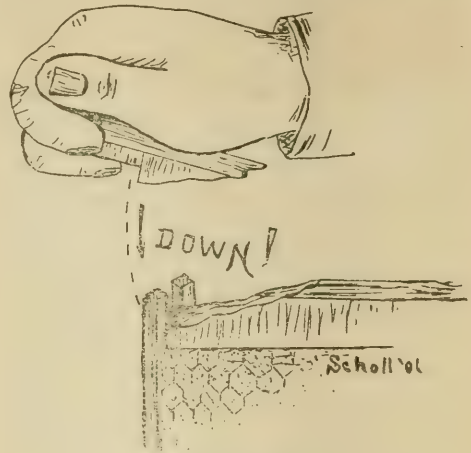


FIG. 1.—THE OTHER FELLOW'S WAY.

could be added the danger of the ends splitting off.

Mr. E. R. Root partly solves the problem by taking an inside hold; but this was tried

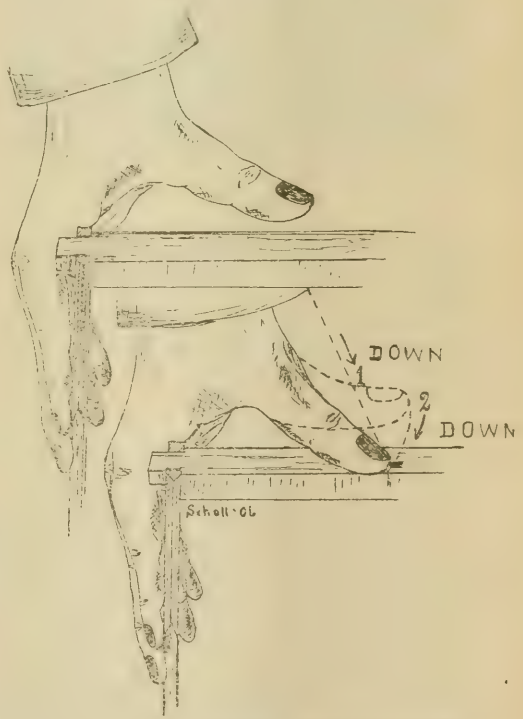
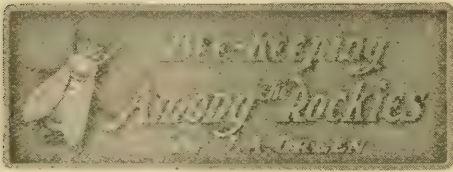


FIG. 2.—SCHOLL'S "GRAB" WHEN SHAKING COMBS.

by me several years ago without satisfaction. Bees are generally clustered quite densely at these points; and if combs are bulged along

the top-bar it makes the handling of them "a nasty job."

It was found that the number of clustering bees was very much less outside of the combs, on the outside of the end-bars, between these and the wall of the hive; so here was a good place to put your fingers, and a firm hold is obtained. The hold is not only a safer one, but it does not cramp the fingers. In shaking, it allows the frames to be held much steadier than any other way in which more or less wobbling of the frame takes place, or an extra amount of strain must be exercised upon the already cramped fingers to prevent it. As shown above, the frame balances easily. The question with me was to adopt one way of handling *all* kinds of frames, which I already had, rather than to find a frame with "long ears," wide top-bars, or any other form. I have tried *all* the different "grabs" given, and on all kinds of frames. It would be impracticable to use all these methods, and to use them on the different styles of frames I have, as several kinds are often in one hive. Buying bees from others brings this about, and with the proper method of holding *all kinds* of frames there is no trouble in shaking bees off the combs.



Score another for sweet clover. The honey yield was very light here in the fore part of the season; but in August the sweet clover began to give down, and since then some localities have secured a very good crop, a few a really exceptional crop of nice honey from that source. At this date, Sept. 13, the flow still continues good.

Dr. Miller, I should have said that, when I have a lot of supers empty easily, I use very much the same plan you do, simply putting them on the bench upside down and loosening the sections by dropping the super an inch or so. But they do not always come out so easily. In that respect your T supers are probably ahead. Still, doctor, you could not persuade me to go back to the T super, although I once used a great many of them.

Last month I spoke of the great difference between localities only a short distance apart. Since then some additional facts have come to my notice. One man with about fifty colonies of bees reports that he will not have a case of honey to market. About three miles away from him in one direction a good crop is reported, and about the same distance in

the opposite direction a man reports a very good average crop, some of his colonies making five cases apiece. I know of apiaries that will average more than double the yield per colony secured in apiaries inside of a mile and a half away.

Dr. Miller is right in saying that sweet clover is not a desirable lawn grass, and the editor is probably right in the belief that it could hardly get started on a lawn that was properly cared for. It is remarkable, though, what a dwarf can be made of the plant by close pruning. I have seen places where the roadside cattle had kept it closely nipped, where the ground was covered with a close mat of it not over two or three inches high, yet blooming profusely. A lawn of it kept in that condition would be really pretty. But one would hardly recognize it as a relation of the six or eight foot stuff that grew where it was unmolested.

The idea of using turkeys to get rid of grasshoppers is all right so far as it goes; but it does not come within a hundred miles of solving the grasshopper problem. Mrs. Green has a flock of about fifty fine turkeys that, up to Sept. 1, had not eaten over about a dollar's worth of feed, making their living entirely from grasshoppers, and they had never been off our ten-acre place. Yet the grasshoppers did us a great deal of damage, especially in the vineyard and further corner of the alfalfa-field. Very few here are so situated that they can raise turkeys successfully without a great deal of expensive fencing or more expensive watching, as the coyotes that come down from the hills a few miles away are very fond of turkeys.

FOUL BROOD.

In GLEANINGS for Aug. 1 I made a statement that was not exactly what I meant. It would appear from that that I considered the McEvoy plan the only cure for foul brood that has ever proven practical and effective. What I should have said was that no cure has proven practical and effective that was not based on the theory that the disease is conveyed through the medium of the honey, and that when bees have rid themselves of the infected honey they may have carried from the old hive they may be considered cured. I have used with much satisfaction and success a plan given by that veteran bee-keeper, M. M. Baldrige, in the *American Bee Journal* last year. The principle of the plan, which may be used in various ways, is that undisturbed bees leaving their hive do not carry any honey with them, and consequently are incapable of transmitting the disease. The bees leave the diseased colony through a bee-escape; and on their return, being unable to enter their own hive, go into a healthy colony placed alongside. I have used it principally in connection with the McEvoy method, and so far without a failure.

HONEY VINEGAR.

I believe that a great many bee-keepers might very profitably engage in the manufacture of honey vinegar, at least to the extent of working up their waste and off grades of honey. I know that many have tried it without satisfactory results, and have given it up in disgust in consequence. Indeed, it is not so long since I made a failure myself of my attempts to make honey vinegar. I think it is quite possible that a knowledge of what *not* to do is of quite as much importance to many as any further instruction in processes. If you have decided to make vinegar, the first step is to get something to make it in. Usually the best and most convenient receptacle for this purpose is a barrel, and here is where the first mistake is usually made. Nine out of ten people in getting a barrel to make vinegar in will select an old vinegar-barrel, with the idea that something is necessary to start the vinegar-making process. To understand why this is wrong we must glance briefly at the chemistry of vinegar-making.

Ordinarily the process of vinegar-making consists of two distinct steps. In the first, sugar in some form is by fermentation changed into alcohol. In the second, this alcohol is by a somewhat similar fermentation changed into acetic acid. The alcoholic fermentation must always precede the acetic, and should be allowed to become complete before the acetic fermentation begins. They may be carried on together, but it is usually at the expense of both time and quality, as the presence of acetic acid in even a small quantity greatly retards the alcoholic fermentation, and sometimes a degenerative fermentation sets in and spoils the entire product.

Accordingly, your barrel should be one that has never contained vinegar. A whisky or wine barrel is good. If it is necessary to use a vinegar-barrel it should be scalded out very thoroughly before it is used. For a small quantity of vinegar a jug or jar is all right.

Next comes the question of the proper strength of the mixture to be made into vinegar. While this may vary considerably I think the best results will be obtained when there is not less than a pound and a quarter or more than a pound and a half to the gallon of water. If you have the honey in bulk, simply measure your water and add the proper amount of honey or *vice versa*. Usually, though, the bee-keeper will want to use the rinsings of cans or the honey soaked from cappings, etc., and for this some means of testing the strength of the solution must be used. A hydrometer is best and most convenient for this. One made for the purpose can be bought for about fifty cents. A photographic hydrometer can be had for half this. Any hydrometer will do, but you may need to test it by a solution of known strength, as they are graduated differently for different purposes. Mine was made for testing silver solutions, and on it a pound of honey to the gallon registers 20 degrees on the scale; and a pound and a half, which is the strength I

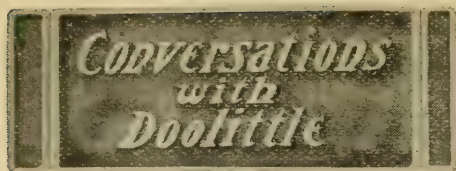
prefer, 30 degrees, which makes it easy to judge of the amount of honey or water that must be added to make the solution the right strength. You can make a hydrometer of a homeopathic vial, or any tall bottle, corked and weighted so that it will stand upright in the solution. Mark with a file where it stands in a solution of known strength. Or make a ball of beeswax with a small piece of lead imbedded, so that it will just float in a solution of the right strength. Or you can use a fresh egg, which should float, or show a spot not larger than a dime above the surface. I have always used rain water, and this is usually recommended.

Put your barrel in a place where a temperature of as near 80 degrees as possible will be maintained. If the place is too hot, alcohol is wasted; but if too cool, fermentation is retarded.

Never add fresh solution to vinegar partly made. I think this is a very common cause of poor success. If you want to make additions to your vinegar stock, keep them by themselves until they have passed through the alcoholic fermentation.

For the alcoholic fermentation a barrel with one head out is best; if a closed barrel is used, there should be a hole in each end, and the barrel should not be quite full. All openings, of course, must be covered with cheesecloth or very fine screen, to keep out insects and yet admit as much air as possible. If fermentation does not begin promptly, add about a quarter of a cake of yeast, softened in warm water, to a barrel of stock. When the alcoholic fermentation is finished, which should be in from two to six weeks, you can use your old vinegar-barrel to good advantage. Or it will be well to add a few gallons of good vinegar, containing a little mother if you have it. Usually this is not necessary, but it hastens matters and insures good results. Give it plenty of air, keep it as nearly as possible at the right temperature, and you should have good vinegar inside of a year. When the vinegar is strong enough, pour it off from the mother and bung it up tightly, otherwise a degenerative fermentation may set in that will spoil the vinegar entirely.

I have just received from the Arizona experiment station a bulletin on the subject of honey vinegar, in which some ideas that are new to me are advocated. The writer, Prof. A. E. Vinson, considers hard water preferable to soft, if not too salty. He likewise thinks that fermentation is greatly aided and hastened by the addition of small amounts of ammonium chloride and potassium phosphate. In place of the latter, which is rather hard to procure, as well as somewhat expensive, we may use sodium phosphate and potassium sulphate. As the latter is likewise sometimes hard to get, we may use potassium bicarbonate in its place with nearly as good results. The formula he recommends is as follows: Honey, 40 to 45 lbs.; water, 30 gals.; ammonium chloride, 4 oz.; potassium bicarbonate, 2 oz.; sodium phosphate, 2 oz.; yeast, $\frac{1}{4}$ cake.



HANDLING BROOD-COMBS IN LOW TEMPERATURES; POLLEN AS FOOD.

"My name is Robinson. Is this Mr. Doolittle whom I meet?"

"Yes, this is Doolittle."

"Glad to meet you. I have wanted a little talk with you for some time through GLEANINGS, but I see that your department is always full, so have waited for my turn to come ever since last May."

"Too bad I could not get to you sooner; but others seemed just a little more anxious than you. What can I do for you to-day?"

"I want to know about handling bees on cool or cold days. In how low a temperature can brood be handled without injury?"

"Well, that depends on two things. First, how long it is to be kept out of the hive; and, second, whether the wind is blowing."

"Does the wind make the temperature run any lower?"

"Perhaps not by the thermometer; but it does make a difference where animal heat is to be retained, as you very well know, else you would not resort to a fan on a very warm day."

"Ah! I see. Excuse my thoughtlessness."

"In my experiments along this line I have found that brood can be handled as safely on a still day with the mercury standing at 45° as it can on a day with a high wind at 65, or 55 with a moderate wind. In fact, with a high wind I do not practice handling brood, if it can be avoided, with a temperature less than 70°."

"Then your idea is that the wind blows right through the bees that adhere to the combs when they are out of the hive, and by the current of air continually striking the comb of brood the brood is chilled as quickly with a temperature of 65° with the wind as it would be with a temperature of 45° with no wind?"

"That is it exactly; and to overcome this matter I have built a light windbreak to carry with me when I must handle bees in windy weather, as the queen-breeder often has to do in carrying out the many parts of the matter which can not be delayed."

"Well, that is quite a scheme. How is such a thing constructed?"

"I simply took three inch-square pieces of pine, five feet long, and to these I nailed quarter-inch stuff, of the length required, nailing on two sides of one of the pieces, so as to form a corner post to set facing the wind. This would send the wind angling each way from me and the hive when at work at the same, so the bees and I would

have a cozy little nook in behind this wind-break, as calm as a summer morning."

"But would not the wind upset such a light affair?"

"Yes, if no precaution were used."

"What precaution did you provide?"

"I drove, slanting, down through the bottom of each of the three inch-square posts, a piece of stiff wire flattened at the end, which was to stay in the post, so it would not turn around when the part which stood out beyond the post was bent anchor fashion, so they could be pushed into the ground when the break was placed where I wished, and shoved a little the way the wind was blowing; and should the wind blow by gusts, each gust that was hard enough to move the break at all would only push the anchors just that much further into the ground, so it would hold that much firmer."

"Well, you have overcome that part of the matter, surely. But you have not yet told me how low a temperature it will be safe to handle brood in."

"I handle brood as little as possible when the temperature is less than 60 degrees in the shade, with the sun shining at the time I am doing the work. But where I have only a frame or two to lift from the hive for only a moment, to see if some queen is laying, or something of that kind, I often do it with a temperature as low as 45; but no hive having much brood in it should be kept open for any length of time when the mercury stands much lower than 60 degrees."

"Thank you. But there is another question I wish to ask you. Do the old bees eat any of the pollen they gather, or do they feed it all to the young bees?"

"Pollen is gathered for the young bees; or, as I suppose you mean by 'young bees,' bees in the larval form. Old bees do not eat pollen. By 'old bees' I mean bees after they have emerged from their cells, no matter whether they have been out of the cells an hour or forty days."

"But how can the larval bees eat pollen unless the old bees feed it to them?"

"They can not."

"Then the old bees must eat it, or at least a part of it when they feed the larvæ."

"Not necessarily. I am not a chemist (have many times wished I were), so can not explain matters to you except in my homespun style; but, as I understand it, a certain amount of pollen, honey, and water, is taken by the nurse bee and partially digested, or in some way formed into chyle by this nurse bee, something after the plan the dove or pigeon takes wheat and turns it into the 'milk' the young pigeon is fed on while it is in the nest; and this chyle is fed to the larval bees by these nurse bees, pollen being used only for this purpose of chyle or chyme, in a more or less modified form, to suit the age of the larvæ."

"Then you think that old bees can not exist on pollen when there is no honey in the hive?"

"I not only so think, but *know* that they can not."

"On what is that knowledge based?"

"Through experiments in giving colonies which I did not care to save, combs of pollen with a very little honey in them, enough to last a day or two, and in every case the bees starved to death as soon as the honey was all consumed."

"Then you would not believe what some people say, that bees die in winter if they have no pollen to eat with the honey?"

"No. There is a little difference between the way of treating pollen by the bees. The larger part of the pollen which comes into the hive is packed in the cells, and the mouths of the cells left open until the pollen is used for brooding purposes, this being nearly always the case during the first half of the breeding season each year. But pollen intended for rearing the first brood during February, March, and April of the next year, in this locality, after being stored in the cells till they are from half to three-fourths full, is covered with honey, and the honey sealed over, the same as if no pollen were under it; and thus this pollen is preserved in good condition till it is wanted for early spring use, at which time there is no pollen to be had from the fields. This is the 'bee-bread' that our fathers and mothers of the forties, fifties, and sixties used to tell us (then children) about."

"Then you think that I can safely tell my friends that old bees never eat pollen?"

"Yes. And yet I am led to believe there are exceptional times during the spring of the year when colonies are kept from starvation, for a day or two, by pollen in the chyle form."

"How is that?"

"We have times when the bees gather just enough nectar, after all the old honey in the hive is used up, to keep brood-rearing going on nicely, and yet not enough to store much in the combs. At such a time, after all the honey in the hive (together with pollen and water (has been taken for chyle, and a few days of storm have occurred, so the bees are just on the verge of starvation, this chyle is fed by the nurse bees to those bees out of the cells, and this, together with the juices that they can obtain out of the brood, will carry the colony a day or two longer, so they do not die of starvation, if a good day comes before the chyle is all used up which is in the stomachs of the nurse bees. If the weather continues bad too long, then they must all die, as no chyle can be prepared from pollen and water, no matter how abundant, without the honey to mix with it."

"That looks reasonable as you see it, and it may be you are right. I do not know."

"Thank you. If I am not right, I am willing to be set right. But so far as I have talked with learned men, none have been able to give me a better explanation than this on these things. There is very much still to be learned about some of the mysteries which our little pets hold very largely locked in their own bosoms."



DISPOSING OF THE HONEY CROP.

Sell Early ; Keep the Old Customers ; Advertise : How to Utilize the Honey in Cappings.

BY E. W. ALEXANDER.

This is a very important part of our business—one which we should look at from several different points. First, we should take special care in producing either comb or extracted honey so that it will be of the very best quality; and we should put it up in the most convenient and salable package possible. Then we should have it ready for market as soon as the market is ready for it.

Here is a point that many are very negligent about. They have other work to attend to, and think their honey can wait until they can do their odd jobs, and foolishly they try to make themselves believe the price will rise, and they will get more later on. I have never known this to be so. On the contrary, the price is sure to decline until it is hard to sell at any price. Now, *don't* allow valuable time to slip by, leaving your honey on your hands, and then complain that there is no money in bees. Just watch a successful manufacturer or merchant and see how he is ever on the alert for any thing that can be turned to advantage; and if you expect to succeed as they do you must also watch these points.

In regard to sending your honey to commission men to sell for you, I must say that many times their returns are far from satisfactory. When you find a square commission man it is a very good way to dispose of your crop. But I pity you if you are caught as I have been by different parties. Before we commenced to sell our honey direct to dealers I thought seriously of going out of the business, as we could not produce extracted honey for the returns these men sometimes made. One lot in particular, of about four tons of as nice clover honey as I ever saw, he claimed to have sold at four cents per pound. Another lot of nearly a carload to another party brought us only three cents net, and I have good reasons for believing that each lot in question was sold for a good price. So from past experience my advice is to be careful where you send your honey. If you are a little short of customers, just advertise it in our bee journals and you will soon have chances to sell at a fair price; then you will know what you are to have, and when to expect it; and, as a

general thing, you will be better satisfied with the result.

Another important part is, don't try to sell your honey for more than it is worth in the common markets. Here many make mistakes. Some years ago we made this mistake, and lost a customer who had for several years bought quite a large amount. This time he paid us one-fourth cent per pound more for nearly five tons than he could get for it, losing about \$25.00 thereby, where he expected to make that amount, and we lost a customer who at that time was worth nearly as much annually to us. If you can sell your crop in a small retail way I can see no reason why you should not have the same price as any other retailer. But when you sell in large quantities to parties who sell to those who have to retail it out in small packages, then remember that they must have a margin of profit to induce them to invest their money in it. This matter of holding a customer is well worth our consideration.

No man in business can afford to lose one if he can help it. Since we have given this part of our business especial attention we have had no trouble in selling our honey at a fair price early in the season. We think this a better way, and have the money soon on interest, than to hang on trying to squeeze out the last cent from a dealer who will never buy from you again if he can help it. I always like to have a pleased customer, for such are sure to buy another year. We have been censured many times by some honey-producers for selling our honey at the price we do; but I like to see the summer work all finished up before bad weather comes, and know that every thing is prepared for winter; then we can turn our attention to other matters for a few months.

During this winter season is a fine time to visit distant friends and make our plans for the coming summer. I think it does man good to have a rest from hard labor and mental anxiety. In natural law nearly every thing has a rest during part of the year except poor man, and he toils on until the worn-out body is lowered into the grave. But I will stop my sermonizing, and call your attention to another part of our business.

It is the caring for the cappings when extracting. I see many recommend rinsing them so as to save the honey that will not drain out, and then make this sweet water into vinegar. I used to try this plan, but I could never make a vinegar but that had an unpleasant odor and taste, and was nowhere when compared to cider vinegar. Then later we used to let the bees clean them up; but this had its bad features, and we were glad to adopt the following way of handling them: We now use an old honey-extractor with the baskets and reel taken out for an uncapping-can. We put in the bottom a screen of coarse open wire cloth for the honey to drain through, which keeps the cappings back while the honey goes out at the open faucet into the same pipe that con-

veys our honey from the extractor to the tanks. When this can is full we empty the cappings into a tight barrel and set them away until spring; then when we wish to feed our bees we turn boiling water on to these cappings until they are melted, and the wax rises to the top, which we remove, and then use the sweetened water to feed. Sometimes we add a little granulated sugar if we have used water rather freely, and it makes the finest feed to stimulate early breeding that we ever tried. In this way you save every bit of the honey from the cappings, with but very little trouble. I think if you will try this another season you will never again set out your cappings for your bees and your neighbors' bees to clean up, nor go to the trouble of making (to my mind) a very poor substitute for vinegar. I will admit that honey vinegar is sour enough, but I for one can not go that unpleasant taste.

Still another subject I wish to speak of is this: During those cold stormy days of winter, when time hangs heavy on your hands, and especially winter evenings, get out a lot of those old back numbers of bee-journals and look them over. You will be surprised to see how many good ideas you can pick up from them, especially the summer numbers that came when you were so hurried about your work that you hardly took the necessary time to read them, and still less time to remember and put those good points into practice. To sum it all up in a few words, don't waste any time in worrying about good or bad luck, but put yourself at the head of your business and realize that it is according to your skill and intellect that you either succeed or fail.

Delanson, N. Y.

[The method of disposing of the dripping cappings is excellent. I do not remember that it has been given before.

The advice to sell the honey as soon as the market is ready for it is also good. Too bad that there are so many who either don't believe it, or else are so dilatory that they put off getting their honey to market until it is too late to get a good price.—ED.]

BEE-KEEPING FOR BEGINNERS.

Double-walled Hives; Storm-doors; Grading Sections.

BY E. E. WAITE.

I have written you once or twice before, regarding bee-keeping in this section of the country on a small scale. There are a good many people here who keep only a few bees, and many things that apply to the professional don't hit the small fellow. So any thing that I may say is in reference to the small bee-keeper who "raises" comb honey.

In regard to wintering in this section, while most folks use the single-walled hive unprotected, with very good success, I think the double-walled hive more than pays the difference in cost.

I noticed that you recommend a one-inch entrance if it would not get clogged with dead bees. Last winter was a very hard one here, the thermometer reaching 15 or 20 below zero; but in my double-walled hives there were not 50 dead bees on the bottom of the hive at once, and most of those were at or near the back of the hive. I know, for I looked by reflecting the sun into the hive with a mirror. I never have any trouble with double-walled hives, though single-walled hives do sometimes bother that way. I have often cleared the front of the hive with a small stick or wire, scraping out the dead bees. This should be done on a warm day, if possible, so that, if the bees are disturbed, they will not be harmed.

I have invented a storm-door which I shall use this winter. Perhaps some one else would like to try it, so I will tell you how I make it. All of my hives have a wide alighting-board, which is necessary to get the best results with it. Take a piece of one-inch board, $1\frac{1}{2}$ or 2 in. wide, and cut it just long enough to go clear across the front of the hive. Drive a small nail one inch from the end, so that it sticks through $\frac{1}{2}$ in. or so. Next with a saw and chisel or drawing-knife make a cut $\frac{1}{4} \times 2$ in., or less if you wish, in the middle of one of the *wide* sides, so as to make an entrance two inches deep or more. This can be stuck on the front of the hive, and removed, or replaced at any time without pounding on the hive. The entrance can be made to suit the owner's idea of size.

In regard to grading section honey, I have always graded by weight. I find a good full-looking section will weigh 14 oz. or more. There are some very nice-looking sections that will not go a bit over 14 oz., so that is my "pound." I get 25 cts. each at the house for all such. If they weigh more, I get the same. I usually put the heavy ones, say $15\frac{1}{4}$ oz. or more, and the light ones, say 14 or $14\frac{1}{4}$ oz., together and sell them to people who want more than one section. All under 14 oz. I sell in proportion to their weight. I have prepared a scale of prices ranging by $\frac{1}{4}$ oz. down to 8 oz. It amounts to about 1 ct. to every $\frac{1}{4}$ oz. Any one who has any "head for figures" can easily make a price list. Then all I have to do is to put the section on the scales, glance at the price list, and mark the price on the top of the section. All weighing 15 oz. or more are marked A, and those under 15 and over 14 are marked B. A pair of spring scales is the handiest to use. Of course, this is the retail price. Where one sells by wholesale he can sell at so much per cent less than the retail prices. The dealer knows just how much he will get for the honey, so can figure closer and pay better prices. The customer knows that he is getting the same amount (nearly) for his money, whether the section is full or only partly so.

Mystic, Conn.

[I would not now recommend a one-inch entrance, full width, all winter. I do not remember whether I ever advised such in

years gone by; but if so I am wiser now, for experience has shown that too wide an entrance is almost as bad as one too narrow. For outdoor wintering in this climate we get the best results with an entrance about $\frac{3}{4}$ by 8 inches long. A very strong colony would stand $\frac{3}{4}$ deep by the whole width of the hive.

A storm-door over an entrance I believe would be a good thing. Something to shut off piercing winds and yet allow a perfectly free circulation of air in and out of the hive would be desirable.

Your scheme of grading and selling by the piece certainly could not be objectionable to any one. Most of those who sell by the piece grade by weight as well as by filling, the heavier weights being sold, of course, for more than the lighter ones.—ED.]

AN OLD BEE-BOOK.

BY EUGENE SECOR.

[One of the strangest things to an outsider is the enormous number of books which have been published on the honey-bee—more than have ever been written about any other animal. Some of them "are as old as the hills," but good reading withal. Some are written in verse, and at least two of them are classics. To collect such books requires the same instincts as are required in an art or bric-à-brac collector, and patience and perseverance are required to find them; but there is a lot of pleasure in making a "find."—A. L. BOYDEN.]

Through the kindness of Mr. A. L. Boyden, of The A. I. Root Co., I have had the pleasure of examining a book entitled "The Bees," written by an Englishman, John Evans, M. D., and published a hundred years ago. It is said to be very rare and expensive. It is in the form of a poem. It treats of many subjects other than bees, however, thrown in, probably, for variety or ornament. It is well written, by a real poet, and the book is a valuable contribution to the literature of apiculture.

It is interesting as showing the state of the art at that time, and permits us to see the progress made since, both in the science and practice of apiculture.

The book is well printed, and gotten up in a style that would not disgrace the printer's art, even to-day. It is liberally supplied with notes explaining more fully many references in the text. They add greatly to the interest and value of the work.

The spelling indicates the gradual evolution of the English language—quite as remarkable as the growth of the art of which the author treats.

He appears to have been a naturalist of wide observation. Botany and horticulture are familiar subjects, and often introduced either by way of variety or to popularize them. History and literature are freely drawn on. The literary treatment of every thing he touches evinces much taste and skill.

While it is likely that not so many of the common people a hundred years ago knew so much about bees as now, yet it must be confessed that some close observers had learned many of the secrets of the hive.

This is the more remarkable because of the inconvenient hives then in use. The present advanced knowledge of apiculture is due largely, I believe, to the movable frame introduced by father Langstroth. Scientific queen-rearing would have been a long time developing to its present advanced stage had it not been for the ease with which Langstroth's invention made it possible to manipulate the brood.

The functions of the queen were pretty well understood by Mr. Evans, and he speaks of her development by reason of the special royal food which the workers did not receive; but with no movable frame then in use, and the observatory hives being mostly full-colony hives with glass on the outside only, observation was difficult and required a good deal of patience. It is not to be wondered at, then, that the queen was clothed with royal authority and power, as the following quotation would indicate:

'But mark, of royal port and awful mein,
Where moves, with measured pace, the insect queen!
Twelve chosen guards with slow and solemn gait
Bend at her nod and round her person wait.

And again:

The pregnant queen her dutious slaves attend,
With plausive air the high-arch'd dome ascend,
Cling in fond rapture round the genial bed
And o'er her form a living curtain spread.

In explanation of the last two lines a note says:

"When she enters the royal cell to deposit her eggs, a number of bees, clinging to one another, hang before her a living impenetrable veil. On her return, a small white egg is discernible in the cell, and her courtiers still attend her with the same appearance of respect and homage."

Mr. Evans had some correct notions respecting drones. Beautifully he describes their lack of the necessary equipments for labor:

Their short proboscis sips
No luscious nectar from the Wild-thyme's lips,
From the Lime's leaf no amber drops they steal,
Nor bear their groov'd thighs the foodful meal;
On others' toils, in pamper'd leisure, thrive
The lazy Fathers of th' industrious hive.

The line commencing "From the Lime's leaf" is explained as honey-dew.

But here's a use for drones that some bee-keepers of this latter day do not fully endorse:

Yet oft, we're told, these seeming idlers share
The pleasing duties of parental care,
With fond attention guard each genial cell,
And watch the embryo bursting from its shell.

The poor drone, though, enjoyed only a brief day of idle pleasure:

While love and pleasure thus your hours employ,
How short, vain flutters, is your dream of joy!
Ere the fourth moon unyoke her silver car,
For you the Fates their deathful woof prepare.
No widowed matron mourns your hapless doom,
Nor drops the tear of duty on your tomb.
Each kind affection turned to deadliest hate,
Springs the fierce female on her once lov'd mate:
Or, darting from the door, with terror wild,
The father flies his unrelenting child.
Far from the shelter of their native comb,
From flow'r to flow'r the trembling outcasts roam,
To wasps and feathered foes an easy prey,
Or pine, mid useless sweets, the ling'ring hours away.

Of the workers he writes:

Yes! light-winged labourers! still unwearied range

From flow'r to flow'r, your only love of change!
Still be your envied lot, communion rare,
To wreathe contentment round the brow of care!
No nice distinctions or of rich or great,
Shade the clear sunshine of your peaceful state;
Nor Av'rice there unfolds her dragon wing,
Nor racked ambition feels the scorpion sting;
Your temper'd wants an easy wealth dispense,
The public store your only affluence:
For all alike the busy fervor glows,
Alike ye labour, and alike repose;
Free as the air, yet in strict order join'd,
Unnumbered bodies with a single mind.
One royal head, with ever watchful eye,
Reins, and directs your restless industry,
Builds on your love her firm-cemented throne,
And with her people's safety seals her own.

Preparation for swarming and the piping of the queen are described:

At close of day when in her twilight robe
Grey Eve envelopes half the weary globe,
O'er the still sense a deepening murmur grows,
And busy preparation mocks repose.
Hark! the shrill clarion sounds! Full arm'd for flight
The fresh-plumed monarch waves her pinions light,
Pants for the morn, and chides the tardy night.

Now morning has come, and "ripening Phœbus warms the tempered air!"

Mounts the glad chief! and to the cheated eye
Ten thousand shuttles dart along the sky,
As swift thro' ether rise the rushing swarms
Gay dancing to the beams their sun-bright forms.

* * * * *
High poiz'd on buoyant wing the thoughtful queen
In gaze attentive views the varied scene,
And soon her far-stretched ken discerns below,
The light Laburnum lift her polish'd brow,
Wave her green leafy ringlets o'er the glade,
And seem to beckon to her friendly shade.
Swift as the falcon's sweep, the monarch bends
Her flight abrupt; the following host descends,
Round the fine twig, like clustered grapes, they close
In thickening wreaths, and court a short repose.
While the keen scouts with curious eye explore
The rifted roof, or widely gaping floor
Of some time-shattered pile, or hollow'd oak,
Proud in decay, or cavern of the rock;
Insidious Man, with specious friendship, forms
A straw-built cot to shield them from the storms,
With many a prop to fix the future comb,
And scents with charming sweets the vaulted dome.
Swept from the branch, he bids whole myriads fall,
By kind compulsion, in th' inverted stall,
Drives with dank fume the loit'ers from the spray,
And wards with leafy bough the noon's fierce ray.

The following lines describe what was the common belief at the time if a swarm lost its queen after hiving, even after the lapse of several weeks:

Nay, such the strong-linked chain of sweet controul,
Which binds to one fair head th' accordant whole,
E'en when a second moon serenely bright,
Sheds on the infant realm her silver light,
Their widow'd throne in frantic mood they wail,
And cast, desponding, down the moulded scale,
Their young deserted, rifted each full comb,
Loaded with sweets, they seek their long-left home.

But they had learned from the experiments of Huber and others that a new queen could be introduced and save the colony. He quotes Huber as being able to introduce a queen to a hive that had lost its queen twenty-four hours after the loss, but not sooner.

Another strange belief is mentioned in a footnote:

"When the bees of a crowded stall lie out through great part of the summer without swarming, or build combs on the outside, this will always be found to arise from the want of a second queen to lead them forth," as though it were the young queen that led the first swarm.

Continued.

46

THE BEES.

B. 1.

Each link, they trace in animation's round,
Dashes their poison'd chalice to the ground.

If, in the Insect, REASON's twilight ray

565

Sheds on the darkling mind a doubtful day,

Plain is the steady light her INSTINCTS yield,

To point the road o'er life's unvaried field ;

If few those Instincts, to the destin'd goal,

With surer course, their straiten'd currents roll.

570

Though soon the short-liv'd Bee submit to fate,

And SEVEN fleet summers fill her utmost date,

Still, if we count the strokes of Time's light wing,

As swift, or slow, the fresh ideas spring,

And labour crouds the closely written page,

575

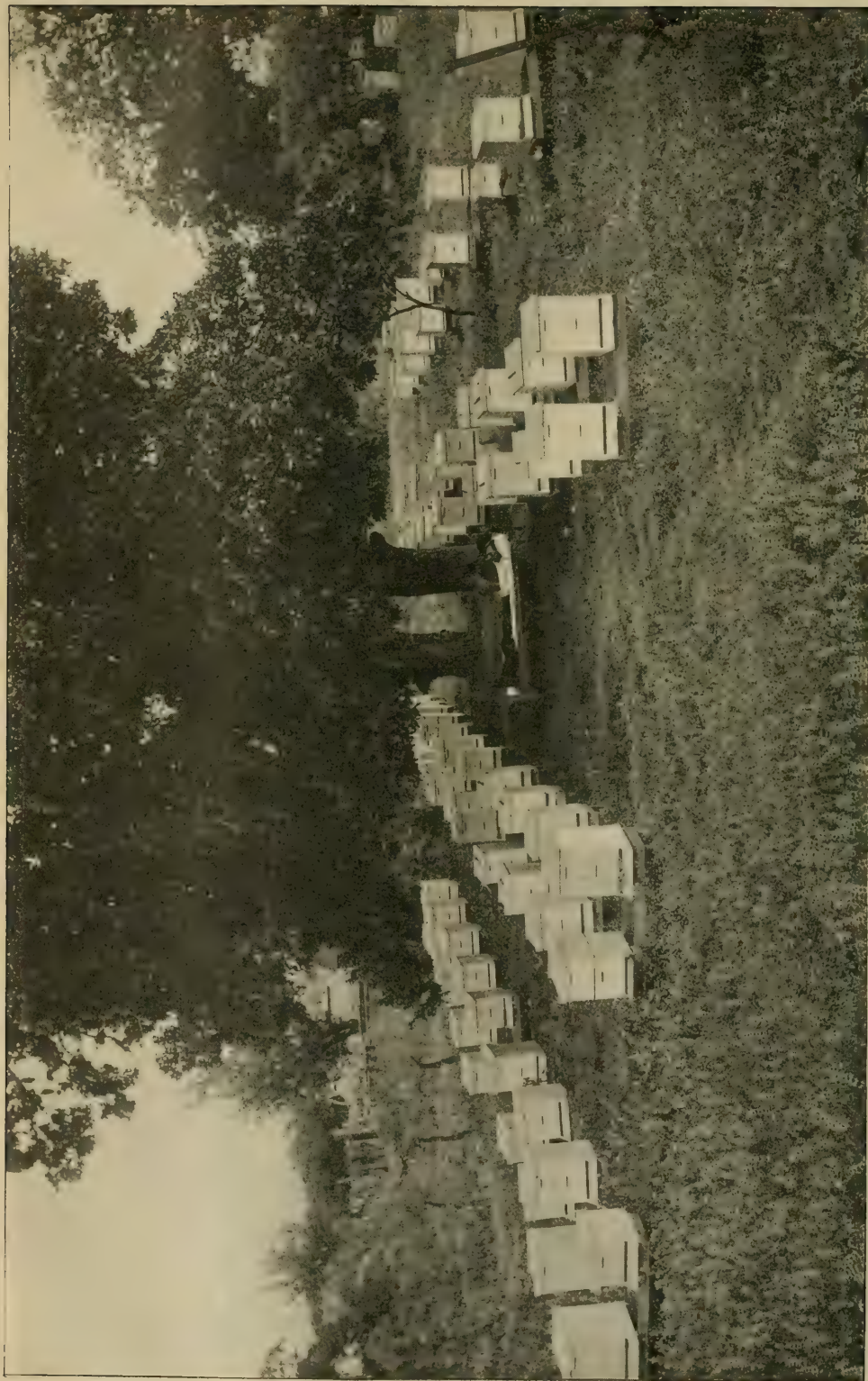
Those few, fleet summers lengthen to an age ;

572. *Seven fleet summers*] “ Neque enim plus septima ducitur ætas !”

VIRGIL.

See ADDITIONAL NOTE XI.

574. *As swift, or slow*] “ It is certain that the natural measure of time depends solely on the succession of our ideas. Were it possible for the mind to be occupied with a single idea for a day, a week, or a month, these portions of time would appear to be nothing more than so many instants. Hence a philosopher often lives as long in one day, as a clown or a savage does in a week or a month spent in mental inactivity, or want of thought.” SMELLIE'S *Philosophy of Natural History*, Vol. I. p. 519.



[This is the apiary of J. C. Peterson, of Devine, Texas, an A B C scholar who has made a very pretty start. He writes us that he has purchased a ten-dollar breeding queen, and is expecting to requeen his whole yard with the improved stock. As he reclines on the cot, he is probably indulging in a day dream amid the happy hum of the bees, and of the crops of honey he is going to get—but which he didn't get this year. By the way, there is no sweeter music than the hum of bees on a bright day. No wonder Mr. Peterson is taking "solid comfort."—Ed.]



ALTHEA, OR ROSE OF SHARON.

ALTHEA AS A HONEY-PLANT.

BY A. I. ROOT.

In one of our dooryards there is an ornamental shrub that has attracted so many bees we had a picture of it taken. Althea, or "rose of Sharon," is a very beautiful shrub, even if it is quite common. You can now get them at the nurseries in a great variety of colors, double as well as single, and some of the little trees are so handsome I often stop my automobile to go inside a dooryard to get a better view from all sides of unusually fine specimens. The plant is very hardy, grows on all soils, and, after being once started, it almost seems to take care of itself year after year. You can get plants of all the different colors for five cents each or less of my good friend G. W. Park, La Park, Pa.; and these small plants, with a little care at the start, will grow two or three feet high in a single season. Big plants of this size *usually* cost 25 cents or more.

The shrub here shown was covered with bees during the time it was in bloom, which lasted for several weeks.

THE BETSINGER WIRE-CLOTH SEPARATOR.

The Device Tested in the Apiary of Vernon Burt, near Medina.

BY E. R. ROOT.

It will be remembered that Mr. F. A. Salisbury, of Syracuse, New York, after having seen the beautiful fancy comb honey produced by Mr. S. D. House, of Camillus, N. Y., with the Betsinger wire-cloth separator, wrote us that this was a device the merits of which the Root Co. might well consider. After he had tested it one season he was even more enthusiastic, for every section was fancy. A year or two ago when I visited him he showed me two lots of honey—one produced with the ordinary Danzenbaker fence and the other with the Betsinger wire-cloth separator, and asked if I could see any difference in the filling of the two lots. Most assuredly I could. One lot was all fancy, and the other was fancy and No. 1. "The fancy," said Mr. Salisbury, "was produced with the Betsinger separator." It will be remembered that Mr. House had been carrying off first prizes for comb honey

at the New York State fair. This he attributed largely to the Betsinger separator.

Accordingly we made up a set of supers and sent them down to our neighbor Mr. Vernon Burt. These he tested out this last season, and the results were far from satisfactory. His bees seemed to amuse themselves by sticking patches of burr-comb on the wire cloth, and building from that to the section in a most fantastic fashion. He asked me to come down and look over the honey and let the lot speak for itself.

Accordingly, with camera I appeared on the scene. We opened two supers, when, sure enough, the wire-cloth separators were pretty well patched up with comb. The accompanying photograph shows how some of them looked. Then Mr. Burt held up one of the supers that had not yet been opened, in front of me, in such a way that the light could stream through it. Plainly enough I could see the patches of wax connecting the nice comb honey with the wire cloth all through the super—see Fig. 2.

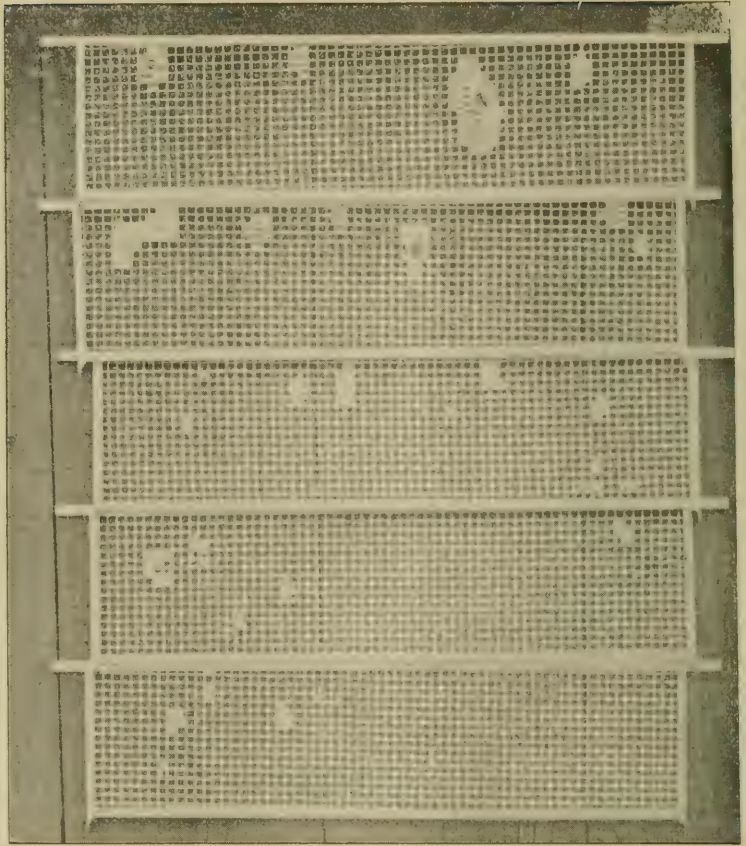


Fig. 1.—The Betsinger wire-cloth separators as they appeared after being taken from a super from the apiary of Vernon Burt.

Then we took some of the sections and piled them up, one on top of the other. A few of them are shown in Fig. 3, where the burrs of wax were torn loose.

Mr. Burt's bees did not fill out the combs any better than they had done next to plain

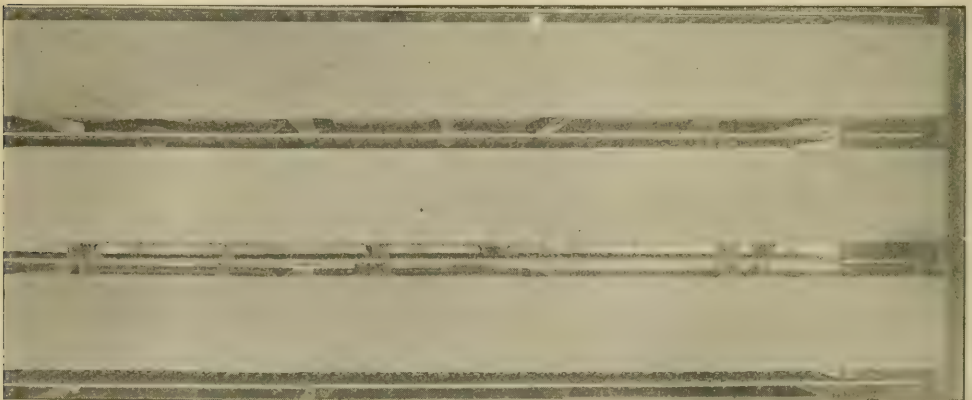


Fig. 2.—A peep through a super having wire-cloth separators, showing how the brace-combs were attached to separators and comb faces.

sections; and the fact that almost every separator had an attachment to some one section was rather discouraging.

I asked Mr. Burt if he had not overcrowded these hives and supers; but he thought not more than he had crowded the other hives with fence separators. I endeavored to explain to him that possibly this was a peculiar season—that another year he would get better results. But he shook his head. If the season had been at all a good one he would expect that the brace-comb attachments would have been even more numerous. When Mr. Salisbury visited us a few days ago I called his attention to the poor results secured by our neighbor, Mr. Burt, with the Betsinger separator. "Very strange," he said, for he had only recently looked over several thousand pounds of S. D. House's honey—as pretty honey as one ever saw, and not a burr-combed separator or section in the lot.

It will be remembered that Mr. C. H. Dibbern, of Milan, Ill., reported how he had results about the same as those here shown by Mr. Burt, and that he cautioned bee-keepers against pinning their faith on the wire-cloth separator. Years ago, when this wire-cloth separator was first brought out, there was complaint that bees were inclined to make brace-comb attachments to it and it was condemned.

This difference in experience we may have to attribute to locality, for I certainly saw as pretty fancy comb honey at Mr. S. D. House's apiaries two years ago as I have ever seen anywhere; and yet in our own locality, at least last season, with the same device and separator, the results were any thing but satisfactory. Perhaps management is also a factor; if so, possibly Mr. House could show where the trouble is.

SWARMING—THE CONTROL OF IT.

What Can be Expected from Some of the Recent Plans Described.

BY E. F. ATWATER.

Perhaps Mr. Doolittle is claiming too much for his method of swarm control. It will and does prove a failure in some localities. The beginner had better go slow before adopting any method on a large scale until he proves that the method can be used successfully in his locality. Shaking on empty combs, combs of honey, or full sheets of foundation, is too often a failure here, as the

bees soon prepare to swarm again. Shaking on starters *does* control in nearly all localities. Nor will plenty of room *in the comb* at any or all times prevent swarming. That idea is one of the most commonly credited fallacies before the bee-keeping public. A colony headed by a young queen reared in the same colony that season is not safe from swarming.

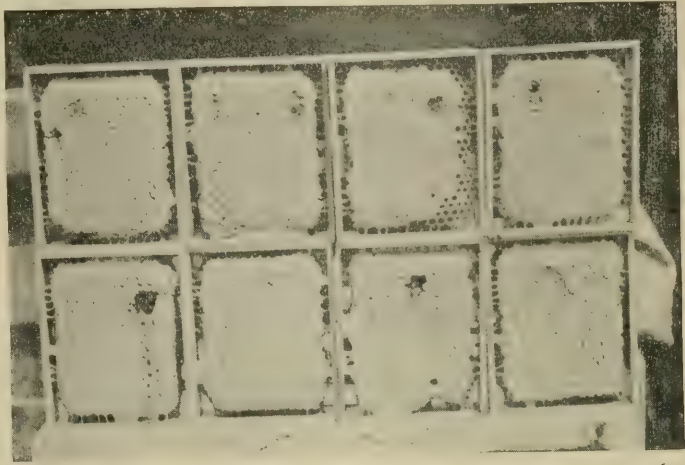


Fig. 3.—Some of the comb honey taken from a super using wire-cloth separator; the bare spots show where the burr-combs were torn loose.

A colony treated on the Alexander plan of increase may send off a swarm from the old stand. A colony tiered up on the Alexander plan of queen-mating may swarm from one or more of the bodies, or one or more may abscond.

The Aikin system of alternating, "stretching," or interchanging cases will too often only delay, not prevent, swarming. The Simmins non-swarming system is of little value here. Our queens and bees will extend their brood-nests *upward* very readily, but are reluctant to go *down* with brood, or for honey-storage or comb-building. When conditions are very favorable for breeding up, as they were here this spring, none of these mildly persuasive methods will control. Either the Alexander method or the Doolittle method of shaking on combs will hold them until the flow arrives. What would have happened to Doolittle's colonies if the season had been such that his queens would be *seriously crowded* if confined to 16 to 20 L. frames? Such are the conditions which we have been compelled to meet in four of our eight apiaries this spring. Even in *extracting-yards* our usual methods of shaking on combs or full sheets *there*, would only delay swarming about three weeks. If the Doolittle treatment were combined with re-queening it is *possible* that it might then be successful.

Meridian, Idaho.

[You do not offer much encouragement on swarm control. This is a case where locality has a large influence.—Ed.]



The veteran Henry M. Twining, after he had "hived" an artificially made swarm on his arm; demonstration at the Jenkintown field-day meet on June 26.

CELEBRATION OF THE GOLDEN ANNIVERSARY OF A VETERAN BEE-KEEPER.

Held under the Auspices of the Philadelphia B. K. A. at Logan, Pa., Sept. 22.

BY W. A. SELSER.

[Our readers will remember that we promised to show a picture of the veteran, Henry M. Twining, who made a shook swarm cluster on his bare arm at the Jenkintown field day, June 26. The editor's camera failed to catch him while he was going about among the crowds with this swarm. But, fortunately, another kodak caught the act, and the picture was kindly placed at our disposal, and we take pleasure in presenting the same herewith. Very recently a unique convention was held at Logan, Pa., to celebrate the golden anniversary of this same Mr. Twining's experience as a bee-keeper. As this comes in very appropriately here, we are glad to place a report of the meeting right here.—ED.]

Meeting called to order by President, Dr. Henry Townsend; Secretary, F. Hahman.

After routine business, Mr. Twining was called upon to give his first experience in bee-keeping, in 1856, fifty years ago.

He said in part that his father kept bees before him, and all the people in that day sulphured the bees to get the honey. In the spring of 1856 he was living in the upper part of Bucks Co., and learned that a man by the name of Johnson, living at Attleboro, had received the right for sale of the Langstroth hive for that vicinity. He visited him

and received the individual right to make the hive for \$5.00, and a hive of bees for an additional \$5.00. His father then gave him a colony of bees, which he transferred. He then sold the hives to a number of people and went all over the neighborhood, taking honey out of the box hives for the people in the fall, and getting the comb and bees for his trouble. He took the bees home in a covered box and transferred them into Langstroth hives. He said there were three things that man

Can not drive—
Women, hogs, and bees in a hive.

He lost only one hive bought in this way after they had been fed up with sugar syrup.

In 1867 he sold five queens to one man, introduced them, and got \$50.00 besides his expenses when he finished the work. About that year he sold a colony of bees to a man in Florida for \$25.00, and sold a number of queens for \$15.00.

Mr. Wm. A. Selser was then called on by the President to make the presentation speech of a gold-banded cane, a present of the Philadelphia Bee-keepers' Association. In part, Mr. Selser said:—

"This is a most notable occasion in many respects, and probably not any of the present bee-keepers will pass through this happy experience of reaching the fiftieth year in bee-keeping. Our younger men are compelled to live too strenuous a life to live to such an age, although that is in the hands of the

Lord. There are probably not over 20 per cent of the births of this age that live to see their fiftieth year; and yet you have not only lived to see your 87th year, but fifty of it have been spent in continuous bee-keeping; and remarkable, also, is the fact that, in the last few years, so clear have been your faculties that you have gone out repeatedly for the Root Company and requeneed large apiaries, and have done considerable work in the different apiaries throughout the country at good wages, etc.

"It gives me great pleasure, on behalf of the Philadelphia Bee-keepers' Association, to present to you this solid ebony cane, suggestive to me of your upright walk for so many years—this solid ivory head suggestive of the clear bright head that has guided your course this half-century of bee-keeping, and which has made your advice much sought by your fellow bee-keepers—this solid gold band engraved with your name and the name of the Association, suggesting your true heart that has drawn you to all your fellows, and made you loved by all. It can be truly said you have not an enemy."

Mr. Twining arose to reply, but was entirely overcome with delight and surprise. After some reminiscent remarks on the part of President Townsend, telling of the formation of the Society in 1882, twenty-four years ago, Dr. Townsend being President and Mr. Hahman Secretary ever since, the bee-keepers adjourned after a fine collation.

ANOTHER FAMILY WHOSE PICTURE IS A PROOF OF THE VALUE OF HONEY AS A FOOD.

A Father and Mother who have Reason to be Proud.

I saw the picture of the Gaul family in the June issue, and was not surprised at the statement made; but I think we are not a whit behind, as we are a family of ten children, the oldest of which is now thirty and and the youngest twelve. I am twenty-one, and do not remember ever having to do without honey, and we have had all the honey we wanted every meal; but mother says there was one time for several weeks when we had not honey, and that was the only time for thirty years. You can see that we have an abundance of good health, as there never was serious sickness in the family. There is no doubt about the healthfulness of honey.

I. Good.

Marion, Ind.

Mr. Root:—In addition to what my son has written I will add, for the benefit and encouragement of my old friend A. I. Root, whom I always have admired, and have read every thing he has written for GLEANINGS from the beginning, and have tried to profit by reading the excellent advice he has given, that the family of children of your humble servant have all attended Sunday-school from their youth up. The one on the ex-



A PERMANENT PROOF OF THE HEALTHFULNESS OF HONEY.

treme right is your namesake. He was Sunday-school superintendent at about the age of eighteen. The one in the center is now Sunday-school superintendent of the largest Sunday-school in Marion. The one wearing glasses is a student and Latin teacher in the Indiana University at Indianapolis. The

so you see my life has not been an entire failure.

Marion, Ind.

I. R. GOOD.

[Many thanks, friend Good, or I might say my "Good friends," for your picture, your son's explanation, and your own kind



AN APIARY IN A PROTECTED LOCATION WITH EACH HIVE WRAPPED IN BUILDING-PAPER.
From annual report of National Bee-keepers' Association.

one on the left is our first born, and is the father of as nice a pair of twin boys as you ever saw. Not one of the children uses tea, coffee, or tobacco in any form. All are temperance workers. The two smallest boys were the last two of the family, last winter, to be converted and unite with the church;

words. I shall have to explain to the younger ones that away back, years ago, when the Root children were little folks as well as the Good children, friend Good's name became almost a household word by suggesting and telling us how to make what was known as the "Good candy," for supplying queen-

cages and feeding bees in the winter. It looks to us now like quite a simple matter to work up sugar and honey together so as to make a sort of dough that will not daub the bees and queen, and yet give them sufficient liquid so they will not need the little bottles of water that we had been supplying queen-cages with before the Good candy came out. But I tell you it took a lot of experimenting and a deal of talking it over to get the queen-cage candy *just right*.

Friend Good, you and your good wife have given the world just double the number of good men and women that belong to the Root family. You have done your duty; and if there were more to follow your example I think our nation would not be in the predicament it is now in some respects. No one can accuse you of not doing your part to prevent "race suicide;" and I think we shall have to submit this picture to our good President for his approval and encouragement. There are too many educated people—people who have abundant means to give their children every opportunity—who seem to think no obligation rests upon them to rear good-sized families in the fear of the Lord. May God continue to be with you and your good wife and that promising flock of children.

The good Book says, "Be fruitful, and multiply, and replenish the earth." Again, "As arrows are in the hand of a mighty man, so are the children of the youth. Happy is the man that hath his quiver full of them."—A. I. R.]

WINTERING BEES.

The Value of a Protected Location; a Bee-cellar in a Sand Hill; Spring Care.

BY N. E. FRANCE.

In the Northern States successful wintering of bees is quite a problem. The more I study this as I visit apiaries, the more I believe the bee-keeper is to blame for losses. How, then, can they be prevented?

1. I want, early in July, more sealed honey in the brood-combs than is necessary to winter the colony. The unused honey in the spring will all be used to feed early-hatched brood, and I often find weak colonies or dead ones, as I go over the State in the spring, that are starved or nearly so. Starving colonies in spring are seldom profitable. This shortage also causes the bees to eat too much pollen, and dysentery will follow.

2. During the latter part of the honey harvest I remove every queen, and at the same time replace, with new queens, either those which I buy or some raised in the apiary for the purpose. This will leave the hives soon after the honey-flow with fewer old bees to feed during the fall, that would die before winter any way, thus saving winter food. The new queen will fill the hives in the fall with young workers that will live through the trying months to maintain heat and care for early brood in the spring. In this north-

ern climate, where winters are hard, I do not dare to winter queens twice, for they are liable to die in the spring, leaving queenless colonies that are of little value.

3. The location of the apiary often decides success or failure, especially if bees are wintered outside. The apiary should be well sheltered from cold winds, the hives provided with young queens and an abundance of young workers, and well filled with honey in the fall. It is well to allow a free flight of bees twice during the winter, on warm days; the hives should be protected from the outside air with heavy building-paper, or by an outside casing. If the above conditions are met I would rather winter the bees on summer stands. It is much less work, and the amount of extra food consumed (not over 10 lbs.) will not pay for the extra labor. The illustration shows such an apiary of over 100 colonies, protected with building-paper, in a sheltered location; the winter loss, including spring dwindling, is never over 2 per cent. The hive in the foreground has the outside paper removed, showing the brood-chamber and the super of sealed combs for winter food.

As I go among hundreds of apiaries inspecting bees I find a large portion of the apiaries are not so located as to be protected, and outside wintering results in heavy loss. Cellar wintering, then, must be resorted to. Good results are obtained where the bees are wintered in a so-called root-cellar, dug back into a sandy hillside. Some bee-beepers wall up the sides with good stone, leaving every thing covered with soil for protection. Others stand posts near together to keep the sand from caving in. The ceiling is built of heavy sound timbers; over this, at least 3 feet of sand or soil, then a foot of straw under the board roof, which conducts all storms away. There should be a ventilating-tube at least a foot square from near the bottom of the cellar, with a damper that can be closed any time. This tube should extend above the roof, with an elbow on top, so as to point downward.

It is a good thing to have a thermometer in the cellar where it can be read frequently, and the temperature kept uniformly at 45°. Double tight-fitting doors at the entrance are necessary, and should swing out. In the spring if the cellar gets too warm, and the bees restless, I open the doors at early evening, closing them early the next morning. If frost is creeping in, and the room getting too cold, a small stove can be put in between the doors; and when the air is warmed there, the inside door is swung open. Well-built cellars will keep about the same temperature without all this manipulation.

The more the cellar is back in the bank, the better. There is a perfect wintering-cellar in Wisconsin, made by blasting out the sand rock, forming a cave the size and shape wanted, there being several feet of stone and soil above the roof. A cellar under a dwelling-house is often the place for a farmer to keep his bees, if what space is wanted for the hives is partitioned off so it can be

kept dark and undisturbed. This cellar can be easily ventilated, if necessary; but the frequent going in and out, opening doors above, often gives all that is necessary.

Noise above the bees does not seem to disturb them much. I know of a successful cellar within a few feet of a railroad where trains are frequently passing. The bees get used to it.

Again, if I could have all my desires granted for an outside cellar I would want a dug-out cellar in a sandy hill, with a stream of spring water running through to purify the air and keep it the same temperature. If mold gathers on a cut piece of potato in the cellar it means that ventilation is needed in some way. Have the bottom of the cellar covered with sand or dry sawdust; and if air gets bad, some air-slacked lime on the floor may help it.

But wintering with many is not half the problem. To keep the colonies gaining every day after being taken from the cellar is often the trying question. Let me suggest that such parties try to protect each hive as it is set on its summer stand, with some heavy building-paper, keeping it there until settled warm weather. If you have not tried it, do so. Also soon after placing the bees outside in the evening of a cool day, some time, weather permitting, open each hive just long enough to know the amount of honey; if short, mark it at once on whatever record you keep of each hive, and see to it that each gets some feed. I prefer sealed combs of honey; but if out of those, I have used freshly filled combs from the bee-house. If the bees need feeding later, use something that can be given in a wholesale way. I now use gallon syrup-pails or friction-top pails, with cover punched full of small holes, like a pepper-box lid. Set it on top of the brood-combs and place for a day an upper story around it to protect it from robbers, covering the vacant space around it with cloth. The gallon or more of feed will be taken into the combs inside of a day, with no robbing or exposure of brood. The pails can be used later with new covers to sell honey in, thus costing one cent for each gallon feeder.

Platteville, Wis.

CELLAR WINTERING.

The Value of Young Bees in the Fall; an Ideal Cellar should be Provided with Vestibuled Entrance and some Means for Ventilation; Mid-winter Flights Unnecessary.

BY C. A. HATCH.

LOCALITY AND WINTERING.

The location makes all the difference when it comes to the wintering problem. To treat all alike from Texas to Michigan would be absurd and the height of folly; so to a certain extent each one must solve his own problem, or at least be guided by others living in the same latitude.

METHOD OF WINTERING.

Having tried almost all methods of wintering, such as packing in straw, chaff hives, burying, outdoor cellars, and cellars under dwellings, I am convinced that, all things considered, a good roomy cellar under a house with people living above is the very best place for our bees. Why it is so has never been so clear. May be it is the better ventilation they get, or the closer attention during the winter.

A SPECIAL REPOSITORY.

But conditions may be such that we can not have a cellar under a dwelling-house for our bees. The next best thing is a bee-cellar.

LOCATION OF CELLAR.

This should be near the bees, and, if convenient, should be so all carrying of bees into the cellar will be down grade, or at least on a level. A bank or side hill is preferable, so as to leave the entrance on a level rather than down steps. Better to move the bees to a good location for a cellar than to try to make a poor location work.

ENTRANCE.

This should face the east if convenient, so as not to get the sun in the hottest part of the day, from 11 o'clock to 3 P.M. This is important, but not essential, for experience teaches it is easier to control the cold and keep it out than it is to keep the heat out on warm days toward spring. A southern exposure is the least desirable of all, for this reason; and happy is the man who can have a hill at the northwest of his location for both bees and bee-cellar, to protect him from cold northwest winds during winter and spring.

DEPTH.

Seven feet below the ground level is the least to be thought of, and eight is better. The greater the depth the more even the temperature, and the greater the influence of the earth's temperature. A shallow cellar, or one above ground, is of all things to be shunned.

SIZE.

This should depend on the number of colonies to be put in. The actual room occupied by a ten-frame L. hive is approximately 3 sq. ft., and there should be room to walk all around the hives between them and the walls of the cellar—a space of at least 2 ft. A cellar 12×16 ft., inside measure, would be ample for 100 colonies of ten-frame L. or 120 eight-frame L., allowing for a support of 1 ft. at the bottom, and hives 5 deep—a double pile through the center of the room. I think it would be better to build two cellars rather than put many more than this number in one place. Economy of construction would point the same way.

MATERIAL FOR CELLAR.

Of course, stone, cement, or some lasting material is best for the walls; but walls made by setting well-seasoned posts of oak at the sides, and oak plank, will last several years, and, so far as usefulness is concerned, are just as good as any.

THE ROOF.

This is the point where so many fail by not getting it frost-proof and water-tight. These two things are of all things to be avoided—a leaky roof and one so poorly made as to let in frost. After seeing in use and using various styles of covering for a bee-cellar I am of the opinion that a good shingle roof made to project well over the side walls is the best. Joists should be placed on the walls, and ceiled up overhead, and the whole space from this to the point of the roof well packed with some non-conducting material like forest leaves, chaff, or straw—leaves to be preferred. The joists should extend out to the outer side of the side walls, and a board nailed to their outer end, so that the packing would come clear out as far as the walls go.

DOORS.

Entrance to cellar should be large enough to admit a wheelbarrow, and there should

greatest use of a ventilator is in controlling temperature; but it should not be ignored as a means of purifying and changing the air.

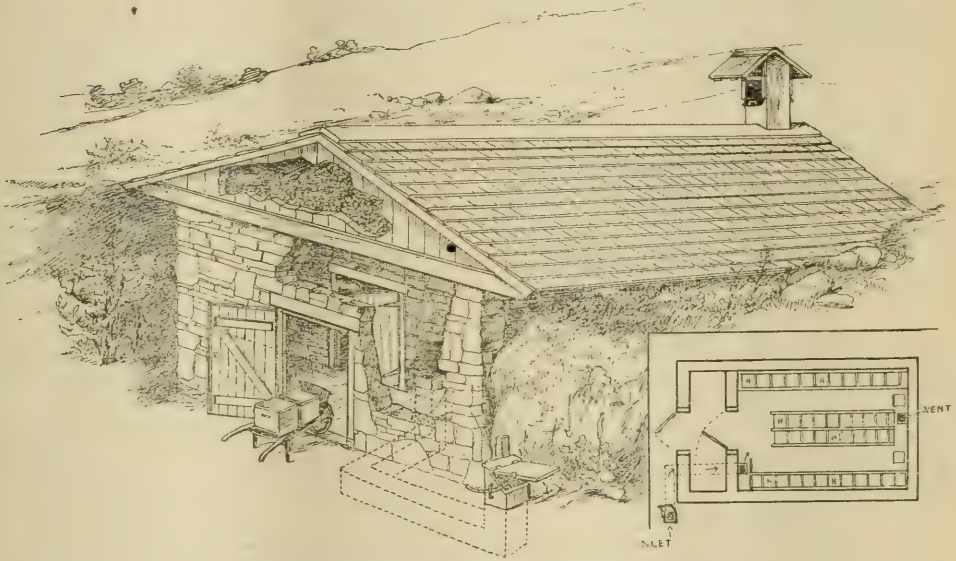
Toward spring and during warm spells in winter, when bees get to roaring, all ventilators and doors should be left wide open during the night and tightly closed during the day.

TEMPERATURE.

As even a degree as possible is best. A temperature of 45° is ideal, but a rise of 5° toward spring seems to do no harm, and a fall to 40° does no great harm if not continued more than 24 hours.

ESSENTIALS TO SAFE WINTERING.

Good food, proper temperature, and bees not too old are the three cornerstones of good wintering. It might seem that, after knowing what are the essentials, then getting them, there would be no uncertainty about the matter; but getting these conditions is where comes the rub. If all years



C. A. HATCH'S PLAN FOR A BEE-CELLAR.

Dimension of Intake, 6x8 inches; of Outlet, 8x10 inches; Space between Ceiling and Roof filled with Leaves.

be two doors with space enough between so that one could be closed before the other is opened—say a room 4x4 ft., or, if more convenient to build, it might be 4 ft., and the width of the cellar; or, in other words, an ante-room cut off from the out end of the cellar.

VENTILATION.

Notwithstanding all that has been said and written about ventilation I am strongly in favor of it—not too much in coldest weather, but some at all times; but it should be arranged so as to be under perfect control, both the intake and the outlet. It is a mistake to try to ventilate a cellar with only one ventilator. Provision must be made for taking in air as well as letting it out. The

were just alike, or if bees gathered always the same kinds of honey, then it would be comparatively easy; for after trying a certain kind of honey for winter food, and finding it poor, all we would have to do would be to reject that kind; but, unfortunately, no two seasons are alike, and bees gather sweets some years from sources before unknown; and a kind of honey that would be excellent food if weather conditions were right might prove disastrous under other conditions. Some have solved the problem by giving the bees only sugar syrup for winter food. There is no question but that this is the safest food to give them; but the labor and expense of taking away the natural stores and substituting the sugar is no small

item; and, taken through a series say of ten years is of doubtful economy, for they would ordinarily winter just as well seven years out of the ten if proper precautions are taken; besides, it gives a bad look to the business for a honey-producer to be using sugar by the ton. An outsider would think he had proper evidence of fraud and adulteration.

YOUNG BEES FOR WINTERING.

Bees to winter well, and be strong and vigorous in the spring until others are raised to take their place, must not be too old when put in the cellar or they will either die there or soon after setting out in the spring. Controlling this essential is the easiest of all the three named; for if nature does not furnish nectar enough to keep the queen laying, then it behooves the bee-man to supplement nature by daily feeding of some pure honey or sugar syrup. I like outdoor feeding best where other people's bees do not interfere. The amount of feed should be just enough to stimulate the queen to work, say $\frac{1}{4}$ lb. to each colony for ten days during September or even later if weather is not too cold.

FEEDING IN THE CELLAR.

This should never be done except as a necessity, and then only with combs of honey or cakes of candy hard enough so it will not run. Liquid feed should never be used, as it gets too cold, and chills the bees to death to fill up on it. In feeding frames of honey they should be put as close to the cluster as possible, and candy should be either molded into a frame so as to hang next to the cluster or be laid just over it under the quilt.

WHEN TO PUT IN.

After various experiments I have come to the conclusion that November 20 is about the proper time to put bees in the cellar, preferably when the weather is dry and cold, and I would let them remain there with as little disturbance as possible until settled weather in the spring, which is usually here between April 1 and 10.

WINTER-FLIGHTS.

To take bees out of the cellar and return them so as to break the long confinement into two short ones seems all right in theory, but experience has caused me to think it does actual harm unless it is deferred until they can be set out for good in at least 15 or 20 days. If your bees are uneasy and dying, it seems only to aggravate the trouble after a few days, and the best thing to do is to wait until there is something for them to gather pollen from before disturbing them. I know it seems hard to see your pets dying by the thousand, and do nothing; but better do nothing than something which does no good. There are winters, even in this latitude, when bees properly packed would winter just as well out of doors as in a cellar, but one can never tell beforehand what the winter is going to be; and with a hard winter bees with poor stores would be cut off from flight as much out of doors as in a cellar; and for all years indoor wintering is

safest, and the less amount of feed consumed in the cellar will always pay for carrying them in and setting out. As to the exact amount in pounds saved, I am unable to say; but I think 8 lbs. would not be too high a figure. I have yet failed to see any difference in the condition of bees due to wintering in a cellar or packed out of doors. I have had success with both ways and failure with both; but poor honey has caused me more loss than all other things combined. Moral—give sugar, perhaps.

Richland Center, Wis.

CELLAR WINTERING OF BEES.

A Vestibule Containing a Stove Necessary; the Advantage of Specially Designed Bottom-boards Providing an Enclosed Space Under the Hives.

BY O. L. HERSHISER.

The three most essential requirements in successful wintering of bees in the cellar or special repository are, even temperature at about 42 degrees F.; pure and moderately dry air, and good and sufficient stores of honey.

To obtain the proper temperature the cellar may be built entirely beneath the surface of the ground; or if above ground, wholly or in part, that the walls above the surface be of sufficient thickness to resist the influence of the outside temperature. It is difficult to construct a cellar or repository in which there will be absolutely no variation of temperature. If the variation amounts to but few degrees and is gradual, requiring a long time to make a slight variation, the bees will adjust themselves to such slight change without serious consequences.

There should be little or no difficulty in maintaining a pure and sufficiently dry atmosphere in a cellar built in dry sandy or gravelly earth where the drainage is perfect. Such earth, being porous, the air makes its way into the cellar fast enough to meet the requirements of the bees. It is likely, also, that such loose porous earth absorbs much of the impurities of the cellar air arising from the respiration of the bees. It is assumed that the retaining-walls will not be built so tight below the outside level of the ground as to resist the passage of air through the crevices. There seems to be a diversity of opinion as to whether a specially constructed ventilator to admit fresh outside air is necessary or desirable, but probably all authorities will agree that pure and wholesome air is necessary to good wintering. When the bees are in the most quiescent and dormant state, respiration (and consequently the consumption of air) is the slowest; and the quieter the bees are kept in the proper temperature, the longer will the air remain fresh and pure. Cellars under dwelling-houses usually have the chimney built up from the bottom of the cellar with an opening near the cellar floor. Whenever the chimney is

in use, which is almost constantly in the fall, winter, and spring months, there is a gradual but constant draft of air from the cellar, the fresh air from every little opening coming in to take the place of the air that has been drawn out through the chimney. That portion of the dwelling-house cellar where bees are wintered should be separated by a partition so constructed that it will resist heat and cold so thoroughly that the temperature of the other part of the cellar will not influence that of the bee-apartment. Especially should such a partition be made if there is a furnace in the cellar. Matched lumber and building-paper are good materials for such purpose, making the partition with an air-space, if necessary, to resist the influence of the outside cellar air. House cellars need no special ventilators to admit pure air, especially where there is a furnace in the cellar to heat the house. Almost any good house cellar can be made an ideal repository for bees. If such a cellar is subject to too much variation in temperature the bee-room should be tightly partitioned off, ceiled on the joists above, with a packing of four or five inches of planer shavings over the ceiling. This packing will sufficiently reduce the influence of the temperature from the rooms in the house above the bee-apartment, and deaden the sound of tramping and moving about on the floor over the bees. If the cellar walls above ground are so thin or insubstantial as to cause variations in temperature from that source, an inside wall of matched material and building-paper may be constructed at comparatively slight expense. The walls above ground may be banked on the outside also.

In constructing a special repository the location should be carefully selected. Nothing could be better than a sand or gravel bank with good drainage, and where the construction could be such that the bees could be carried in and out on level ground, thus avoiding the laborious operation of carrying heavy hives down and up a flight of stairs. A clay bank with good drainage would be almost as good as the sandy or gravelly ground, but harder to work. After excavating such space as is desired, a good cement or stone retaining wall should be constructed, surmounted by a roof or ceiling of sufficient strength to sustain the covering of 2½ to 3 ft. of earth, over which a roof should be built to keep the rain from soaking through. The walls should be beneath the surface, or, if built partly above ground, should be heavily banked. In such special repository a good-sized ventilating-shaft should be provided, passing from the ceiling up through the roof, so constructed as to be easily regulated. At the entrance to the cellar should be constructed a vestibule, which should be of sufficient size to accommodate a stove, and be provided with a chimney of strong draft. The vestibule would prevent drafts of cold air from coming in contact with the bees, and a fire in the stove with the inside door slightly open would gradually change the air whenever desirable to do so. Artifi-

cial heat to raise the temperature of a cold cellar or dry the air of a damp one is an advantage, if without it the bees would suffer; but the stove should never be in the same room with the bees, but in an adjoining room where the door can be used to regulate the heat in the bee-room. If the desired conditions can be secured without artificial heat, better results will undoubtedly obtain.

It has occurred to the writer that stone lime slacked in a damp cellar might be efficacious in drying it out; and if it were so constructed as not to become damp as fast as it is rendered dry this might be a cheap and effective means of drying and cleansing the air. There should by all means be a cement floor in the bee-cellar, especially if it is built in clay ground.

Where a good spring of water is available the same might be piped through the bee-cellar with good effect in maintaining an even temperature. While bees will winter with a pool of open water in the cellar, or even if the floor is covered with water, I have obtained better results in a dry cellar. Where there is a furnace in the cellar, however, open water in the bee-room might be a positive advantage.

By careful experiment I have found that the average consumption of honey of over 100 colonies in four months of confinement was a little less than 7 lbs. However, it is unwise to attempt to winter bees on the minimum amount of food they will consume. It is not always practical to feed in the early spring, on account of frequent and lengthy cold spells. Bees will frequently starve when there is one or two combs of honey in the hive if they happen to be clustered on the opposite side and away from the food. I do not feel that the colony is safe with less than 18 lbs. of honey, and 20 to 25 is better, as it gives the bees a good stock to work on in the spring. The saving in honey by cellar wintering, according to my best observation, no actual test having been made as to the amount of stores consumed by the colonies wintered outdoors, would amount to from 5 to 8 lbs. per colony. Feeding should be completed before the bees are placed in the cellar. Another important advantage is that a weak or nucleus colony which would surely perish outdoors may be safely wintered in the cellar.

The best cellar-wintering conditions obtain where, in addition, to the three essentials outlined above, noise, light, and direct drafts of air are avoided. These disturbing influences arouse the bees to activity, induce abnormal consumption of food, resulting in the rapid lowering of their vitality and consequent lowering of their numerical strength.

All requirements to successful cellar wintering being faithfully observed, the colonies will come up to the clover harvest fully as strong as those wintered outdoors; and, on the average, for a series of years, a much larger percentage of colonies will safely winter.

Good effects have been obtained by opening the cellar-door and windows at evening

and closing them at morning to admit cool air to lower the cellar temperature. This is a matter that requires good judgment. The opening should be at some distance from the bees if possible, so as to avoid bringing the cold air directly upon them. If the cellar is at a high temperature a small opening will cool it quite rapidly if the air is cold outside. If the air is about as warm outside as in the cellar, and the object is to admit fresh air, larger openings are advisable. Last winter the temperature of my cellar rose to 70 degrees F., and remained at about that point for three days. The bees became very active, so that their roaring could be distinctly heard in the living-rooms above. Doors and windows to the cellar were freely opened to admit fresh air, as the outside and inside temperature were about the same. This free admission of fresh air afforded much relief to all but a few over-active colonies which were carried out for a flight. Such protracted periods of warm conditions in the cellar are very exhaustive to the bees, and this experience has emphasized in a practical way the importance of having the cellar so constructed as not to be influenced by warm conditions outdoors or from the part of the cellar where the furnace is located.

Undoubtedly midwinter flights are beneficial to bees when they become uneasy and remain so any considerable length of time; and especially if they are soiling the hives; but far better is it to have the cellar so constructed that fresh air is present at all times, and the temperature practically uniform at about 42. With the ideal conditions for cellar wintering I believe that the bees are better off not to be disturbed until taken out to stay. In this climate, weather conditions during the winter are not always such as to favor a winter flight. We do not always have a "January thaw," and often February is equally cold. I favor setting the bees out as soon as we have warm days after the middle of March. Such conditions often do not obtain until well into April.

To the apiarist who has 100 colonies of bees to winter, the chief advantage of cellar wintering over that of wintering out of doors is the saving of from 600 to 800 lbs. of honey, or about \$50.00 in value; and the saving in wintering a greater or less number would be in like proportion. Another advantage is the greater uniformity of results; or the nearer approach to perfect wintering; and closely allied to this is the fact that weak or nucleus colonies may be wintered in the cellar when it would be impossible to winter them outdoors. Our heavy lake winds are very hard on the bees in the warm days of winter, and I am of the opinion that these moderately warm days with raw damp air are hard on the bees in every locality. According to my best observation, my bees have wintered, on the average, about 15 per cent better, as to the number of colonies successfully wintered, in the cellar than those wintered out of doors, so that, in addition to the saving of food, there is the saving of the value of 15 colonies in every 100. It is plain from my

experience, that it is highly profitable to build a good cellar, or alter the house cellar to meet the desired requirements, and winter at least a part of the bees in such repositories. Double-walled chaff-packed hives, of course, are not intended for cellar wintering.

Concluded in next issue.



THE BLACK HILLS OF SOUTH DAKOTA.

I greatly enjoyed a ride through the big cornfields of Iowa and Nebraska. I enjoyed it all the more after having heard Mr. Holden's corn talk; and just at present South Dakota also is showing some of the handsomest cornfields that can be found in any State. I am told by people who live there that for the last five years they have been having quite frequent rains. In my trip through South Dakota some years ago I told you they had the most beautiful roads, with little or no expense, of any place on the face of the earth. The black soil pounds down hard, almost like an asphalt pavement; and when water falls on these roads it not only runs off quickly, but I have seen rain water standing in puddles in the road, looking as clear as spring water, even after the buggy-wheels had been in and out of the puddle. This is because the surface gets hard, and impervious to water. In addition to this the prevailing high winds blow the dust off the roads about as well as you could sweep them with a broom. Now, this hard crust, so impervious to water, is not confined to the roads. When the country was first settled, the rain ran over this hard surface crust down into the creeks and rivers, and away off without moistening the soil. After the crust was broken to get in the crops, the rainfalls soaked into the ground; and tilling the soil has gradually had the effect, so it is claimed, of giving a moist atmosphere that is productive of or essential to rainfalls in the summer time; and many people think the distressing drouths of former years are for the most part, things of the past. I do not know how true this explanation is; but I do know there are some most beautiful-looking farms all through South Dakota; and I do know, too, that the farmers are getting to be well-to-do. This is attested by the pretty farm homes, nicely painted, with attractive dooryards now to be seen more or less all over that State.

There do not seem to be many bees kept in South Dakota as yet; but I think there is a good show for that when the farmers get over being so busy with their regular farm

crops. I found the Rocky Mountain bee-plant growing along the sides of the railway, and out into the fields over miles of territory.

We approached the region of where the Black Hills commence, a little after daylight, and you may be sure I was up and dressed, and on the watch for the first appearance of any thing in the way of mountains. The transition from rolling land to hills, and from hills to mountains, was so gradual that it was impossible to tell where the one ended and the other began. The most noted change was when we changed cars at Buffalo Gap to take a special train for the hot springs. As we approached the springs I noticed the track winding between the hills along a little stream. As we got further up, and really into the mountains, I noticed steam rising from the stream, indicating that it was hot water instead of cold; and just below the springs there is a volume of hot water sufficient to furnish power for mills and for other purposes. This hot water starts out almost everywhere in the town. From over a hundred springs, all giving more or less volume of water of different temperatures. I was able to find only one spring of cold water in the region. I believe the general opinion is that the water becomes hot in consequence of the different chemicals it meets and dissolves in its way to the outlet. I think there are few if any of these springs that are hot enough for a real Turkish bath; but several of the sanitariums have a heating-plant to raise the temperature up to the desired point. Bath-houses and swimming-pools are some of the finest I ever saw in any land or any city. The water is so transparent that, even at a depth of clear up under your arms, you can look down and see the sparkling pebbles mixed with the white sand that covers the bottom of the pool. The water is pure and clean because of the great volume that constantly goes in and comes out.

Some of these swimming-pools belonging to the great bath-houses are from 100 to 150 feet long, and perhaps half as wide, and inclosed with glass, something after the fashion of greenhouses, so they can be used winter and summer; and I assure you it is exceedingly pleasant to be able to take a bath, where both the air and water are just right to be comfortable, at any season of the year. But before I tell you any thing more about the baths I shall have to digress a little.

There are some magnificent buildings in Hot Springs, made of native stone quarried from the mountains. Some of these are as handsome buildings, in fact, as one will find in almost any town or city. But they are not all as handsome inside as out. I did not patronize the highest-priced hotel, for I usually get comfortable quarters for \$2.00 or \$2.50 a day. I dislike to find fault, but I almost always get the blues, even if I do not get sick, when I am given a room where the bed looks as if a thousand people had slept in it, and some of the blankets smell as if five hundred of the thousand had been users of tobacco. I told you in our last issue that I was troubled with my old malady, malari-

al fever. Well, I hoped the health-giving medicated springs of the Black Hills would fix me up; but I felt sure I should not get fixed up very fast if I stayed in *that* hotel, and I was thinking of some good excuse for leaving after I had had just one meal on the premises. By the way, I almost always get more or less homesick when I am first dumped entirely into a strange town where I do not know a man, woman, or child. I know this feeling is wrong, and it often brings up that little prayer, "Lord, help! Lord, help me to be of some use to *this* people." I think I said almost out loud something like the foregoing as I crossed one of the beautiful bridges right in the center of the town. My first move was to hunt up some place where they would be likely to sell honey, and I had gone to almost every grocery in the place without finding any honey at all, when I saw some in a window. They said it came from Denver, so that did not help me to find a bee-keeper. By the way, the proprietor of this place would have his crate of honey standing on the floor so the sections lay horizontally, just as they do when you put your honey on a plate. I tried to explain to him that he should tip his case over and lift out his sections edgewise; but he thought he knew his own business. Just as I went out I asked him if he was sure there was no one who kept bees anywhere in that region. He replied:

"Why, Huebner, who lives up on the hill, used to keep quite a lot of them; but I guess he let them go, because he has so much other business."

"What is his other business, pray?"

"Why, he keeps a sort of hotel or place for resorters."

"There," said I to myself, "if that man has ever kept honey-bees he knows something of our people; and I shall have a good excuse to tell them at the hotel that 'I have found an old friend,' etc."

I climbed the beautiful curving road that led up to the top of a hill overlooking the city. Mr. Huebner was indeed a busy man; but his face brightened up when I told him who I was. But he looked troubled when he informed me that his hotel or building was already full.

"But, Mr. Huebner, you *must* find a place for me somewhere. I am sick and homesick; but if I get up here with you people I am sure I shall be well."

Just then a merry party was starting off to a bath-house. I got in with the crowd; and when I offered to pay my fare the driver said it was not any thing if I was going to take a bath. The hotels and bath-houses together furnish free transportation to their customers. Now let me finish what I have to say about hotels.

At that great handsome hotel that looked so nice on the outside I paid \$2.00 a day. At friend Huebner's it was about half as much. My room was small, but it was as clean and sweet as you will find things in our best country homes. There was not a great amount of style, and no colored waiters at

the table. But there was a great abundance, and a good variety of wholesome food. Friend Huebner is a German, as you might infer from his name. His guests, I believe, are mostly German people. In fact, the German language is spoken a good deal there. But they are about the kindest and most friendly sort of people I ever came across. When I had my chilly spells, as I almost always do in August and September (that is, if I am in a region where there is malaria), I was made quite at home and quite welcome up close to the big cook-stove, where I could help myself to hot water from the spacious tea-kettle.

Friend Huebner has made his humble home handsome with flowers, fruit-trees, and little simple ornamental work all around the premises. At different places in the doorway there are pyramids of mineral curiosities—samples of petrified wood, etc., for instance. In fact, petrified wood is so plentiful and common there that one may see it lying loose in the streets. Beautiful hitching-posts are made of broken fragments of petrified wood. You might think it was an old rotten log until you tried to jab the blade of your knife into it, and then you would find out your mistake. I saw a rotten log by the side of the road, or at least I supposed it was; but when I came to hit it a clip I found it was beautifully veined agate. I wondered that these petrifications are not collected and sold in regions where they are not so common.

THE HOT SPRINGS AND HOT-SPRING BATHS.

Right in the center of the town there is a spring called The Kidney Medical Spring. Drove of people are constantly going there to drink. Something like a dozen cups are provided, belonging to the spring. But many of the people carry their own cups. They will get a cupful, sit down on the benches, and drink it slowly. I had hoped it might be a benefit to me in my malady, like the springs of Agua Caliente, Arizona, that I wrote about three years ago; but as I had had some sad experience with medical springs in the past, I sipped the water a little cautiously. It had a faint sulphurous odor that warned me; and I soon decided it would not do for me at all. Some big doctor has said "the best mineral waters are those that contain the *fewest* minerals;" and I have often found it so in my case. When I wanted some different water to drink, I found it was a pretty difficult matter to get it. Thousands of people come to this region to seek their health, and I concluded to make something of a study of the methods of baths and bathing. Let me digress a little:

Almost all through my life I have been a victim at times of severe colds. Sometimes I can ward them off for a year or more by being careful of my diet and of the water I drink, etc.; but at other times they come like a thief in the night, and I can not tell for the life of me what brought the trouble on. Just about as I was embarking from Cuba on my homeward trip, by carelessness in regard to my attire while riding my

wheel, or something else, I caught a severe cold. It settled in my throat, and I was so hoarse I could hardly speak. I began wondering if it is in the power of our physicians of the present day to break up such a cold, especially with myself; and in thinking over the sad experience I had gone through, especially in doctoring with all sorts of medicines, and I might say with all sorts of doctors, I rather decided it is not in the scope of medicine to break up a cold after it has gotten such a hold as mine had. I went on board the ship, and prayed with unusual earnestness that God would in some way show me (in a way so I could teach my fellow-men) what to do to break up a cold. A swift answer came to that prayer. It not only came in an unexpected way, but it made me think of the old adage that the remedy *may* be worse than the disease. When we got out of the still water into the great ocean I became violently seasick. The sweat just oozed from every pore like rain. I was drenched through and through with perspiration; and it was not only perspiration, but every thing else movable in my digestive apparatus seemed to make haste to get out of the way. I wiped my weeping eyes (and nose), and realized at the same time that my prayer was answered. The soreness in my throat was all gone, the ague in my face had disappeared, my nostrils were perfectly cleansed, and the earache gone. I stayed in my berth till we arrived at Miami, and then walked out in the beautiful sunshine—I was going to say, clothed and in my right mind, and thanking God. A tremendously big sweat did the business.

I gave you a few months ago an illustration of the same thing when I spoke of tramping along with the surveyors in Northern Michigan. Well, at Hot Springs I had a glimpse, I think, of another way yet of getting rid of a sudden attack of severe cold in the head and all over the body. I told them at one of the bath-houses I wanted to go through the program and see just how they managed to cure people. They put me in a bath-tub filled so full that I could get entirely under water without any trouble. The temperature was raised as high as I could stand it; and I was told to remain in under the water (head and all at intervals) twenty minutes, and to add hot water whenever I could stand a little more. In twenty minutes I began perspiring all over. I am not prepared to say that this treatment took the place of the sweating I had on the rolling steamer, nor, perhaps, at the time when I took such severe physical exercise in climbing the hills with the surveyors; but it was an important remedy, along in the same line as producing a sweat by means of the health cabinet so much advertised, and perhaps amounts to the same thing, or may be a little better. The bath-tub, however, it seems, is less machinery where you have an abundance of hot water. The minerals in this hot water at the Black Hills may have some value. Very likely they do have. Some of you may remember the story of the Missouri woman

who went to a celebrated sanitarium and regained her health. A year later her health failed in the same way, but they had not the money to send her a second time to a sanitarium. She told her husband she believed the water out of their own well at home would do just as well if used in the same way. So they rigged up a home-made sanitarium, and they were delighted to find it answered every purpose. Now, I do not say this to discourage people from visiting the Black Hills. A change of scene and a change of air, or a change of one's habits, often has much to do with getting over old troubles.



Even so it is not the will of your Father which is in heaven that one of these little ones should perish.—
MATT. 18:14.

I have mentioned elsewhere the great wheatfields in the far West, and the fact that for three or four years past the abundant rainfall has given a much larger yield than formerly. Well, now, these great wheatfields, the wheat standing almost as high as your head, have proven to be not altogether an unmixed blessing. Children have got lost in those great fields, and sometimes it has been a difficult matter indeed to find them. Not many weeks ago a girl four years old wandered out into the wheat. When the mother failed to find her she called on the neighbors. I presume likely they had telephones, and soon something like 200 people gathered to find that little girl before nightfall. But they utterly failed. They did what they could during the night by the use of lanterns; but when morning came, nothing had been accomplished. Finally one good man who had more sense than the rest of them said, "Friends, this child will die while we are wasting our time. We have just tramped over the same ground, and looked into the same places, and accomplished nothing. We must organize."

In a little time he had the 200 people present divided off into squads with a leader, and then they marched through a field just far enough apart so the child would be seen wherever they passed through. In a couple of hours she was found; but I am sorry to say she was so worn out and used up by fright and exhaustion that she died within fifteen minutes after she was placed in her mother's arms. Here is a lesson for us in regard to what may be gained by organization. Had they decided on it the day before, the child might be still living.

Last Sunday was rally day in the Sunday-school of our church. I told them this story:

and to make it more realistic I asked a little girl four years old to stand with me on the platform. Other little girls and boys to the number of 100 or more were down in the seats in front of me. I said, "Children, if this little girl were lost in the wheat, how many of you would volunteer to help find her? Raise your hands."

When the hands were all up, young and old, to the number of perhaps two or three hundred, I said:

"Now, don't you think likely, friends, that not only our whole Sunday-school but the whole town of Medina would turn out just for one little girl?" They seemed to think it quite probable. I went on:

"Children, how much is this little girl worth? How many dollars could we afford to spend rather than let her die out in the wheatfields?" The children looked from one to another, evidently puzzled at the thought of putting the matter on a money basis. Finally when I suggested that the little girl I held by the hand was worth a million of dollars, several of the children nodded their heads approvingly. I then suggested that, if this were true, there was quite a lot of property—yes, exceedingly *valuable* property—in that Sunday-school of ours. In closing, I read them the text at the head of my talk to-day to show what God thinks of the value of our children. Governor Hanly, of Indiana, is not only a great orator, but he is a great reformer. He has been teaching the whole world some valuable lessons in regard to the importance of enforcing law. Here is a clipping from one of his speeches, which I clip from the *Ohio Messenger*:

"I would rather have the beaming smile of one boy saved from the dens of iniquity by my law enforcement than the combined vote of the beverage-liquor traffic and its sympathizers."

It was my good pleasure to listen for something like two hours to an address by Governor Hanly, only a few weeks ago. I did not get tired a bit; and I am glad to inform you that he is to make the opening speech before the great meeting of the Ohio Anti-saloon League, to be held in Columbus, Nov. 12, 13. Just now Ohio is going through a crisis. One town after another is holding an election to see whether it shall be saloon or no saloon. A good many business men are afraid to come out and show their colors. They will own up that saloons are detrimental to business, without any question; but they will not permit you to use their names on the list so that all the world may know they are going to work for temperance and vote dry. Many political men are cowardly in the same way; but not so with Governor Hanly. Just read that extract again. He would rather have the beaming smile of one boy *saved* than the combined vote of the entire liquor-traffic and its sympathizers. But Governor Hanly is not going to lack support when he comes out like that, neither will any other good man.

Just now we are preparing for a Beal election-law contest here in Medina. Eight years ago we had a vote along the same

line, which I mentioned in these pages. At that time the argument of the wets was that we had the traffic but did not get any revenue. Some went so far as to say there was as much beer and whisky sold as if we had had open saloons. Well, since that time the Ohio search-and-seizure law has been passed. By the way, I rejoice to tell you that the author of that law is a resident of our town, and a personal friend of mine. I am proud of Medina that such a man grew up here. Mr. Frank W. Woods drafted the law, pushed it through, and within the past few days it has been the means of cleaning out the two speakeasies that have cursed our town for years past. Something like thirty or forty kegs of beer were found secreted on their premises, and I am told that the traffic in beer here in a dry town has amounted to many thousands of dollars annually. Since that business has been completely broken up, however, they and their sympathizers and patrons have evidently decided their only hope is to outvote the temperance people (our Sunday-schools and churches), and make the town wet; and unless we are up and dressed, and do our duty, the enemy will defeat us. It is a sad fact that even a few towns and cities here in Ohio have gone back to wet after years of prohibition. The millionaire brewers are helping every way in their power, just as a drowning man catches at straws. They themselves admit that, if the Anti-saloon League is allowed to push on in the way it has been doing, it will eventually carry every thing before it. And this state of things is not only here in Ohio, but it is all over the land. It was a terrible thing when that little girl was allowed to die from exhaustion in that wheatfield. I think I forgot to tell you that she was found fully two miles from her home. That is a pretty big trip for a girl four years old to make. Yes, it was all the sadder because a little forethought on the part of the kind friends and neighbors might have saved her life. But, dear friends, the loss of that child in the wheatfield is not to be compared with the loss of the boys and girls in our Sunday-schools who are constantly being led away and lost by a certain class of tradesmen who are trying every thing in their power to "create an appetite" for strong drink. The brewers care nothing for the children providing they can sell beer to them. The little girl in the wheatfield suffered bodily death; but those who are led away by Satan's wiles are lost, body and soul. Jesus said, "Fear not them which kill the body, but are not able to kill the soul." And, again, he said, "The Son of man is come to seek and to save that which was lost."

FAKE TESTIMONIALS FOR PATENT MEDICINES, ETC.

We clip the following from the *Union Signal* for Sept. 27:

Perhaps the worst case of fraudulent testimonial is one that appears in the advertisements of the Worst

Catarrh Treatment. *Worst* is the manufacturer's name, not an adjective applied to his treatment, but it fits his method of deceiving the public. The following appeared in a religious paper published in Syracuse, N. Y., on March 29, 1906:

THE E. J. WORST CATARRH TREATMENT THE ONLY
SUCCESSFUL TREATMENT FOR CATARRH

ENDORSED BY
THE UNITED STATES HEALTH REPORT.
READ WHAT THEY SAY.

Washington, D. C., Oct. 30, 1900.

We are constantly receiving letters from all over the country asking for information on the subject of catarrh and the air-passages of the head. We have been asked time and again to recommend some remedy which can be used with good results, for these diseases.

To benefit the public at large, and to answer their questions, we have recently commissioned our Board of Experts to investigate the subject of catarrh and its cure, to find some remedy which would successfully meet the conditions, and be easy and simple of application. The report of the Board of Experts has been handed in, and, as a result, we are pleased to recommend a treatment which is manufactured by the F. J. Worst Mfg. Co., Ashland, Ohio. Mr. Worst has developed the idea of medicated-air treatment very successfully, and has designed the neat and efficient little instrument which is becoming so well known as the E. J. Worst Catarrh Mediator.

As a result of this investigation we are pleased to extend to E. J. Worst's catarrh treatment the unqualified endorsement of the *United States Health Reports*.

A. N. TALLER, JR., M. D.

Washington, D. C.

I sent the advertisement to Dr. Harvey W. Wiley, chief of the Bureau of Chemistry at Washington, D. C. Dr. Wiley has had charge of the analyses of medicines made by the United States Government. His response reads:

"Dear Madam:—I do not know of any United States Health Reports of the kind mentioned in the advertisements which you enclosed. The advertisement is evidently fraudulent in respect to this."

A note to the editor of the religious paper referred to elicited a promise to be very chary henceforth of medical advertising.

No excuse of careless or mendacious agents can account for this species of testimonial.

Why, the above is about as cheeky as the Duffy Malt Whisky people—in some respects probably even more so, as they pretend that the heads of our great nation gave them an indorsement. Just notice the words, "To benefit the public at large;" and again, "We have recently commissioned our Board of Experts to investigate." One might also think that President Roosevelt himself, out his love for humanity, had asked to have an investigation made. Do you say that anybody of good common sense should know at once that our government was in no such business? Well, I think I shall have to admit that I myself saw the advertisement in the *American Issue*, our Anti-saloon periodical. I sent for the medicine; but when I found on faithful trial it did not do me a particle of good I reported the case to Worst, who promptly returned my \$2.00. I say this to his credit; but it is certainly no excuse for pretending that his remedy is indorsed by the "Department at Washington."

HUMBUGS AND SWINDLES IN THE POULTRY BUSINESS; SELLING SECRETS, ETC.

I have felt pained a good many times to notice so many of the poultry-periodicals accept advertisements of secrets to be sent for from 25 cents up to five and sometimes

ten dollars; and I have felt sad to find so many good people who defend this sort of business, asking several dollars for information printed on a small piece of paper, etc. Well, the Maine Experiment Station has issued an exceedingly valuable bulletin in regard to the experiments made in connection with poultry-keeping. One of them hits a clip at the \$10.00 secrets, and I have thought best to give it here, especially as it contains matter of considerable value aside from the exposé:

METHODS OF SELECTING BREEDING STOCK.

The only reliable method of selecting breeding-stock is by aid of the data secured by the use of trap-nests. It is, however, only investigators, large operators, and breeders who make a business of producing birds and eggs for breeding purposes, for sale, who can afford the equipment and expense of operating trap-nests. Most poultry-men and farmers who carry small flocks are usually too busy to give the regular attention required by any reliable and satisfactory trap-nest. They can better afford to buy the few males required each year from some one who makes breeding stock by trap-nesting a specialty.

There are one or two concerns that advertise to teach how to pick out the pullets that are to be good layers, and how to pick out the hens that have laid well. The price for the system is \$10.00 by one of the concerns, with a bond of \$1000 to keep the secret. The warm friends of both systems tried them on some pens of trap-nested birds at the Station, with known records, and both parties went away sorrowing at the results of their work. Their systems were unknown to the writer; but it does not matter, for both were completely valueless as applied here.

Two others came to show that it was not necessary to use trap-nests. One claimed to be able to tell the laying capacities of the pullets by the position of the pelvic bones; while the other was sure he could tell the yields for the coming year, to within eight or ten eggs, by the length and shape of the toe-nails. Another was sure that large combs are infallible indications of great egg-laying capacities.

There are eighty birds in one yard at the Station, each one of which has laid from 200 to 251 eggs in a year. So far as can be discovered, they differ from each other sufficiently to upset any theory of selection thus far put forward. One feature is common to all these hens—they all have strong constitutions.

The above only verifies what our experiment stations in all the different States have told us—that *no good thing* has ever yet been found coming out under the guise of a \$5.00 or \$10.00 secret. The bond of \$1000 to keep the secret is a new wrinkle. Throw all such proposals into the fire; and if one of the "promoters" comes into the dooryard, set the dog on him. If you are in doubt in regard to any such investment, just submit the matter to the experiment station of your own State. They are well posted, clear up to date, and will give you honest and unbiased advice.

Convention Notices.

The annual meeting of the Ontario Bee-keepers' Association will be held in Toronto, November 7, 8, 9, 1906, at the same time the Ontario Horticultural Society will hold their exhibition of fruit, flowers, honey, and vegetables. A cordial invitation is extended to all American bee-keepers to attend. We hope our program will be one of the best. W. COUSE, Sec. Streetsville, Ont., Sep. 29.

In behalf of the Texas Bee-keepers' Association and the bee-keepers of Texas in general, I wish to extend to every member of the National Bee-keepers' Association an urgent invitation to be present at the meeting of the National, to be held at San Antonio, Texas, Nov. 8, 9, 10. We Texans are looking forward for that meeting to be a great "love-feast" of bee-

keepers. And I wish to say to all bee-keepers of Texas that if you do not avail yourself of this opportunity to attend this convention, from a bee-keeper's point of view you have missed the opportunity of your life.

Hondo, Texas, Oct. 6.

W. O. VICTOR,
Pres. Texas B. K. A.

PROVISIONAL PROGRAM OF INSPECTORS' MEETING, SAN ANTONIO, NOV. 12.

Demonstration of bacteria of bee diseases. Dr. G. F. White, U. S. Dept. of Agriculture, Washington.

History of bee-disease inspection in Wisconsin. N. E. France, inspector of apiaries for Wisconsin, Platteville, Wis.

General discussion of existing bee-disease laws; an examination of laws now in force, and suggestions for most effective legislation.

The introduction of European foul brood into Michigan. W. Z. Hutchinson, inspector of apiaries for Michigan, Flint, Mich.

The inspection of European foul brood in New York. Charles Stewart, inspector third district of New York, Sammonsville, N. Y.

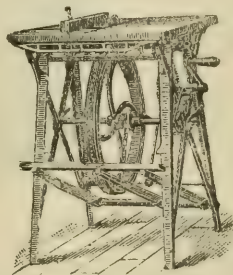
Foul brood on the Pacific coast. F. A. Parker, former inspector Santa Barbara Co., Lompoc, Cal.

The present status of the investigation of bee diseases. Dr. E. F. Phillips, United States Department of Agriculture, Washington, D. C.

Reports of inspectors from the various States and counties on the progress of inspection.

This program is subject to such changes as may be necessary, but it will indicate the character of the meeting. All persons interested in bee-disease inspection are urged to attend. A number of persons prominent in this work have agreed to be present.

E. F. PHILLIPS,
Acting in Charge of Apiculture.



BARNES' HAND and FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

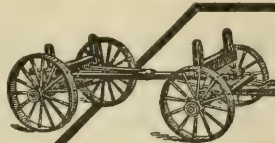
MACHINES ON TRIAL

Send for illustrated catalog and prices. Address
W. F. & JNO. BARNES CO.
545 Ruby Street,
ROCKFORD, ILLINOIS.



LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address
COILED SPRING FENCE CO.,
Box 448 Winchester, Ind.



A low wagon
at a low price.
Handy for
the farmer.
Will carry a
load anywhere
where a horse
can travel.

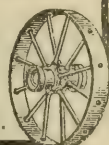
Low Down Wagons

soon earn their cost on any farm.

Steel Wheels

for farm wagons. Straight or staggered spokes. Any size wanted, any width of tire. Hubs to fit any axle. For catalogue and prices, write to

Empire Mfg. Co., Box 91 Quincy, Ill.



"If Goods are wanted quick, send to Pouder."

Established 1889

Bee-Keepers' Supplies

Distributor of Root's Goods from the best shipping-point in the Country. My prices are at all times identical with those of The A. I. Root Company, and I can save you money by way of transportation charges.

Special Notice!

During this month (October) I am offering a special discount of six (6) per cent for cash orders for Bee-supplies for next season's use. After November 1st the discount will be 5 per cent.

**New Metal-spaced
Hoffman Frames
are Here in Stock**



**Headquarters for the
Danzonbaker
Hive**

**Dovetailed Hives, Section Honey-boxes,
Weed-process Comb Foundation,
Honey and Wax Extractors, Bee-smokers,
Bee-veils, Pouder Honey-jars, and,
in fact, Every Thing used by Bee-keepers.**

. BEESWAX WANTED!

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express: large shipments by freight. Always be sure to attach name to package.

If you wish to secure finest grades of Honey with which to supply your neighbors, write for my market Quotations of the Indianapolis honey market, free.

Catalog Free

Walter S. Pouder
513-5 Massachusetts Av., Indianapolis, Ind.

At St. Louis

A complete line of Root's Bee-keepers' Supplies. Unexcelled shipping facilities for reaching the Middle West.

ADDRESS

**Blanke & Hauk
Supply Co.**

**202-204 Market Street
St. Louis, Mo.**

ALSO MANUFACTURER OF AND DEALER IN

**Dairymen's
and Poultrymen's
Supplies**

Low freight. . . Prompt shipments.
Factory prices. . . Write for catalog.

Send Us Your Order

10^{per}_{cent} Discount During October!

In order to liven up business during the dull months we will give ten per cent off all supplies, in the catalog, whole-sale or retail, during October for goods for next year.

Jobbers for
Central : Pennsylvania
— for —

ROOT'S GOODS

Now's the time to save money on goods for next season. Send for catalog. Best shipping facilities in the State.

Frank W. Prothero
Dubois, : : : Pennsylvania

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company

H. G. ACKLIN, MANAGER

1024 Mississippi Street, St. Paul, Minn.

The Prosperous Bee-keeper will order
Dittmer's
. . . . Foundation

which is best, while they are offering a liberal discount of 6 six per cent during October.

Working wax for cash a specialty. . Beeswax always wanted.

Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at LOWEST PRICES, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. SPECIAL DISCOUNTS now. Write to-day. Address

Kretschmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trester Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.

Established 1881

YES!

Same Place 1906

THIS IS THE MAN

WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year. ♡ ♡ ♡ ♡

Geo. E. Hilton, - Fremont, Mich.

We Manufacture

the finest, whitest, no-drip basswood SHIPPING CASE on the market to-day. Covers and bottoms are of ONE PIECE. Everything is POLISHED on both sides, and a better case can not be had at any price. We can furnish them in single or carload lots to fit any number or style of section. Large quantities of all the standard sizes on hand. . . . As a special offer we will sell you 25 cases to hold 24 sections, complete with NAILS, PAPER, and GLASS at \$4 00. Write for prices on larger quantities. Furnish corrugated paper if desired. We can furnish you with any thing you need in the apiary. Our catalog is free. . . . PROMPT SHIPMENT and SATISFACTION GUARANTEED.

Minnesota Bee-supply Company
Nicollet Island, No. 20, Minneapolis, Minnesota

BEE - SUPPLIES

Best of every thing needed.
Big Discount from now to
April 1st. . . Catalog free.

C. M. Scott & Co., Indianapolis, Ind.
1004 East Washington Street

PATENTS.

Twenty-five Years' Practice.

PRINDLE & WILLIAMSON,

Second Nat'l Bank Bldg., Washington, D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.

BINGHAM
Original
Direct Draft
CLEAN
Bee Smokers



Pat'd 1878, '82, '92 & 1903

Long Advertising

Twenty-seven years ago the first patent bee-smoker surprised bee-keepers. The Bingham Smoker patented improvements are dated 1878, 1882, 1892, and 1903. They always please; they always sell. For October orders we discount 6 per cent; any number, any size, delivered any time.

T. F. Bingham - Farwell, Mich.

Third Photo Contest

We want bright interesting photos to illustrate GLEANINGS. Send in those you think suitable, and you will stand a chance of one of the prizes below.

PRIZES

Class A.—Photos of general interest, excluding swarms and apiaries. Prizes: First, \$5.00; second, \$3.00; third, \$2.00; fourth, A B C of Bee Culture.

Class B.—Photo of swarms. Prizes: First, \$3.00; second, \$2.00; third, A B C of Bee Culture; fourth, GLEANINGS one year.

Class C.—Photo of apiary. Prizes: First, \$3.00; second, \$2.00; third, A B C of Bee Culture.

Special.—Photos that do not win prizes but which we can use will be awarded a prize of \$1.00 each.

CONDITIONS

Contest closes November 1st.

All photographs should be marked "For Contest," and have name and address attached. Prize-winning photos become our property. No photo returned unless stamps are sent. We prefer unmounted prints toned to a light-red-dish color on solio paper.

The A. I. Root Company

Photo-contest Department
Medina, Ohio, U. S. A.

Swarthmore Books!

BABY NUCLEI (2d ed.)—The second edition of this popular treatise is off the press. This book thoroughly covers the field of small mating under management. The experience of twenty years in mating young queens in baby nuclei is given. A delightful little book—good printing, enjoyable reading, and easy understanding. Price 25 cts. postpaid.

SIMPLIFIED QUEEN-REARING.—A revised edition of this book just out. It tells the honey-producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just an effective and economical plan for the bee-keeper who works for profit. Price 25 cts. postpaid.

INCREASE.—Don't depend entirely upon swarming for your increase. It's too slow and uncertain. Swarthmore tells of a way in his delightful little book entitled "Increase"—a natural way, simple and safe, no labor, little trouble. Colonies formed on this plan will work like prime swarms, and store a surplus. Price 25 cts. a copy postpaid.

CELL-GETTING.—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life. Price, postpaid, 50 cts.

SWARTHMORE QUEEN-REARING TOOLS.—Complete outfits or separate parts. Write for price list.

FOR SALE BY

The A. I. Root Company

ALL BRANCHES AND AGENCIES

Northeastern and New England BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

HONEY-JARS

No. 25, with burnished cap, heavy clear glass, per gross, \$5.00; 3 gross, \$13.50.
11-ounce nickel-cap jar, gross, \$4.00; 3 gross, \$11.00.
1-lb. square jar with cork, gross, \$5.00.
Heavy cartons, \$5.50 per M.
Italian queens, 75c. Catalog free.

I. J. Stringham
105 Park Place, N. Y. City
Apiaries at Glen Cove, L. I.

Banking by Mail

4 : per : cent : Interest

NEARLY every man has a little money that he would like to have safely invested outside of his business, but in such a way that it would give him no worry, would be readily available should he need it, and at the same time earn a fair rate of interest.

Deposits of \$1.00 and upward are accepted by mail or in person, and interest allowed at the rate of 4 per cent, compounded every six months.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system. Write for the booklet to-day.

Assets over One-half Million



MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

COILED SPRING FENCE



Closely Woven. Can not Sag. Every wire and every twist is a brace to all other wires and twist full height of the fence. Horse-high, Bull-strong, Pig-tight. Every rod guaranteed.

30 DAYS FREE TRIAL and sold direct to farmer. Freight prepaid, at lowest factory price. Our Catalogue tells how Wire is made—how it is galvanized—why some is good and some is bad. Its brimful of fence facts. You should have this information. Write for it today. Its Free.

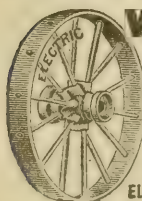
KITSELMAN BROS.,
Box 21 MUNCIE, INDIANA



FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today.

COILED SPRING FENCE CO.
Box 101 WINCHESTER, INDIANA



WAGON SENSE

Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

Electric Handy Wagon.

It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It's free.

ELECTRIC WHEEL CO., Box 95, Quincy, Ill.

JOSEPH HORNE CO.

Pittsburgh, Penn.

Elastic Cotton Felt Mattresses

The mattress which is best thought of to-day is the Elastic Felt Mattress. There has been considerable mystery thrown about the manufacture of this mattress on the part of certain manufacturers. We will be frank and tell you that a felt mattress is simply one in which the cotton is felted in by layers instead of being put in promiscuously.

Our Elastic Cotton Felt Mattresses are the equal of any on the market to-day, and they are all sold for popular prices. All weigh 45 lbs.

Of course we guarantee the mattresses we sell, and pay the freight on any of the following to any point east of the Mississippi River.

J. H. Co.'s Special Elastic Felt Mattress \$15.00

"St. Regis" Electric Felt Mattress : 14.00

"Ritz" Elastic Felt Mattress : : 12.00

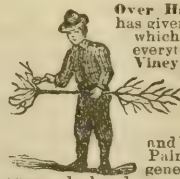
"Savoy" Elastic Felt Mattress : : 8.50

We have an excellent cotton mattress—not a felted mattress, but a thoroughly good article—filled with the best grade of picked cotton, full double-bed size, for which we ask only \$6.75.

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it six months on trial. Sample free.

The Southern Fruit Grower, Box 1, Chattanooga, Tenn.



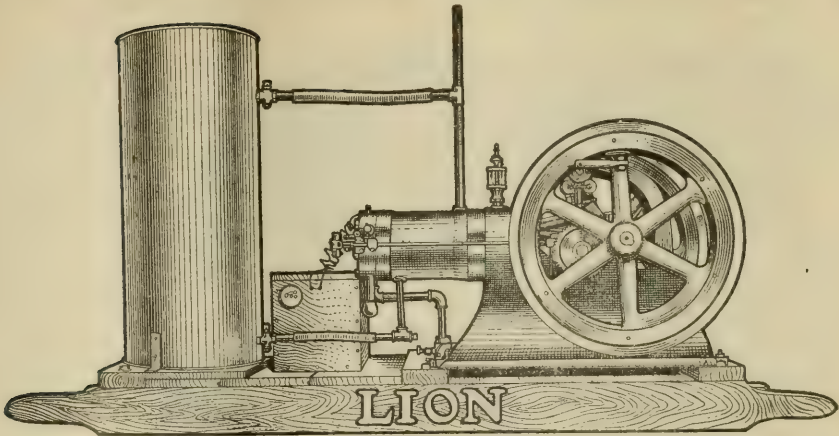
Over Half a Century of Fair Dealing has given our products that prominence which merit deserves. We still offer everything of the best for Orchard, Vineyard, Lawn, Park, Street, Garden and Greenhouse. Catalogue No.

1 free to purchasers of Fruit and Ornamental Trees. No. 3 free to buyers of Holland and other Bulbs, Hardy Plants and Vines, Roses, Ferns, Aracarias, Palms and Greenhouse Goods in general. Try us. Will give you a square deal and guarantee satisfaction. Correspondence solicited. 53 years; 44 greenhouses; 1200 acres.

THE STORRS & HARRISON CO.
Box 275, PAINESVILLE, OHIO

850,000 GRAPE VINES

100 Varieties. Also Small Fruits, Trees, &c. Best protected stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. **Louis Roosch, Fredonia, N.Y.**



IT'S READY TO OPERATE

There's no firing-up—no waiting for steam with a **Lion** Gasoline Engine. It is **always ready to operate**. Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

The Lion Engine

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

We sell direct from factory to buyer, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion** engine and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion** engine. It is free if you mention this paper when you write.

Lyons Engine Company
LYONS, MICHIGAN





The Youth's Companion

250 Capital Stories; 2000 One-Minute Stories;
The Children's Page; The Editorial Page;
The Notes on Science; The Weekly
Article on Hygiene and Emer-
gency Treatment, Etc.

As much reading in the year as would fill twenty 400-page novels or books of history, science or biography, ordinarily costing \$1.50 each.

Send for Free Sample Copies and Illustrated Announcement for 1907 Free.

EVERY NEW SUBSCRIBER A 70

Who cuts out and sends this slip (or mentions this publication) with \$1.75 for The Companion for the 52 weeks of 1907 will receive

FREE

All the Issues of The Companion for November and December, 1906.

The Thanksgiving, Christmas and New Year's Double Numbers.

The Companion's 12-Color Four-Leaf Hanging Calendar for 1907.

\$16,290 in cash and many other special awards to subscribers who get new subscriptions. Send for Information.

THE YOUTH'S COMPANION, BOSTON, MASS.

USE CONCRETE

The **Cheapest, Best** building material on earth.

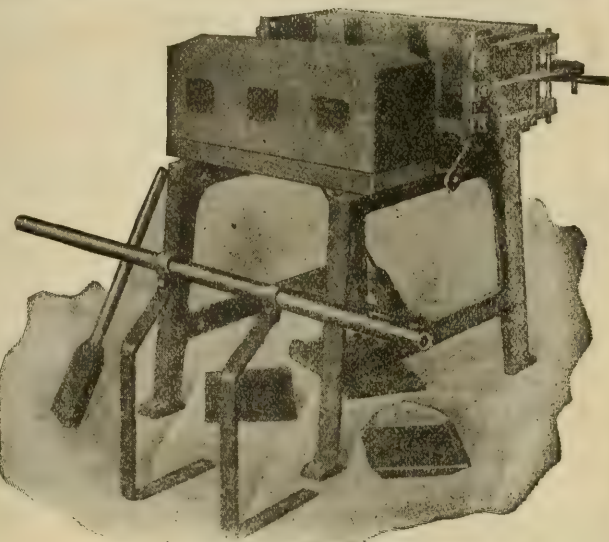
By the use of this machine one can make concrete building blocks, either solid or hollow, smooth or rock face, any width to 8 inches and any length to 24 inches.

The rock-face plate is an exact reproduction of a beautiful piece of hand-chipped "Berea sandstone." With it we include the tampers, carrying-hooks, cut-offs, etc., and every thing necessary but the boards on which to carry the blocks away.

It's **Just the Machine** for one to have who has any building to do the **Coming Season**. Make your blocks this winter in the basement of a barn or any place that can be kept above freezing.

This is the Machine we have advertised and sold for years for \$50.00. We have a few of these **Old Reliable "No. 1 Handy"** machines on hand that we want to move at once in order to make room for a large stock of heavier machinery for the spring trade.

Send us \$32.50 and we will send you one of them; or, if you prefer,



we will send it with draft and bill of lading attached so that you can see what you are getting before you pay for it.

Don't Wait a Moment. Send in your order. Our stock of these machines is not large.

Medina Concrete Company, 22 Court St., Medina, Ohio

We are Furnishing the Blocks being Used in the Construction of The A. I. Root Co.'s new Concrete Office Buildings.

The Whole Family Group

THIS is the greatest magazine offer ever made. The four magazines, each at the head of its class, cover the reading-matter for the whole family. ♡ ♡ These sixty numbers cover about 6000 pages of the best literature and art by famous writers and artists, including nearly 500 pages of newest things in fashion and tasteful color printing ♡ ♡ ♡ No such chance has occurred for years, and it is not likely to be repeated at this price. ♡ ♡ ♡ **HERE IS THE OFFER**

GLEANINGS IN BEE CULTURE.

24 issues (semi-monthly) one year .. **\$1.00**

The DELINEATOR.

Twelve numbers at 15 cents each would cost .. **\$1.80**

The recognized international fashion and literary magazine, greatly enlarged and improved, and a full-sized 15-cent magazine with many colored plates. *Yearly subscriptions must not be taken by any agent or added to any club at less than \$1.00 net.*

McCLURE'S MAGAZINE.

Twelve numbers at 10 cents each would cost .. **\$1.20**

A subscriber writes: "We have taken McClure's since it began, and the articles are always interesting, always timely, and always dependable; the fiction is always good literature, always good morals, and always in good taste, and my family would be lost without McClure's Magazine. *Yearly subscriptions must not be taken by any agent or added to any club at less than \$1.00 net.*"

The WORLD'S WORK.

Twelve numbers at 25 cents each would cost .. **\$3.00**

This magazine, edited by Walter H. Page, is for the men who do things. It tells with cheerful optimism of the inspiring things which are going on in this work-a-day world. It is profusely illustrated from photographs of actual people and places. *Yearly subscriptions must not be taken by any agent or added to any club at less than \$3.00 net.*

\$7 00

OUR PRICE IS \$3.75

The A. I. Root Co., Medina, Ohio:

For the enclosed \$3.75 send me The Whole Family Group for one year.

NAME..... CITY.....

ADDRESS..... STATE.....

This may be your last
chance to get

QUEENS

of Quirin for this season, so hurry
in your orders.

Grade of Queens	1	6	12
Select Queens.....	75	\$4 00	\$7 00
Tested Queens.....	1 00	5 00	9 00
Select Tested Queens.....	1 50	8 00	15 00
Breeders.....	3 00	15 00	
Straight Five-band Breeders	5 00		

Safe delivery and satisfaction guaranteed of all queens. Any queen not satisfactory may be returned any time inside of sixty days and another will be sent gratis.

Address all Orders to

Quirin-the-Queen-Breeder,
Bellevue, Ohio.

When a Thing Needs Doing

NOW is the time to do it. How about those worthless queens? Will you tolerate them for another season, when the best of stock can be obtained so readily? Laws' bees and queens are bringing the best of reports. I could fill many pages of testimonials, but give you only one. Mr. T. P. Robinson, of Bartlett Texas, says:

"Dear Sir.—The car of bees shipped June 20th are now all safely landed, and I have overhauled the entire lot. The bees are from 25 to 40 per cent better than contract, and you ought to hear my wife's exclamations of delight at seeing those fine yellow bees so quietly nestle between the combs at the very approach of smoke. I can certainly recommend you."

Leather and Golden Italians, Holy Lands, and Carniolands—single queen, \$1.00; six for \$5.00. Quantity lots, prices on application.

I also manufacture the Hoffman frames, both new and old style, at \$16 00 per M; single-story eight frame hive complete, 75c; 1½-story for extractor, \$1.00. Price list on application.

W. H. Laws, Beeville, Bee Co., Tex.

Queens!

During October I will sell warranted purely mated Italian queens at 50 cts. each; selected warranted, 75 cts. each. If these are not the equal of anything you can buy in the country for honey-gathering you can have your money back. Satisfaction guaranteed. Queens by return mail. **L. H. ROBEY, Worthington, W. Va.**

Yellow from Tip to Tip!!!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce Golden queens and beautiful bees; non-swarmers, very gentle, and hustlers for honey. Single queen, \$1.00; three queens, \$2.50; six, \$4.50, or \$8.00 per dozen. Large select breeding queen, \$2.00 each. Every thing guaranteed.

H. ALLEY, - - Wenham, Mass.

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy-Lands, Italians.

The JENNIE ATCHLEY CO

Box 18, Beeville, Bee Co., Tex

MOORE'S - STRAIN - OF - ITALIANS

as Red-clover Workers.

Wm. S. Slocum, Newport, R. I., writes: "My friend, W. O. Sweet, West Mansfield, Mass., asked me about two years ago where he could get good queens, and I referred him to you. To-day he called on me and said he noticed the colonies with your queens were storing much faster than others. He went immediately to his red-clover field, and saw bees working there freely."

Untested queens, 75c each; six, \$4 00; dozen, \$7 50.

Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00.

Safe arrival and satisfaction guaranteed. Descriptive circular free.

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Ky.

Superior Queens!!!!

(—Before June 15—) (—After June 15—)

Italian and Carniolan

Untested..... 75c; \$8.00 per doz. 60c; \$6.50 per doz.

Tested..... \$1.00; 11.00 per doz. 75c; 8 00 per doz.

Select Tested... 1.25; 12.00 per doz. 1.00; 11.00 per doz.

Caucasian

Untested..... \$1.00; \$11.00 per doz. 75c; \$8.00 per doz.

Tested..... 1.50; 16.00 per doz. 1 00; 11.00 per doz.

Select Tested... 2.00; 20.00 per doz. 1.25; 12.00 per doz.

Write me a postal card for my circular.

Chas. Koeppen, Fredericksburg, Virginia

Queens at Cost!

To dispose of the balance of our queens quickly, for the next thirty days we offer them as follows:

One hundred select tested Carniolan queens at \$1.00 each. All were raised this year, and would cost you \$3.00 each next spring.

Fifty tested Carniolan queens at 75 cts. each. Worth \$1.50 each next spring

Fifty untested Carniolan queens at 50 cts. each. Worth \$1.00 each next spring.

Fifty tested Italian queens at 75 cts. each. Worth \$1.50 each next spring.

Fifty untested Italian queens at 50 cts. each. Worth \$1.00 each next spring.

**Satisfaction and Safe
Arrival Guaranteed.**

F. A. Lockhart & Co.
Lake George, N. Y.

Fire Sale Bee and Poultry Supplies

Come or send, and save 25 to 50 per cent on slightly damaged goods. NEW LEWIS GOODS at factory prices by return freight. Golden Italian or Red-clover queens by return mail. Untested, 75c; select untested, \$1.00; tested, \$1 25; select tested, \$2.25. Full colonies in up-to-date hives, and nuclei.

Six per cent Discount for October Orders

H. M. Arnd, Propr. York Honey & Bee Supply Co. (Not Inc.)

Long Distance Telephone, North 1559.

191 and 193 Superior St., Chicago, Ills

Golden Queens.

My goldens are yellow from tip to tip. Every queen is worth a dollar, but I have a large number of them and offer them cheap. One, 65 cts.; 3 for \$1.95; 6 for \$3.75; 12 for \$7.50. No finer or better queens can be had at any price. They are reared right. Have had 35 years' experience in rearing queens. I insure satisfaction in every particular. Try at least one of my all-golden queens, and see how promptly I can serve you. Send for circular. It's free.

Daniel Wurth, 1111 North Smith St., San Antonio, Texas.

IMPROVED

Red - clover Italians

for honey-gathering, hardiness, and non-swarming can not be surpassed. I breed for business the bees that will fill your hives with honey. Untested queens, 50 cents each. Safe arrival and satisfaction always guaranteed.

H. C. Clemons, - Boyd, Ky.

ITALIAN : QUEENS !

I am offering choice queens of the Italian race at 75 cts. each. Golden or leather-colored daughters of an imported mother. Make your choice. Write to-day.

Robt. B. McCain, Rt. 3, Yorkville, Ill.

MOORE'S LONG-TONGUES and GOLDENS

Select untested queens. 75c; six, \$4.00; twelve, \$7.50. Tested, \$1.25; six, \$6.00. Twelve, \$11.00. Best breeders, \$2.50. Safe arrival guaranteed.

W. H. Rails, - - - Orange, Calif.

Queens from 50 Cents Up!

Bred from Root's Imported Italians.
Write for prices, stating wants.

C. M. Church, Arnold, Pa.

Boston Headquarters

—FOR—

Bees-Queens-Supplies

H. H. Jepson, - 182 Friend St.

Marshfield - Hives - and - Sections

kept in stock; none better. DITTMER'S foundation and all kinds of bee-keepers' supplies sold right. Thousands of shipping cases, 24-pound, 13 cts.; fancy white basswood, 16 cts. HONEY and BEESWAX wanted. Send for free list, and save 20 per cent on your order.

W. D. Soper, Route 3, Jackson, Michigan

BEE-KEEPERS OF NORTHERN NEW YORK

Buy your shipping-cases, etc., of

A. H. Reeves, Perch River, Jefferson Co., N. Y.

and save freight charges, and time. A complete stock on hand ready for shipment. Comb honey wanted in no-drip cases; also beeswax.

BEES and QUEENS

BY RETURN MAIL.

The Three-banded Long-tongued Strain of Italians.

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

Superior Qualities.

Honey-gathering, size of bees, non-swarming docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price.

Quality Our Motto.

1300 colonies to select from.

Untested queens.....	75c; 6, \$4.25; 12, 8 00
Select untested queens.....	1.00; 6, 5.00; 12, 9 00
Tested queens.....	1.00; 6, 6.00; 12, 11.50
Select tested queens.....	1.50
Breeding queens, \$3.00 to \$5.00	

Yours for best service,

The Victor-Knolle Apiary Co.,
Hondo, Texas.

ITALIAN QUEENS

bred from best of honey-gatherers, either three or five banded or Golden races. Untested, 65c each, 3 for \$2.00, 6 for \$3.75, 12 for 7.25; tested, \$1.00 each, 6 for \$5.00, 12 for \$9.00; select tested, \$1.50 each; breeders, \$3.00 each.

J. W. Taylor, Beeville, Bee Co., Texas

Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest one-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements.

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

65c for 25 NAMES—for names and P. O. of 25 farmers and 15c (stamps taken) we will send for 2 years the Farmer's Call—regular subscription price, 40c a year. F. C. is a weekly, 25 years old; 1300 pages a year; sample free. Farmer's Call, Quincy, Ill.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Wanted, Situations.

WANTED:—Work handling bees. Seven years work in apiaries. DOUGLAS STONER, Strasburg, Va.

WANTED.—For 1907, employment in an apiary by a young man of good habits, having experience with bees. References.

LEONARD GRAPER, Plymouth, Iowa.

Help Wanted.

WANTED.—Auctioneer to sell stock of bee supplies at San Antonio, Texas, during coming national convention. W. H. PUTNAM, River Falls, Wis.

WANTED.—To correspond with young man who wishes to work with bees next season. Steady work the year round to the right party.

CHAS. ADAMS, R. F. D. No. 4, Greeley, Colo.

For Sale.

FOR SALE.—400 acres choice citrus fruit land. ALBERT GUNN, Cespedes, Camaguey Prov., Cuba.

FOR SALE.—Telephones. First-class, slightly used Standard phones, less than half price. G. A. WATT, Bellevue, Ohio.

FOR SALE.—Smith Premier, Hammond, and Oliver typewriters. Prices from \$25 up. Will exchange for wax or honey. THE A. I. ROOT CO., Medina, O.

FOR SALE.—Twenty acres of choice corn, potato, and strawberry land; fair buildings; forty colonies of bees in good location.

F. MATTHEWS, Route 6, Ithaca, Mich.

FOR SALE.—Thirty acres good soil on main road; never-failing spring at barn; good seven-room house; fair farm buildings; good bee-keeping location.

HENRY SCHWARTING, Ovid, Seneca Co., N. Y.

FOR SALE.—160-acre farm in Phillips County, Kan. Well improved, well located, 5½ miles from good market; fruit, pasture, and farm land, alfalfa. Clear title. Price \$5000 cash. Box 344, GLEANINGS.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to FRANK S. STEPHENS, (Root's Goods.) Paden City, W. Va.

FOR SALE.—Till Jan. 1, best Wisconsin sections per 1000, \$4.00; No. 2, \$3.40; plain, 25c less. Seven per cent discount for October, 6% for November, on Root and Danz. hives and other Root goods.

H. S. DUBY, St. Anne, Ill.

FOR SALE.—Forty-acre ranch, fenced but unimproved except small frame house; fine spring near house; good soil, no alkali, fine alfalfa and fruit land. Also for sale, 100 or more colonies bees. Location very good for alfalfa and sweet-clover honey. Good reason for selling. R. S. BECKTELL, Grand Valley, Garfield Co., Colo.

FOR SALE.—Angora and Persian cats; mostly all colors. Persians pure white with blue eyes. Everybody admires these beautiful pets. Women make money raising them. Good profits. Cats and kittens for sale at moderate prices. Also have ferrets for sale. Send stamp for circular.

MRS. J. F. SKEES, Marion, Ohio.

FOR SALE.—4000 ferrets; some trained. Prices and book mailed free. N. A. KNAPP, Rochester, Ohio.

FOR SALE.—Fine grain and stock farm in Central Michigan; 120 acres clay loam, good buildings, two flowing wells. For particulars address P. MCGRATH, Rt. 3, Shepherd, Mich.

FOR SALE.—Seeds of honey-plants—seven-head turnips, motherwort, catnip at 5c a package, postpaid; still a few sections at reduced price; 24-lb. shipping-cases, complete, 14c. H. S. DUBY, St. Anne, Ills.

FOR SALE.—Will sell my valuable ten acres of fruit and truck farm for one-half what it is really worth. One mile to center of good town of 7000; best market known for fruit, truck, and honey. Write for price and description. Great bargain here. J. B. DOUGLAS, Mena, Arkansas.

Bees and Queens.

FOR SALE.—Apiaries or colonies to suit in new State of Oklahoma; range and market unsurpassed. Address J. T. HAIRSTON, Salina, I. T.

FOR SALE.—Eighteen colonies in modern hives and fixtures very cheap.

W. A. LAWRENCE, Rt. 3, Wayland, N. Y.

FOR SALE.—Twenty colonies of fine Italians from \$3.00 to \$5.00 each. Bees in Root hives. COLLEGE OF INDUSTRIAL ARTS, Denton, Tex.

FOR SALE.—400 colonies pure Italian bees in lots to suit. Write for prices. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—I am old and tired of caring for 180 hives of bees, and want to dispose of them to some good financial bee-keeper. Address C. A. GREENFIELD, Rt. 1, Caro, Tuscola Co., Mich.

FOR SALE.—200 colonies of Italian bees in Baldwin 2-story hives for comb honey. Bees are in fine condition, plenty of stores, etc.

R. L. TUCKER, Lock Box 60, Independence, Mo.

FOR SALE.—200 colonies of bees, with fixtures; ten-frame extracting hives, Hoffman frames, \$3.50 per colony. Address H. G. NUTTER, 1506 Arapahoe St., Los Angeles, Cal.

FOR SALE.—75 colonies in good shape for winter. A bargain. Also spare combs and supers, hives, extractors, etc. Must sell this fall. Write for list and details. W. R. ANSELL, 274 Midway Ave., St. Paul, Minn.

FOR SALE.—Brightest Golden in the world—priceless breeders; Italian, Caucasian, Banat, Carniolan, Cyprian—pure imported mothers. Swarthmore outfits and books. Circular free. E. L. PRATT, Swarthmore, Pa.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season. W. N. CANNON, Greenville, Ala.

FOR SALE.—An out-apiary of about fifty colonies of Italian bees in large non-swarming hives cheap. I never saw bees swarming from these hives in the last twenty years, not even in the production of comb honey. G. H. ADAMS, Mill St., Bellevue Sta., Schenectady, N. Y.

FOR SALE.—To highest bidder, 15 colonies of bees in 10-frame hives, 22 extra hives with foundation, 27 supers, 36 Porter bee-escape boards, 9 queen-excluders, 1 Alley's queen-trap, 1 Daisy foundation-fastener, 1000 L. frames, 100 division-boards, 50 double hive-stands, 1 Root queen-rearing outfit, 13 twin mating-hives, 1 Globe veil, 1 4-inch smoker. All hives are nailed and painted, and made by The A. I. Root Co. JOHN C. FRANK, R. F. D. 42, Earlville, Ill.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Queens. I breed a superior strain of fine golden-all-over Italians. Untested, 75c; tested, \$1.00. T. L. McMURRAY, Ravenswood, W. Va.

Poultry Offers.

FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free.

A. H. DUFF, Larned, Kan.

FOR SALE.—Rose Comb R. I. Red, Buff Wyandotte, and Plymouth Rock cockerels; few Barred Rock and Buff Wyandotte pullets; about a dozen untested Root R. C. queens at 50c. A. H. KANAGY, Milroy, Pa.

Wants and Exchange.

WANTED.—A Barnes second-hand foot-power saw. J. R. MINTLE, Glenwood, Ia.

WANTED.—Early American and foreign books on bee-keeping. A. L. BOYDEN, Medina, Ohio.

WANTED.—Bee supplies in exchange for 300 colonies bees. Ad. elsewhere. Manufacturers write if interested. LEO F. HANEGAN, Glenwood, Wis.

WANTED.—Photos for our third contest. For particulars see ad. on page 1323.

THE A. I. ROOT CO., Medina, Ohio.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.

OREL L. HERSHISER,

301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange a ten-inch foundation-mill for a 12 or 14 inch mill, wax, cash, or supplies.

P. W. STAHLMAN, West Berne, N. Y.

WANTED.—A few copies of the *Bee-keepers' Review* for August, 1904. If you have a perfect copy we will send GLEANINGS three months in exchange.

THE A. I. ROOT CO., Medina, Ohio.

WANTED.—To exchange small stock of Swarthmore queen-rearing goods, mating-boxes, etc., for bees, queens, honey, wax, hive-fixtures in flat, or any thing I can use; to close present limited stock only.

E. L. PRATT, Swarthmore, Pa.

Honey and Wax Wanted.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.

R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.

GRIGGS BROS., Toledo, O.

WANTED.—20,000 pounds pure clover honey. Send average sample and state best price.

J. E. CRANE & SON, Middlebury, Vt.

WANTED.—To buy for cash, fancy comb and extracted honey.

ROBT. A. HOLEKAMP,

4263 Virginia Ave., St. Louis, Mo.

WANTED.—Comb and extracted honey. Must guarantee pure and of best quality. State price and how put up. Cash paid.

C. M. CHURCH, Arnold, Pa.

WANTED.—No. 1 and fancy white comb honey (unglassed), Danz. sections preferred.

THE A. I. ROOT CO., Medina, Ohio.

WANTED.—Beeswax. We will pay 30 cts. per pound for fancy pure yellow beeswax delivered in New York until further notice.

CHAS. ISRAEL & BROS.,

486 Canal St., New York City.

WANTED.—Choice white comb and extracted honey; clover preferred.

B. WALKER, Clyde, Ills.

WANTED.—Comb and ext'd honey. State kind and lowest price. CHAS. KOEPPEN, Fredericksburg, Va.

FOR SALE.—Buckwheat honey in 60-lb. cans, at 6c per lb.

C. J. BALDRIDGE,

Homestead Farm, Kendala, Seneca Co., N. Y.

FOR SALE.—Fancy buckwheat comb honey in 3½x5 plain sections at 13c per pound.

GEO. SHIBER, Randolph, N. Y.

FOR SALE.—600 lbs. of white clover honey. Extracted from all sealed new combs; 60-lb. square cans, f. o. b. here, \$5.00. Sample 5 cts.

B. HOLLENBACK, Spring Hill, Kansas.

WANTED.—Immediately, honey in large and small lots for spot cash. Only dealer in Utah selling Root's goods at factory prices. Write us.

SUPERIOR HONEY CO., Ogden, Utah.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDBRETH & SEGELKEN,

265-267 Greenwich St., New York.

WANTED.—Honey, steadily from September 1 to April 1. Prices given on application. Suggestions and advice about packing and shipping honey cheerfully given from long experience, close study, and observation.

H. R. WRIGHT, Albany, N. Y.

Honey and Wax For Sale.

FOR SALE.—A quantity of fine buckwheat honey in 60-lb. cans at 7½c net, f. o. b. Goderich, Ont.

A. E. BROWN, Port Albert, Ont., Can.

FOR SALE.—If you are in the market for white comb honey address

C. C. CLEMONS & Co., Kansas City, Mo.

FOR SALE.—3000 lbs. of white-clover and locust honey, in 20-lb. no-drip cases. Fancy, 15c; No. 1, 13c; f. o. b. Nice article. H. W. BASS, Front Royal, Va.

FOR SALE.—Five tons of comb and extracted honey in lots to suit purchaser.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—2000 lbs. fancy white and amber comb honey in 24-lb. cases. Prices: White, per lb., 15c; amber, 14c; f. o. b. here.

W. I. HARBOUGH, Kerntown, Va.

FOR SALE.—Well-ripened fancy extracted clover and basswood honey in 60-lb. tin cans, two in a case, at \$10.00 a case, f. o. b. here. Sample on request.

ERNEST W. FOX, Hillsboro, Wis.

FOR SALE.—10,000 lbs. of clover and buckwheat honey at 8c per lb. for clover and 7c for buckwheat, in 60-lb. cans.

G. H. ADAMS,

Mill St., Bellevue Sta., Schenectady, N. Y.

FOR SALE.—Light extracted honey, good quality; two 60-lb. cans, 8½c per lb., barrel at 7½c; amber, 60-lb. cans at 7½c, barrel at 6c; sample, 10c. We pay 29c for beeswax.

I. J. STRINGHAM, 105 Park Pl., N. Y.

FOR SALE.—Choice ripe clover and basswood honey, two 60-lb. cans, per case, 8½c, f. o. b. here, cash with order. Also 40-acre farm N. W. Missouri.

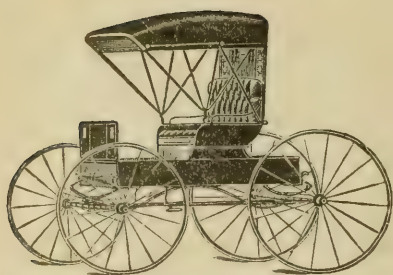
ELIAS FOX, Hillsboro, Wis.

FOR SALE.—Buckwheat extracted honey; 6000 lbs.; not extracted until the combs were all sealed—ripe, rich, and thick; 60-lb. tin cans, two in a case, at 6 cts. a pound. Sample sent upon request.

W. Z. HUTCHINSON, Flint, Mich.

FOR SALE.—Fine alfalfa honey in large or small lots and at a very low price. Dealers and others wanting a fine table honey should write for free samples and prices to

THE DELTA APIARIES, Delta, Colo.



NOW IS JUST THE TIME TO BUY THAT NEW BUGGY

In the Fall of the year, after the hard Summer's work is over, the weather settled, and the roads are usually good, it's a fine time to have a new buggy.

The Ohio Carriage Manufacturing Company of Cincinnati, Ohio, manufacturers of the celebrated Split Hickory vehicles, say that you will be surprised to know what a splendid Fall business they have on their made-to-order Split Hickory vehicles.

They say that a few years ago they did not receive many Fall orders, but that now people have commenced to realize that the Fall of the year is a fine time to get in their new buggy, on account of the good roads, and the fact that people seem to use buggies later in the season than they used to.

The Ohio Carriage Manufacturing Company is one of the largest manufacturers of high-grade vehicles in the country, and they sell the product of their entire factories direct to users by mail. They issue a fine catalogue, and their prices on vehicles, quality considered, are very low.

If you think you would like to have a nice new buggy this Fall, why not write to the Ohio Carriage Manufacturing Company now, and get their free catalogue at once? If you have never seen it, you will be surprised to know what a fine buggy book this concern issues, how reasonable their prices are, and how liberal their methods of doing business. Their address is the OHIO CARRIAGE MFG. COMPANY, Station 293 Cincinnati, O.

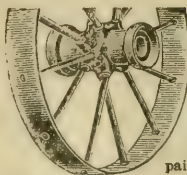
STANDARD



GREEN BONE CUTTERS
Make poultry keeping profitable. Cut green bone is a real money-making poultry food easily prepared with this machine. Small size, \$8.80; large ones more. Made by responsible concern. Ask for free catalog, prices and Trial Plan. Standard Bone Cutter Co., Milford, Mass.



MORE EGGS-LESS FEED
OPEN HOPPER.
Humphrey Green Bone and Vegetable Cutter
will double your egg yield and cut your feed bill in half. Guaranteed to cut easier and faster than any other. Trial offer and catalogue free.
Humphrey, Mine St. Factory, Joliet, Ill.



STEEL WHEELS

with wide tires double the usefulness of the farm wagon. We furnish them any size to fit any axle. Cheaper than repairing old wheels. Catalogue free.

EMPIRE MFG. CO., Box 91A Quincy, Ill.

POULTRY
DISEASES

25c Book Free

Conkey's book on poultry diseases contains just the information you need to keep your flock strong and healthy—and that means to **Get Paying Results**. The regular price of this valuable book is 25c, but we are offering it free for a limited time to those who will send 4 cents for postage and give us the names and addresses of two other poultry raisers. Write for it today.

THE G. E. CONKEY CO., 315 Ottawa Bldg., Cleveland, Ohio.

You Need It.

If you have only a few chickens;
If you are at all interested in poultry;
If you are breeding for fancy points;
If you cater to the market trade;
If you are in the business on large scale, you need

Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. **AT HALF PRICE** for a short time to introduce it to readers of Gleanings. Send 25 cts. and get it a year; or if you send us \$1 for a year's subscription to Gleanings in Bee Culture we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal Dept. 14, Dayton, Ohio.

\$1.00 WILL PAY FOR TEN YEARS!

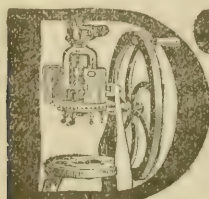
120 copies and no less than 3840 pages (size 8x 11 1/4 inches) of valuable poultry, pigeon, and pet-stock reading, costing us thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

Poultry Item. Sellersville, Bucks Co., Pennsylvania

DO YOU RAISE CHICKENS?

If so, you will find the Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cents a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb



DOUBLE YOUR EGG YIELD

Fresh, raw, green bone contains over four times as much "protein" and other egg-making materials, as grain. It takes the place of worms and bugs in fowls' diet; that's why it gives more eggs—greater fertility—stronger chicks—earlier broilers and layers—larger market fowls, and bigger profits. You

can cut it most easily, rapidly and best with

Mann's Latest Mod el BONE CUTTER

Automatically adapts cutting to your strength. Never clogs. Cuts all adhering meat and gristle. We send it on 10 DAYS FREE TRIAL. No money in advance. Catalogue free.

F. W. MANN CO., Box 37, Milford, Mass.

A New Factory

and also a new firm name, but in the same place with the same management. We have just put in a complete

Weed Process Comb Foundation Factory

of the very latest type, and we are now ready to work up wax for western beekeepers at low prices. . . . We want several thousand pounds of beeswax at once, and will pay top market price for same. Let us hear from any one having wax to offer.

Buck & Wilson, Augusta, Kan.

Butler County

Y
O
U

C
A
N

M
A
K
E

I
T

P
A
Y

By sending for our forty-page catalog. It gives full particulars about scores of different hive-combinations and other supplies that we always keep in stock. We have handled
ROOT'S GOODS for twenty years. They are the best. Don't fail to write us about your wants for next season's use.

**John Nebel & Son
Supply : Company**

High Hill, Missouri
Montgomery : County

MR. TEXAS BEE-KEEPER

I would like to talk to you *personally*.

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's *better* in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you supplies with the utmost promptness.

Then, too, I have installed a complete Weed-Process Foundation factory. I can turn out 500-lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when at San Antonio. You are *always* welcome. I have fitted up my office with plenty of desks and chairs, with writing material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein - San Antonio, Texas

1322 South Flores Street

Gloves for Handling Bees

Something New. Something You Want.

Our specially prepared Gloves soften the hands, and prevent and cure chapped hands. The fabric contains a preparation which prevents the gloves from becoming hard and stiff. We furnish them without armlets or sleeves for using in sweeping, gardening, or general housework, driving, or outdoor work. They are just the thing for driving in the rain, as they are absolutely waterproof. If worn at night they keep the hands soft and white. All their points of excellence can not be here enumerated, but they never fail to give the greatest satisfaction. To introduce them, we will send by mail or with other goods at the following low prices:

Bee-gloves—long arms, fleece-lined in two sizes—large for men, small for ladies.....	35 cents
Men's gauntlets, fleece lined	35 cents
Ladies' gauntlets, fleece lined.....	35 cents
Ladies' unlined for wearing at night or doing light housework.....	40 cents

Early-order discounts on bee-supplies (excepting above and a few other articles) as follows:
 6% for cash with order before November 1st 5% for cash with order before December 1st
 4% " " " January 1st 3% " " " February 1st

If you haven't our 1906 catalog send for one and a free copy of The American Bee-keeper (50c a year).

The W. T. Falconer Manufacturing Co., Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 124 West Liberty St., Savannah, Ga.

Dadant's

Foundation

It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!
 No Sagging; no Loss.
 Twenty-eighth Year.
 We Guarantee Satisfaction.
 Wax Worked into Foundation.

Bee-supplies of All Kinds

Beeswax Wanted at all Times.
 Send for Our 1906 Catalog.

Dadant & Sons, Hamilton, Ills.

Root Goods

for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

Jos. Nysewander, Des Moines, Iowa
 565. 567 West Seventh Street

GLEANINGS IN BEE CULTURE

VOL. 34

NOV. 1 1906

NO. 21



"There She is, Daddy"

THE A.I. ROOT CO.,
MEDINA — OHIO

BEE-KEEPERS

We carry the largest stock of goods in the Middle West. The low freight rates from

Toledo

will save you money. We will buy your HONEY and beeswax, and pay highest market price. It will pay you to correspond with us when your crop is ready to market. No shipment is too large for us. Carloads a specialty.

Queens! Queens!

We have a yard at Toledo with 100 colonies and over, which we use for queen-rearing only; besides several out-yards which we run for honey, also for extra bees and brood, and queens are mailed same day order is received.

Our 70-page Catalog

is sent free to any one asking for it. No matter whether you keep one colony or five hundred. We also handle a large line of poultry supplies, and sell eggs for hatching. Our 1906 mailing list is sent with every catalog. Don't buy until you have seen it.

Griggs Brothers

523 Monroe St. : Toledo, Ohio

APICULTEURS

des pays de langue Francaise.
Nous vous informons que

L'Apiculture Nouvelle

Revue mensuelle illustree,

est tiree de:

Gleanings in Bee Culture

augmentee et completee par des collaborateurs Europeens, reconnus comme Apiculteurs eminents.

L'Abonnement d'un an est envoye franco pour tous pays de l'Union Postale, contre l'envoi par mandat poste de 7.50.

Un numero specimen, ainsi que notre catalogue francais de tous les articles de la

A. I. ROOT CO.

est envoye gratuitement sur simple demande, adreesee a

Emile Bondonneau,

Agent General pour l'Europe et les Colonies

de A. I. ROOT CO.,

142 Faubourg Saint Denis 142 Paris (10e)
France.

L'Edition Francaise de l'A B C de l'Apiculture est egalement parue.

CENTRAL AND NORTHERN PENNSYLVANIA

Distributor of Root's Goods from the
Best Shipping - point in this State.
WHOLESALE - AND - RETAIL

I sell at catalog prices, and, with the low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also rear Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

E. E. PRESSLER, WILLIAMSPORT, PENN.

Headquarters for

Bee - Supplies.

"Root's Goods at Root's Factory Prices."

If you want to purchase bee-supplies, THE BEST MADE, order from Cincinnati, as you will save the freight charges and time it takes for goods to be shipped from Medina to Cincinnati. Cincinnati is one of the best shipping-points, particularly for the South. I keep all the time a large stock on hand and can ship promptly on receipt of order.

A Special Discount  
   **on Early Orders**

Will buy or sell **HONEY** extracted or comb

If you have honey to sell describe quality or mail sample with lowest price delivered Cincinnati. If in need, state quality and quantity wanted and we will cheerfully quote you prices.

Beeswax Wanted!

We all the time pay highest market price on delivery of goods.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
 Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Markets.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsouled by travel stain, or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface souled, or the entire surface slightly souled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface souled, or the entire surface slightly souled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

DENVER.—All desirable lots of white comb honey in double-tier cases have now been shipped out of this State, leaving only a few cars of single-tier cases. The quality of this year's crop was fine—better than for several seasons. We quote our local market as follows: Strictly No. 1 white, per case of 24 sections, \$3.00; ordinary No. 1 and off grade, \$2.50 to \$2.75; extracted, white, 6½ to 7½. We are in the market for beeswax, and pay 24 cts. for average yellow wax delivered here.

THE COLORADO HONEY-PRODUCERS' ASS'N.
Oct. 22. F. RAUCHFUSS, Mgr.

PHILADELPHIA.—While the supply of comb honey is equal to the demand, large quantities of comb honey having arrived in the market in the last ten days, the price still remains high. The outlook, however, is that, when the season advances, and the bee-keepers ship more of their crop to the market, the prices will be a little weaker. We quote: Fancy white comb honey, 16 to 18; No. 1, 14 to 15; amber, 11 to 13; fancy white, extracted, 7½ to 8½; light amber, 6½ to 7. We are producers of honey, and do not handle on commission.

WM. A. SELSEL,
Oct. 22. 10 Vine St., Philadelphia, Pa.

TORONTO.—There is no change here in the honey market; very little extracted honey is offered in No. 1 quality, while buckwheat is fairly plentiful. No. 1 white honey is worth 10 cts. wholesale; buckwheat and dark honey are worth from 5 to 7 cts. per lb. Comb honey is more plentiful than extracted; but the high price asked makes it go rather slowly.

E. GRAINGER & Co.,
Oct. 23. Toronto, Can.

CHICAGO.—Market is practically bare of honey of all kinds. Choice white comb brings 15 to 16, with off grades 1 to 3 cts. less; extracted, 7 to 8 for white; amber, 6½ to 7½; buckwheat, 6 to 6½. Beeswax sells up on arrival at 30.

R. A. BURNETT & Co.,
Oct. 19. 199 So. Water St., Chicago, Ill.

Honey and Wax Wanted and For Sale.

SCHENECTADY.—Up to the present time this has been a record-breaking season. We have hardly been able to get stock fast enough to fill our orders, occasioned somewhat by scarcity of help among the bee-keepers, many of their wives having been obliged to assist in getting the crop ready for market. Others, however, are delayed by not having ordered their cases in time, and should avoid this mistake another season. The best time to sell honey is when there is a good demand. Prices remain the same as in last issue, with continued firmness.

C. MACCULLOCH,
Oct. 20. Schenectady, N. Y.

ST. LOUIS.—This market has not undergone any changes since our last. The receipts of new extracted honey, also of comb honey, are rather small, and prices are firm. We quote: Fancy white comb honey, 14 to 15; No. 1, 12½ to 13; light amber, 12 to 13; broken and inferior, less; light amber, extracted, 6½ to 7; Spanish needle, 7; all in 5-gallon cans. There is a good demand for southern, in barrels, 5¼ to 5½. The receipts, however, are very small, and the market bare. Beeswax, prime, 28½. All impure and inferior, less.

R. HARTMAN & Co.,
Oct. 22. 14 So. Second St., St. Louis, Mo.

BUFFALO.—Honey is now doing extra well here, and very little arriving. Buyers are looking for choice to fancy comb. We quote you fancy white comb 15 to 16; A No. 1, 14 to 15; No. 1, 13½ to 14; No. 2, 12 to 13; buckwheat, 11 to 12. White extracted, 7 to 8; amber, 6½ to 7; dark, 5 to 5½. Beeswax, 30 to 32.

W. C. TOWNSEND,
Oct. 13. Buffalo, N. Y.

CINCINNATI.—The demand for comb honey is good. No. 1, white, brings 14½ wholesale and 16 retail by the case. Off grades less, from 2 to 3 cts. per lb. White clover, extracted, brings, in barrels, 8; in cans, 8½; amber grades, light, 6 in barrels; dark, 5¼ in barrels; in cans, ½ ct. per pound more. Beeswax, 30.

C. H. W. WEBER,
Oct. 20. 2146-8 Central Ave., Cincinnati, O.

KANSAS CITY.—The demand for comb honey is quite brisk and the market stronger. We are quoting fancy white comb at \$3.25 per case of 24 sections. Receipts of extracted are light, prices ranging from 6 to 7 cts. per lb. We look for a good demand right along.

C. C. CLEMONS & Co.,
Oct. 20. Kansas City, Mo.

ATLANTA.—Demand and supply are about equal; in fact, off grades moving slowly. We quote as follows: Fancy white comb, 13 to 15; A No. 1, 11 to 12½; light amber, extracted, 5½ to 6. Judson Heard & Co.,
Oct. 20. Atlanta, Ga.

ZANESVILLE.—This is distinctively a comb-honey market, very little extracted being sold in original packages. At present nothing but fancy white comb is offered, and brings 18 to 19 cts. Beeswax, 27 to 30.

E. W. PIERCE,
Oct. 25. Zanesville, Ohio.

See Classified Ads. on pages 1397-'99.

BEESWAX WANTED

We are paying 29c. per lb. cash delivered here, for
CHOICE YELLOW BEESWAX

Send us your shipment now.

MONEY BACK THE DAY SHIPMENT ARRIVES.

THE FRED W. MUTH CO.

51 WALNUT ST.,

CINCINNATI, OHIO.

ATLANTA.—Our market is about cleaned up of a good stock of extracted, which is very fortunate, since our cane-syrup season is so near. We quote as in our last.
 Oct. 11. JUDSON HEARD & CO.,
 Atlanta, Ga.

DETROIT.—Demand for honey is stronger than when the fruit receipts were so heavy. The report of a short crop in Michigan is being borne out, and most of the large lots picked up. Prices are about as follows: Fancy and A No. 1 comb honey, 15 to 16; No. 1 and 2, 12 to 13. Not much fall honey is offered. Extracted white clover and basswood, 7½ to 8. Beeswax, 27 to 28.
 Oct. 20. M. H. HUNT & SON,
 Bell Branch, Mich.

Chas. Israel & Brothers

486-490 Canal St., New York

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments Solicited. Established 1875.

FOR SALE.—Extracted honey, strictly pure, buckwheat, 6½c; clover mixed, 7c in 60-lb. cans and 150-lb. kegs. This State production; best flavor.

H. R. WRIGHT,

Wholesale Commission, Albany, N. Y.

Souvenir - Postal - Cards

VIEWS OF CHICAGO. Big buildings, stores, hotels, parks, stockyards; any special view you wish. Five views, 10 cts.; 13 for 25 cts, postpaid.
 Oak Park Novelty Company, Oak Park, Ills.

PATENTS

No attorney's fee until patent is allowed. Write for "Inventor's Guide."

FRANKLIN H. HOUGH, Atlantic Bldg., Washington, D. C.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

A GOLD MEDAL

at the World's Fair.

St. Louis, 1904.



D. 20TH CENTURY

BEST,
 COOLEST,
 CLEANEST,
 STRONGEST.
 CHEAPEST.

Largest Smoker Sold for a Dollar.

We Send Direct from Factory to Buyer when the Nearest Supply-dealer Does not Keep It.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke. I find it all you claim. In the spring I shall want several. I always want the best.

N. E. FRANCE, Platteville, Wis.

Price \$1.00; three for \$2.50.

By mail add 25 cents for postage.

F. DANZENBAKER, MIAMI, FLORIDA

WE WILL BUY

New crop honey, comb and extracted, in any quantity. If you have a crop to dispose of, write us fully as to quality, quantity, style of package, etc., and you will have our answer by return mail. If we should fail to come to an understanding as to price, we may arrange to handle your crop on consignment, feeling confident that we can do you justice in every respect.

WE WILL SELL

to Bee-keepers whose crop is not large enough to supply their trade, various grades of honey. Let us know your wants and we will do our best to satisfy you.

BEESWAX. We are in the market to buy beeswax at any time of the year. Write us when you have any to sell.

HILDRETH & SEGELKEN,

265-267 Greenwich St.,

NEW YORK, N. Y.

Established 1873
Circulation 30,000

64 pages, semi-monthly
\$1.00 per year

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager
A. L. BOYDEN, Advertising Manager

POSTAGE IS PREPAID by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

DISCONTINUANCES.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

HOW TO REMIT. Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by Registered Letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

PARIS, FRANCE. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

GOODNA, QUEENSLAND. H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 5/6.*

DUNEDIN, NEW ZEALAND. ALLIANCE Box Co., 24 Castle St. *Per year, postpaid, 6/.*

SPECIAL OFFERS.

The Whole Family Group.

Gleanings in Bee Culture
Delineator
McClure's Magazine
World's Work

Regular price, \$7.00.

Our price for all the above,
one year, - - - \$3.75

Review of Reviews Special Club.

Gleanings in Bee Culture
Review of Reviews
Woman's Home Companion
Success Magazine

Regular price for all the above, \$6.00

Our price for all, one year, - \$3.60

Country Life
Gleanings in Bee Culture
Both for - - - \$3.50

Farming
Gleanings in Bee Culture \$1.50

Gleanings in Bee Culture one
year, and one copy How to
Keep Bees, - - - \$1.50

THE A. I. ROOT CO., Medina, Ohio.

Find enclosed.....for which please send me Gleanings in Bee
Culture.....months, and.....as per offer.....

Please continue sending Gleanings until otherwise ordered.

Name.....

Postoffice.....

County..... State.....

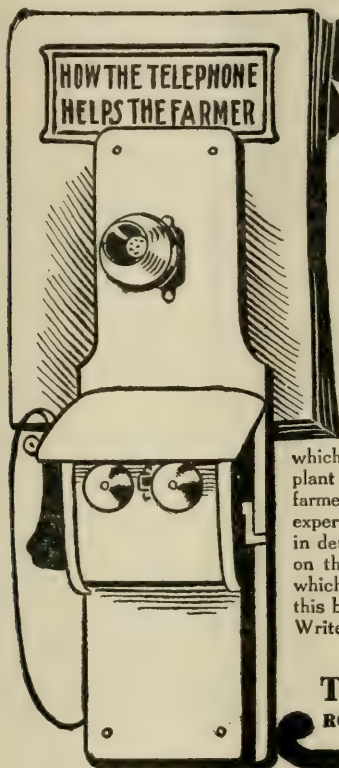
Date..... If you want Gleanings discontinued at expiration, check here ()

BUCKWHEAT HONEY!

Our clover and raspberry honey is all sold—went at 8 and 8½ cts., according to quantity—but we still have 6000 lbs. of buckwheat. Right here let me say that this buckwheat honey was left on the hives until it was all sealed over, and is thick, rich, and ripe—far

superior to the thin, rank stuff often found on the market. You needn't take my word for it—send for a sample. It is put up in 60-lb. cans, two in a case, and the price is 6 cts. a pound.

W. Z. HUTCHINSON, Flint, Michigan.



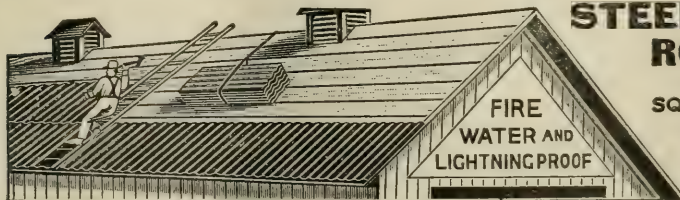
You Want This Free Book

Of course you need a telephone. You need it for business, for the family, in sickness, in case of fire, or in danger of any kind. The question is—how can you get one on your farm? This little book which we send free the same day we get your request answers the question perfectly and tells you how to get the greatest convenience of the twentieth century so easily and cheaply that it becomes a positive saving and a money-maker, instead of an expense. It tells all about

Stromberg-Carlson Telephones

which are made in the largest independent telephone plant in the world. These are the best instruments for farmers' lines, because they have been constructed by experts for this particular purpose. They are described in detail in the booklet, together with full information on the organization of farmers' lines, the manner in which they are built, cost of material, etc. You want this book, F36 "How the Telephone Helps the Farmer." Write for it today.

**Stromberg-Carlson
Telephone Mfg. Company**
ROCHESTER, N. Y. CHICAGO, ILL.



**STEEL
ROOFING**
PER 100
SQUARE FEET
\$1.50

Most economical and durable roof covering known. Easy to put on; requires no tools but a hatchet or a hammer. With ordinary care will outlast any other kind. Thousands of satisfied customers everywhere have proven its virtues. Suitable for covering any building. Also best for ceiling and siding. Fire-proof and water-proof. Cheaper and more lasting than shingles. Will not taint rain-water. Makes your building cooler in summer and warmer in winter. Absolutely perfect, brand new, painted red two sides. **\$1.50** is our price for our No. 15 grade of Flat Semi-Hardened steel roofing and siding, each sheet 24 inches wide and 24 inches long. Our price on the corrugated, like illustration, sheets 22 inches wide x 24 inches long **\$1.60**. At 25 cents per square additional we will furnish sheets 6 and 8 feet long. Steel pressed brick siding, **per square \$2.00**. Fine Steel Beaded Ceiling, **per square \$2.00**. Can also furnish standing seam or "V" crimped Roofing. **WE PAY THE FREIGHT TO ALL POINTS EAST OF COLORADO** except Oklahoma, Texas and Indian Territory. Quotations to other points on application.

Satisfaction guaranteed or money refunded. We will send this roofing to any one answering this advertisement C. O. D., with privilege of examination if you will send us 25 per cent of the amount of your order in cash; balance to be paid after material reaches your Station. If not found as represented, you do not have to take the shipment and we will cheerfully refund your deposit. **Ask for Catalog No. W-888.** Lowest prices on Roofing, Eve Trough, Wire, Pipe, Fencing, Plumbers Doors, Household Goods and everything needed on the Farm or in the Home. We buy our goods at sheriff's and receiver's sales. **CHICAGO HOUSE WRECKING CO., 35TH & IRON STREETS, CHICAGO**

Gleanings in Bee Culture

E. R. ROOT
Editor

A. I. ROOT
Editor Home Department

H. H. ROOT
Ass't Editor

Department Editors—DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE, LOUIS H. SCHOLL, G. M. DOOLITTLE, R. F. HOLTERMANN, "STENOG."

CONTENTS OF NOVEMBER 1, 1906

MARKETS	1338	Wintering Bees in Clamps.....	1368
STRAWS	1347	A Bee-house Entirely Above Ground.....	1371
EDITORIAL	1349	Winter Loss vs. Loss by Disease.....	1374
Wintering in Clamps in a Clay Soil	1349	General Principles in Cellar Wintering.....	1375
Our New Publishing House	1349	HEADS OF GRAIN.....	1377
Is it a Disease of the Brood or Not?	1349	Dark Green Honey	1377
Wedding Bells	1350	Building up a Weak Colony in the Fall.....	1377
The New National Pure-Food Law	1250	Cement Bee-cellar Built in a Sand-bank.....	1377
NOTES FROM CANADA	1252	Mating of Queen Witnessed	1378
CONVERSATIONS WITH DOOLITTLE.....	1353	Advantage of Having Bees in Different Yards.....	1378
FANCIES AND FALLACIES.....	1355	Chickens that will not Eat Live Bees.....	1378
TOLD BY THE JAY	1356	Alfalfa in Pennsylvania.....	1378
GENERAL CORRESPONDENCE.....	1357	Getting Bees out of Trees.....	1378
Building up Weak Colonies in Early Spring.....	1357	Half-inch Starters.....	1378
Observation Hives.....	1358	Selling Secrets.....	1384
An Old Bee Book	1359	OUR HOMES	1379
Wintering Baby Nuclei	1361	NOTES OF TRAVEL.....	1382
Concrete Bee Cellars.....	1363	SPECIAL NOTICES.....	1385
Cellar Wintering of Bees	1367	CONVENTION NOTICES.....	1385

INDEX TO ADVERTISEMENTS.

Banking by Mail.	Moore, J. P.....	1396	Machinery	
Savings Deposit Bank Co.....	Ralls, W. H.....	1396	Electric Wheel Co.....	1389
	Taylor, J. W.....	1396	Empire Mfg. Co.....	1400
Bee-books.	Classified Advertisements.		Lyons Engine Co.....	1390
Swarthmore.....	Bee-keepers' Directory.....	1399	Myers & Bros., F. E.....	1345
Bee-smokers.	Bees and Queens.....	1397	Miscellaneous.	
Bingham, T. F.....	Blacks and Hybrids.....	1398	Chicago House-wrecking Co.....	1341
Danzenbaker, F.....	For Sale.....	1397	Hough, F. H.....	1339
	Honey and Wax Wanted.....	1398	Oak Park Novelty Co.....	1339
Bee Supplies.	Honey and Wax for Sale.....	1399	Prindle & Williamson.....	1394
Blanke & Hauk.....	Help Wanted.....	1397	Seaboard Air Line.....	1345
Cook, J. H. M.....	Poultry Offers.....	1398		
Falconer Mfg. Co., back cover.	Situations Wanted.....	1397	Publishers, Agricultural-paper.	
Hilton, Geo. E.....	Wants and Exchange.....	1398	Southern Fruit Grower.....	1389
Hunt & Son, M. H.....	Comb Foundation		Farmer's Call.....	1329
Jepson, H. H.....	Dadant & Son, back cover.		Metropolitan and Rural Home.....	1386
Kretschmer Mfg. Co.....	Dittmer Gus.....	1393		
Lewis Co., G. B.....	Fences		Poultry Supplies.	
Mason, J. B.....	Brown Fence and Wire Co.....	1399	Conkey, G. E. & Co.....	1400
Minnesota Bee Supply Co.....	Coiled Spring Fence Co.....	1345	Humphrey.....	1400
Muth Co., F. W.....	Kitseiman Brothers.....	1400	Mann Co., F. W.....	1400
Nysewander, J., back cover.	Honey for Sale.		Stratten Mfg. Co.....	1400
Pouder, Walter S.....	Hutchinson, W. Z.....	1341	Publishers, Bee-journal	
Prothero, Frank W.....	Wright, H. R.....	1339	Falconer Mfg. Co.....	Back Cover
Reeves, A. H.....	Household Specialties.		Root Co., The A. I.....	1340
Root Co., Syracuse.....	Horne Co., Joseph.....	1389	York & Co., Geo. W.....	1345
Root Co., St. Paul.....	Rochester Radiator Co.....	1345		
Scott & Co., C. M.....	Stromberg-Carlson Tel. Co.....	1341	Publishers, Poultry-paper.	
Soper, W. D.....	Sun Vapor Light Co.....	1389	Ohio Poultry Journal.....	1400
Stringham, I. J.....	Youth's Companion.....	1388	Poultry Gazette.....	1400
Weber, C. H. W.....			Poultry Item.....	1400
York Honey & Bee Supply Co.....	Honey-buyers.		Reliable Poultry Journal.....	1400
	Hildreth & Segelken.....	1339		
Bees and Queens.	Israel, Charles, & Bros.....	1339	Seeds and Trees.	
Alley, H.....	Incubators.		Storrs & Harrison Co.....	1389
Atchley Co., The Jennie.....	Stahl, George H.....	1400	Roach, Lewis.....	1399
Clemons, H. C.....				
Church, C. M.....				
Laws, W. H.....				

Root's Goods in Michigan!

Discount

for November is 5 per cent. This is as good as 10 per cent interest on your money. We gladly furnish estimates on your bill of goods for 1907.

Send for catalog.

Quality

in Bee-supplies means something when it is Root Quality. Michigan's best bee-keepers use Root's Goods.

We sell the Danz. Hive, the comb-honey hive.

M. H. Hunt & Son, Bell Branch, Mich.

We are Looking Ahead

for next season, and will have on hand when all sections arrive, 1,078,000,

OVER A MILLION.

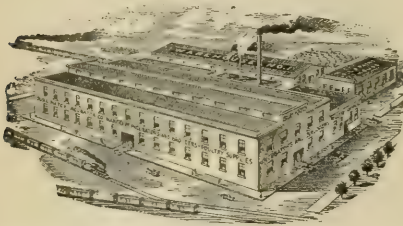
Supply dealers look ahead for their stock—why not bee-keepers? It is to your advantage to do so. Sections will keep if not used next year, but if there should be a good year the extra amount of honey secured will pay for sections for years. Besides, we give a discount of 5 per cent for November. Make out an order for next season's use and send in during this month.

The A. I. Root Co., Syracuse, New York

A Page with Our Readers and Advertisers.

BEE-KEEPERS' DIRECTORY.

Please turn to page 1399, and look over the new classified department we have started, the "Bee Directory." This department is for the benefit of our readers. The advertisers that use it are sure to find it profitable. Don't you think your business worth advertising at least to the extent of a two or three line ad. in that department?



SURE HATCH INCUBATOR CO. OUTGROWS CLAY CENTER, NEB.

The Sure Hatch Incubator Co. has been compelled by the enormous increase in its business to cut loose from the little town of Clay Center, Nebraska. It has removed to Fremont, Nebraska, where it now has under construction the largest incubator-plant in the world.

The Sure Hatch Incubator Co. sold over 26,000 machines in 1905. No other incubator concern in the country approached this enormous output. It is safe to say that the 1907 business will far exceed this splendid record, for the Sure Hatch is the most popular incubator on the market, and the 1907 machine has several very important improvements. These will be fully explained in the 1907 Sure Hatch Catalog and Poultry Book, which will soon be ready for distribution.

Every one interested in poultry-raising should have a copy. Send a postal to the Sure Hatch Incubator Co., Box R 107, Fremont, Nebraska, or 453 East Washington Street, Indianapolis, and say, "File my name for your 1907 Sure Hatch Catalog and Poultry Book," or, if you wish, the 1906 catalog will be sent you at once if you ask for it. You will be delighted with the new Sure Hatch book.

A WORD ABOUT RENEWALS.

From now until January 1st, a very large per cent of GLEANINGS' subscriptions expire. In fact, this is the situation with most periodicals.

You, doubtless, are beginning to notice the various combination offers. GLEANINGS you will find as usual among them. We are preparing some very attractive offers which will appear soon. On page 1391 you will find a very remarkable offer that will suit every member of the family.

Have you read the advertisement of the Metropolitan and Rural Home appearing on pages 1386 and 1387? If you haven't, turn to them at once, for it's worth your while. The offer Mr. Ellis makes is very liberal. The paper he publishes is all right. It's the biggest farm paper that comes to our office—well edited, and lots of illustrations. You are taking no risk in the least when you fill out the coupon.

In our Oct. 15th issue we ran a classified ad. for John C. Frank, Earlville, Ill., who had a

miscellaneous lot of supplies to dispose of. Oct. 25 he wrote us as follows:

Do not insert my ad. any more, as my bees are sold, and I have so many letters that I can not answer them.

Do not forget to try our classified columns under our guarantee to refund the amount charged, if no satisfactory returns are received.

We receive almost daily an inquiry from some part of the country for information regarding suitable help for the apiary, or from parties who desire position in this line. We are quite often able to put these people in correspondence with each other so that an engagement is made. It has been our experience, however, that the use of the want column is sure to be satisfactory. We do not recall a single instance where a party has advertised for a situation without obtaining the same. If you are in need of help for next year or want a situation, a two-line ad. in the November 15th or December issues will undoubtedly prove successful. Cost is only 40 cts. for two-line ad.

POULTRY NECESSITIES.

We often hear the term "poultry necessities." These are general words which sometimes mean one thing and sometimes another. If we were asked to name a thing which is a necessity at all times to all poultrymen everywhere, we could think of nothing better to be named than reliable roup and cholera cures. Roup and cholera come as naturally to the flock as a cold and attendant ills do to us. It is of the utmost importance to have some reliable and effectual means of treatment directly at hand. Unquestionably among the very best remedies to be had anywhere are the Conkey roup and cholera cures. They have been long in use, are widely known, and have stood the tests under all conditions. It goes without saying, that they are scientifically compounded, and they have made their way into all parts of the world. In general, where comparisons of other remedies are made it is with Conkey's as the standard. Perhaps the best known, though not more efficient, remedy of Conkey's is the roup cure, as it is the specific for the greatest scourge of the poultry-yard.

A most excellent little book, "Poultry Diseases," which was formerly sold for 25 cts. by the Conkey people, can now be had free by sending in the postage, 4 cts., and names and addresses of two neighboring poultry-keepers. It is a book you should have if you keep poultry. Notice the Conkey advertisement on page 1400.

P. S. When more convenient, our readers can send requests for the book above to The A. I. Root Co.

ADVERTISING - RATES

Twenty cents per agate line flat.

Classified columns—bona-fide exchange or want ads.—20c a line.

Discount for cash in advance, 5%; if paid in 10 days, 2%.

No objectionable advertising accepted.

Forms close 10th and 25th of each month.

Guaranteed circulation per issue, 30,000.

GLEANINGS IN BEE CULTURE
MEDINA, OHIO

10 WEEKS 10c COPIES FOR

We want every reader of GLEANINGS IN BEE-CULTURE to get acquainted with the

Weekly American Bee Journal

Certainly it would pay any bee-keeper to read it regularly. And in order that those who are not now getting it may do so, we want the opportunity to send it for 10 weeks for only 10 cents (stamps or silver.) That would be at least 160 pages of bee-literature for just one dime. We offer the last 10 numbers of 1906 for 10 cents as a "trial trip." You will want it for all of 1907 after the 10 weeks, we are sure.

SOME OTHER SPECIAL OFFERS TO NEW SUBSCRIBERS

The Weekly American Bee Journal from the time your new subscription is received to the end of 1907—and your choice of one of the following:

1. With Doolittle's book, "Scientific Queen-Rearing" (bound in leatherette) both for\$1.25
2. With Dr. Miller's "Forty Years Among the Bees," both for 1.80
3. With Dadant's "Langstroth on the Honey-Bee," both for 2.00
4. With Root's "A B C of Bee-Culture," both for 2.00
5. With a Standard-Bred Italian Queen, both for 1.50
(Queen mailed either before Nov. 1, 1906, or in May or June, 1907.)
6. With Gold Fountain Pen, both for 2.00
7. With Novelty Pocket Knife (your name and address on one side, and Queen, Worker and Drone on the other side) 2.00

A sample copy of the Weekly American Bee Journal free. Ask for it. Address all orders to

GEORGE W. YORK & CO., 334 Dearborn St., Chicago, Ill.

To Florida and Return, \$25 00.

THE above low rate has been placed in effect for the ROUND TRIP from CHICAGO to TAMPA, and other Florida points, to enable people from the Northwest to visit the FLORIDA STATE MID-WINTER FAIR, to be held in Tampa, Nov. 14th to 29th. Also rate of \$20.00 for the ROUND TRIP from CINCINNATI, LOUISVILLE, EVANSVILLE, CAIRO, ST. LOUIS.

This affords an excellent opportunity to examine within a small space the resources of the entire State, as well as to familiarize yourself with the attractive opportunities existing for a location in a section endowed by Nature with a most delightful climate—thus enabling work to be carried on throughout the entire year. The lands are peculiarly rich and very productive, and visitors to the Fair will see fine displays of citrus fruits and early vegetables in addition to the surprising exhibits of Florida live stock. For full information, descriptive literature, and copy of "Seaboard Magazine," address

J. W. WHITE,
General Industrial Agent, Seaboard
Air Line Railway,
Department F, Portsmouth, Virginia.

LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address
COILED SPRING FENCE CO.,
Box 448 Winchester, Ind.

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.,
Ashland, Ohio.



SAVE HALF YOUR FUEL

BY USING THE

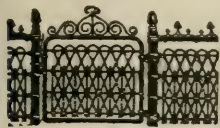
Rochester Radiator

Fits any Stove or Furnace.
Guaranteed to do all we claim
or money refunded.
Write for booklet on heating homes.

Rochester Radiator Co.,
10 Furnace St., Rochester, N. Y.

Price from
\$2.00 to
\$12.00

For hard or
soft coal,
wood or gas



A Lewis Representative

will Attend the

National Bee - keepers' Convention
San Antonio, Texas, Nov. 8, 9, 10,

And will be glad to become personally
acquainted with our numerous custom-
ers gathered there from all parts of
the country.

Be Sure to Get a Beeware Souvenir

It will be worth carrying home with you.

WE WANT AGENTS

FOR THE

NEW ENGLAND AND
SOUTHERN STATES
EAST OF THE MISSISSIPPI

To buy our goods outright by the carload.
Liberal inducements and exclusive territory.

G. B. Lewis Co., Watertown, Wis.

Bee-keepers' Supplies.

GLEANINGS

IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

NOV. 1, 1906.

No 21

STRAY STRAWS

By D. C. C. MILLER

I WONDER will the foul-brood men at San Antonio tell us what makes foul brood? *Bacillus alvei* is pronounced innocent. Who is the culprit?

"THE SAN ANTONIO people will elect the sweetest lady between 16 and 20 to be queen of the convention," p. 1290. Who is to test all the 16 to 20's for sweetness? and will it be by the saccharometer or by the natural labial process?

N. E. FRANCE, p. 1309, thinks the 10 lbs. of honey saved by cellaring bees does not pay for the extra labor. That extra labor costs me for the home apiary less than 3 cts. per colony. But if I could winter out with no more loss than his two per cent I'd winter out.

"I WANT, early in July, more sealed honey in the brood-combs than is necessary to winter the colony," p. 1309. That's all right, Bro. France, with your big hives; but with eight L. frames how much room would the queen have? But you are all right about having plenty of honey in the hive.

LATER developments make me modify what I said about sweet clover on a lawn. That one plant of yellow, as I said, was killed out after blooming through the summer, and I thought that was the only plant on the lawn. But now, Oct. 15, I count 27 tiny plants of white sweet clover blossoming that did not show before during the summer. But, as J. A. Green says, the little dwarfs are not unsightly.

E. W. ALEXANDER objects to the unpleasant odor and taste of honey vinegar, p. 1298. I wonder if that is not due to the quality of the honey. Certainly I have tasted honey vinegar that was unexceptional—no hint of the odor or taste of honey, but would easily have passed as the choicest brand of cider vinegar. Bingham, of smoker fame, made it.

A GOOD DEAL of pollen is being gathered Oct. 17. The color is between brick and orange. I don't know of anything in bloom but dandelions, but this is darker than dandelion pollen. What is it? [Don't you have some various-colored asters in your vicinity? In the fall we have them all the way from white to a deep purple. If you were as young as you used to be, you might settle the matter by stepping out into the field and tracing out the flight of those pollen-bearers.—Ed.]

DR. VON BUTTEL-REEPEN, the German scientist, mentioned page 1290, unless he has backslidden in late years, is a man in close touch with American bee-keeping. If I am not mistaken he was the first man to conduct a department in a German bee-journal in which gleanings from American journals were given, and I felt lonesome when pressing duties obliged him to give it up. [Any practical bee-keeper who has read carefully his paper can not fail to be convinced that Buttel-Reepen is a man in close touch with American bee-keeping and with all the latest and best practices in both continents.—Ed.]

M. ROBERT-AUBERT heats his uncapping-knives by a simple alcohol arrangement consisting of a bottle turned upside down upon a reservoir. Three or four jets are lighted according to the length of the knife to be heated. That's the meager and unsatisfactory description given in *L'Apiculteur*; but some one may get an idea from it. [Any method of heating a knife other than by immersion in hot water, would be very faulty, for the water serves a double purpose. It

gives a uniform heat over the entire surface of the blade, and at the same time washes it off, leaving the cutting edge practically clear of thick honey at least.—Ed.]

A WRITER in *L'Apiculteur* occupies two and one-half pages gravely arguing that it is the drones, and not virgins in cells, that quahk in response to the piping. Sounds foolish, doesn't it? And yet, can you give positive proof of his error? [This writer could not have had very much experience in rearing queens. Years ago, I heard this quahking in a cell. I opened it, and the quahking stopped, and out stepped Miss Queen. While this, of course, would not be absolute proof that the sound emanated from that point, yet the nature of the noise was such that it could not have come from a lot of individuals, but from only one.—Ed.]

"THERE SHOULD by all means by a cement floor in the bee-cellar, especially if it is built in clay ground," p. 1313. I thought so too—put a cement floor in one room, but it didn't work well, and I went back to the clay floor. Adam Grimm had the same experience. Possibly something else than the cement floor was to blame. [A good deal will depend on the locality, and whether the cellar be properly drained. I remember that, while I was in your cellar, the clay bottom was very dry, almost to the point of being dusty. In that case a cement floor would be worse than useless; but in most localities without it the cellar bottom would be damp or muddy, even though there were a good underdrain running around the wall of the cellar.—Ed.]

CLOVER was a failure, but we usually have a moderate fall flow that gives us some sealed combs for spring use. In anticipation of this we gave some second stories of empty combs Aug. 25, saying, "Now if they get more than they can crowd into the lower story they can carry it above, and we shall not need to worry about their having enough below. Strange to say, when we came to take off the upper stories, about Oct. 1, we found some colonies that had done fine work above with scarcely any honey below, two or three of the eight frames being bone dry—not a drop of honey in them. Why? [In our locality, if we put on an upper story in the fall, and there be a fall flow, the bees and the honey will almost invariably go into the upper part of the hive. 'Why?' Because warmer there. I always supposed it was a rule that bees would desert the lower story unless they had brood there, and go up into the upper one in the fall, other things being equal.—Ed.]

WHILE conceding to A. I. Root full permission to cut chunk honey out of his little hives, the question he raises as to drone foundation, p. 1291, is worth some consideration. The fact that there is sufficient demand to warrant its manufacture is no small argument. Your claim, Bro. Root, of the saving of wax is granted; but the saving is very small. More important, perhaps, is the saving of labor in building drone comb. There

must be other arguments in its favor, but I don't know what they are. An objection to it is the matter of looks; yet some may prefer it, even in that respect. The more serious objection is the attitude of the bees toward drone comb in sections when there is little or none in the brood-chamber. The queen will be sure to go up and lay in the drone comb if she can, so that the use of drone comb in the supers carries with it the expense and annoyance of excluders. Even with excluders space will be held open for the queen to lay in the sections, thus hindering their completion. What advantages are there to counterbalance these disadvantages?

A FILE of combs of honey stood in the apiary, and a little leak attracted quite a band of robbers. Not one of them showed less than three yellow bands, although such bees are by no means in the majority in the yard. Does that mean that the three-banders are more industrious gatherers than hybrids? Or does it mean that they would rather rob when their darker sisters were bringing in loads of pollen from the scanty pasturage? [Is it not true, doctor, that when robbing first starts it is some particular colony, and that colony only, that is involved? After robbing becomes well started, other bees in the other colonies take a hand in the general fracas. Some years ago at one of our out-yards I noticed that, when any initial robbing was going on, it was a certain colony of five-banders—the only five-banders in the yard, and these were the ones that would first begin the stealing. At other times I have noticed that, when we had only one hybrid colony, that was the one that would begin the business. Now, if you had taken the time to identify these three-banded bees, and if you had some means by which you could go back into their history, so far as it relates to robbing, I think you would find they had learned to rob before any other bees in the yard were beginning. No, I always supposed that the ordinary yellow or leather-colored three-banded Italians as a race were less inclined to steal than hybrids. When we had blacks and hybrids in our home yard, as I now remember it was these bees that would commence robbing while the three-banded bees were at home or in the field. Next time you see some three-banded bees robbing, and only those, watch the hive to which they go. I shall be surprised if you do not discover that they all go to one hive. In the course of an hour or so bees of other colonies may be attracted by the roar in the air.—Ed.]

FEED now rather than attempt it later in the cellar. Liquid food given to bees after they have been put in their winter repositories will stir them up to unnecessary activity, causing them to overeat, and overload their intestines, with dysentery as a result, in the spring.



FOR late feeding after cold weather has set in, it will be risky to feed syrup. Better make a candy, and lay it on top of the frames, as directed in the text-books.

THE reader must not fail to read the digest of the national pure-food law as given in this department. While I do not for a moment suggest or hint that any of our subscribers would *knowingly* violate this law, they might innocently do so, and it therefore behooves them to understand its provisions.

GLEANINGS will be represented at the big San Antonio convention by our junior editor, H. H. Root, and Mr. Ralph W. Boyden, manager of our Chicago office. It will be impossible for me to get away, as the convention comes at a bad time for me to leave home. H. H. Root will stay after the convention, making a tour among some of the bee-keepers of the State.

In this issue we introduce a new department entitled "Told by the Jay." The writer is a real funny man—spontaneously funny. This department will not only be spiced with humor but with practical bee lore as well. The Jay is a man who has had considerable experience with bees; and in his droll way he will tell things that will be interesting as well as useful.

MR. OREL L. HERSHISER, in this and the last issue, recommends confining cellar-wintered bees within the hives. This I believe to be perfectly practicable, providing a deep space or rim is placed between the hive proper and the bottom-board. Two sides of this rim should be open, and covered with a fine-mesh wire cloth. The reader should not make the mistake of trying to confine the bees in an ordinary hive, for he will be almost sure to come to grief if he does.

WINTERING IN CLAMPS IN A CLAY SOIL.

We have several good articles in this issue on wintering indoors and in clamps. In the article by E. D. Townsend the reader must not forget to note that the latter specifies his bees are buried in *sandy* soil. In order to make the clamp method of wintering a success, the pits must be thoroughly drained. A sandy soil will naturally permit this, leaving the bees dry and sweet. I would not advise any one to attempt wintering by this method in a *clay* soil. Indeed, I do not

know of any one who has made a success of it in clay soil.

OUR NEW PUBLISHING HOUSE NEARING COMPLETION; OTHER ENLARGEMENTS AT MEDINA.

OUR new office and publishing house, just across the way from our present quarters, is nearing completion. The walls and floors are all of concrete, and fire and earthquake proof. The entire structure is roomy enough inside for a fair-sized game of ball, and handsome enough outside for the home of any pretentious magazine.

We expect to get into our new quarters in a month or six weeks. New machinery and equipment is arriving; and when we finally get fully under way, and in the new building, we hope to make GLEANINGS blossom as it never did before.

Our readers will be pleased to know that our publishing department is more than self-sustaining, and fully able to build a larger home out of its own funds, irrespective of financial aid from the supply department.

Speaking of this latter reminds me that we have added a third story to one of our wood-working buildings, doubled the horse power of our smoke-stack, increased our fire-fighting service, and before Jan. 1 all of our departments will have exceptional facilities for getting out work rapidly at a minimum of expense. When our general office and printing department vacate our present quarters this will give us additional room for manufacturing and storage purposes that we do not now have.

IS IT A DISEASE OF THE BROOD OR NOT? A SCANT SUPPLY OF STORES RESPONSIBLE FOR DEAD BROOD.

At the Northern Illinois and Southern Wisconsin bee-keepers' convention, a sample of dead brood was brought in to be identified. A good many reported finding the same thing in their own yards. It did not seem to be contagious, and appeared only in certain colonies with only a dead larva showing here and there. It was finally decided to send a sample of the affected brood to this office, which was done. I have carefully examined it; and from the reported facts concerning it, and the appearance of the dead larva, I should say it was nothing more than dead brood as a result of a scarcity of nectar supply. Some of the brood being insufficiently fed, it dies. Parts of Wisconsin, where this dead brood was found, had a severe dearth of honey; and *any locality* where this is true is liable to show in a few of the hives an occasional cell of dead brood. The obvious remedy is to feed all such colonies that are running from hand to mouth. It is poor economy in more ways than one to let any colony run shy, especially before the expected honey-flow. Doolittle never said a truer thing than when he advised that all colonies in the spring and early summer be "rich" in stores; for that means brood and bees when he harvest does come.

WEDDING BELLS.

CARDS are out announcing the marriage of Miss Mary Hibbs Geisler to Dr. Everett Franklin Phillips, on the 27th of October last. Dr. Phillips, of the United States Department of Agriculture, is too well known to need any introduction to our readers. Mrs. Phillips, like her husband, is a trained entomologist, both having graduated from the University of Pennsylvania, and both having taken post-graduate courses. The couple will be at home after Jan. 1, at the Nansemond, 22d and N. Sts., N. W., Washington. GLEANINGS offers its sincerest congratulations and best wishes.

THE NEW NATIONAL PURE-FOOD LAW; ITS PROVISIONS, PENALTIES, AND SCOPE.

THE Hepburn pure-food bill, one of the most important measures that ever passed Congress, became a law on June 30 of this year, but will not be in force until January 1, 1907. I have before me a copy of the law, and the rules and regulations applying to said law as they were prepared by the Secretaries of the Treasury, of Agriculture, and of Commerce and Labor. That the new law has "teeth" in it, can not be denied. It is going to do more to wipe out adulteration and misbranding than any thing that has ever been done before in half a century. While in a sense it is restricted to interstate and territorial business, yet its *practical* working effect will be to prevent the dishonest food and medicine purveyors from doing business in *any State*, whether it has a pure-food law or not. No glucose mixer or adulterator, after Jan. 1st next, will dare put his goods on the market again; for if he does he is liable to run up against Uncle Sam in a way that will not only subject him to a heavy fine, but may put him behind the bars where he will stay for a time. It is a well-known fact that law-breakers are far more afraid of United States officials than mere State officers.

It is vitally necessary that every bee-keeper and honey-seller know something about this new law. Even honest men might inadvertently become entrapped; and it is important, alike for both the law-abiding as well as the would-be law-breaker to know what the law is.

In a general way it makes it a crime against the United States to misbrand or adulterate *any* food product, medicine, or liquor, without showing the exact contents on the outside of the package. In any State where there is no pure-food law one may adulterate and misbrand as before, *providing* his products do not go beyond the limits of that State. But the moment they pass beyond the borderline into another State he is liable to fine and imprisonment. There is where the rub is. Inasmuch as it would be impossible to do a strictly within-the-State business, the practical working effect of the law would be that misbranding and adulterating will have to stop on every foot of ground owned or controlled by any State or by the United

States as a whole. The law goes further. One can not adulterate or misbrand goods that are to be used for export into a foreign country without taking fearful chances.

PENALTIES.

Any person who shall violate any provision of this law relating to an interstate or territorial business shall be guilty of a misdemeanor, and shall, on conviction, be fined not to exceed \$500, or be sentenced to one year's imprisonment, or both; such fine and imprisonment to be at the discretion of the court. For each subsequent offense and conviction he shall be fined not less than \$1000, or sentenced to one year's imprisonment, or both, at the discretion of the court.

The penalty for exporting misbranded or adulterated goods will be \$200 for the first offense, and \$500 for a succeeding offense, or to be imprisoned one year, or both, at the discretion of the court.

GUARANTEE OF PURITY REQUIRED.

A special feature of this bill is that no dealer in food or drug products will be liable to prosecution if he can show that the goods were sold under a guarantee of purity from the wholesaler, manufacturer, jobber, dealer, or other party residing in the United States, from whom purchased. It is proper to remark right here that it is very important that every purchaser of honey or beeswax secure from each wholesaler, jobber, or producer, that the goods purchased are guaranteed by him to be pure. In the event that it is found afterward that they are adulterated or misbranded, the presentation of this guarantee by the dealer will protect him, when proceedings will be taken up against the maker of the guarantee, and he, in turn, as I understand the law, can go back to the original producer, provided, of course, that he in turn is protected also by a guarantee of purity from said producer. As I understand it, this guarantee will not apply in any case where the original package in which the goods were received has been broken and the goods have been put into other packages.

It will come to pass that, before a sale can be consummated, a guarantee of purity will have to be furnished. When the examination or analysis shows that the food or drugs are adulterated, the dealer furnishing such goods shall be duly notified.

PROCEDURE WHEN ADULTERATION OR MISBRANDING HAS BEEN DETECTED BY A UNITED STATES OFFICER.

Section 4 of the law is liberal toward the suspected offender in that it gives him a chance for a hearing before the actual penalty is applied. When examination or analysis shows that he is possibly or probably guilty, notice is served to him or to the parties from whom he obtained the goods, or who executed the guarantee as provided in the law. A date is fixed by the Secretary of Agriculture, or such other official connected with the food and drug inspection service as may be commissioned by him for that purpose, when a hearing shall be held. Said

hearing shall be in private, and shall be confined to questions of fact. If it be shown that a mistake has been made, the parties shall be discharged; but if it be shown that he is guilty, the fact will be published, and in addition the offender will be subject to the penalties already mentioned.

The adulterators of food products fear publicity more than any thing else. They do not care so much about a small fine; but Uncle Sam has fixed it so that the law-breaker shall get a big fine, some free advertising, and, in addition, a free ride, perhaps, to prison. No wonder there was a tremendous glucose lobby present to kill or weaken the measure when it was before Congress. No wonder the liquor and patent-medicine people feared it.

MISBRANDING, OR LABELING HONEY AS COMING FROM ONE APIARY THAT WAS PRODUCED IN ANOTHER.

Not only is it made a crime against the United States to misbrand an article of food by putting out a cheap substitute under the name of something better, as, for example, a glucose mixture for honey, but it will also be unlawful to sell a *pure* honey under a label showing that it came from some *particular* apiary when, as a matter of fact, it was produced in another. Let us take a concrete case: Mr. John Jones has purchased a lot of labels that read "Pure Honey from the Apiary of John Jones." We will say he has produced 10,000 lbs. of extracted honey. He has a right to use this label on all the honey *he produces* in his apiary or apiaries, *but on no other, however pure*. He builds up a big trade, and there is more demand for his goods. His 10,000 lbs. of his own production is all gone. He goes out into the open market and buys more honey of the same source, no better and no worse than he produces in his own yard; but if he uses the same label to put out this honey he will be rendering himself liable if I understand the law. It is true no chemist could ever show whether the honey bearing such labels was produced in his apiary or not; but other evidence might show a misbranding, and our Mr. Jones would be up against Uncle Sam in a way that would kill him before his old trade.

The law does not prevent him, however, from adopting a trade label of *wider* scope reading something like this: "Pure Clover Honey put up by John Jones." Under this label he may sell his own honey and that which he purchases. But just the moment he buys a mountain sage or a pure basswood, and sells it under that label, he will be rendering himself liable again. If he desires to have a stock label that will apply to both white, red, and alfalfa clover honey he can use the words "Pure Clover Honey put up by John Jones," for alfalfa is a clover the same as sweet or red clover. He might, in my opinion, without being liable, put up a blend of white clover and alfalfa; but if he desired to make a blend of clover and basswood or sage honey he had better adopt the wording, "Pure Extracted Honey, put up by

John Jones." In every case, when John Jones buys honey he will do well to require the seller to give him a guarantee of purity.

The law is very clear in making it unlawful to represent that a certain food product was produced in any particular State when, as a matter of fact, it came from another State. To illustrate, no more can Ohio cheese be sold as York State cheese. In the same way, Wisconsin honey could not be put up under the name of York State honey without rendering somebody liable.

FORM OF GUARANTEE.

As I have already stated, it is quite important that every bee-keeper, when he buys honey from some other bee-keeper, jobber, or dealer, make him give a guarantee of purity. The guarantee suggested is as follows:

I [we] the undersigned do hereby guarantee that honey or beeswax shipped, distributed, or sold by me [us] [specifying the same as fully as possible] is not adulterated or misbranded within the meaning of the food and drugs act, June 30, 1906. *(Signed in ink.)*

Our customers are asking us to furnish this guarantee, and we in turn are asking those who furnish us honey or beeswax to give us the same guarantee. No producer or jobber should hesitate to furnish such a writing: for the moment he hesitates, that moment his goods will be under suspicion.

GENERAL EFFECT OF THE LAW.

There are many other provisions of this law; but those already given are the principal ones that relate to bee-keeping. Suffice it to say, its general provisions apply equally to all products, medicines, and liquors. No more can a medicine be sold under an innocent name and yet contain some powerful poison, *unless* the exact amount of such poison as well as other ingredients be stated on the label. Thousands of people have died as the result of liquor, cocaine, strychnine, and other deadly poisons administered in medicines having an innocent name.

The effect of this provision of the law is going to be to drive a lot of dangerous proprietary medicines out of the market. As soon as the dear public knows what these innocent-sounding medicines are, it will leave them severely alone, and it ought to.

This national pure-food law may rope in some innocent bee-keepers and other well-meaning persons; but it is their business to *know* the law, and GLEANINGS has taken this opportunity to inform them.

Every pound of honey that one buys of somebody else should be covered by a guarantee, else the purchaser may assume a great risk; and, further, the label shall not be misleading in any manner whatsoever.

Later: I notice that Chief Chemist Wiley, of the Department of Agriculture, is giving the liquor people a severe jolt. No more can they put out mixed liquors without showing the character of the mixture on the label. This will help to increase the sobriety of the drinkers, for of all the vile concoctions a mixed liquor is the most damning. Surely the world does move.



If the writer had not lately paid a visit to Medina, Ohio, he would never suspect that the individual on the cover page of GLEANINGS, Oct. 1, is A. I. Root. Do you expect all your readers to travel to Medina to find out, or shall their curiosity remain unsatisfied?

In reply to the question, "Are bees kept with as much profit in Manitoba, where there are bluffs of timber, as in Ontario?" Mr. J. J. Gunn, in the *Farmer's Advocate*, answers in part: "Bees are being kept quite profitably in many parts of Manitoba. . . Yards of 100 colonies have yielded an average of 100 pounds of extracted honey per hive. This, however, is exceptional."

After examining all the hive-super-lifting devices in Sept. 1st GLEANINGS, including Holtermann's, we must come to the conclusion that there is room for improvement in the method. Holtermann's method of clasp-ing the super is not perfect, but the lifter leaves the brood-chamber clear for manipulation; but how can a bee-keeper manipulate in Fig. 16, page 1122? The front of the hive is the only accessible part.

This is the time of year when the entrances to hives should be sufficiently contracted to keep the bees covering their winter stores as much as possible. Many colonies drawing away from outside combs on cool damp nights have their winter food deteriorate before going into winter quarters. Care should, however, be taken not to overdo it, as bees require fresh air. When the bees gnaw the entrance-blocks (you can sometimes hear them doing this) then enlarge.

Sometimes bee-keepers are compelled, after extracting, owing to circumstances, to set their extracting-combs out for the bees to clean. This should be avoided; but if it is done, Mr. Walter Bailey, Forestville, Ont., makes a good suggestion. He says: "Put the combs out in the early evening, after the bees cease flying. During the night the honey will absorb a certain amount of moisture from the atmosphere and dew, and the bees have less trouble in collecting the honey."

On page 1113, under the heading, "Waste of Wax Scales," you mention the unusual waste of wax scales, and attribute it to cool nights. We had a small colony which was

queenless for a considerable time; and, judging it worthless, we removed the combs. They clustered in the portico; and during a light buckwheat flow they secreted wax and began comb-building. They were (or, rather, the wax scales would be) very exposed to cool air, and the same waste was noticed. Your theory is probably correct the wax not warm enough to be joined by the bees into comb.

Mr. R. A. Morrison, Catarqui, Ont., has also made me somewhat of a convert to setting bees in the cellar early. He states that careful observation has led him to see that, in cold weather, bees on the outside combs suffer; they chill, become permanently injured, and are worse than useless. I have myself for years noticed that small clusters on outside combs are often dead when placed in winter quarters, and that, if hives are put in the cellar late, there are more dead bees brought to the entrance by the bees the first few days than a month after that time. In a northerly climate Mr. Morrison's suggestion is probably worth acting upon.

Mr. Jacob Alpaugh, Galt, Ont., states that he has paid for some years very close attention to comb foundation. He states a great deal of it in Canada is stretched in making. If it is less than five cells to the inch he will not use it. It should be 4½ inches. Mr. Alpaugh also claims that many queens do not lay to their full capacity, because they are dissatisfied with the wrong size of cell, and also that queens, in themselves perfectly good, are superseded on account of improper combs in the brood-chamber. Like the rest of us, Mr. Alpaugh is not always right. He has, however, brought forward some excellent ideas in bee-keeping, and any thing he advances is worthy of careful consideration.

Some time ago Mr. Alexander and J. L. Byers, Markham, Ont., crossed swords upon the question of the thickness of buckwheat honey and other matters. To many, including the writer, Mr. Byers' article seemed timely; but Mr. B. is wrong when he speaks of buckwheat honey being thin. We know of no other Canadian honey with as much body to it, when well ripened. It is "no small chore" to remove it from the comb, and sometimes long threads of honey fly from the extractor. This is particularly true if the extractor is not a reversible machine where the combs lie close to the sides of the can. Many of your readers may not know that in Europe heather honey is dark in color, and so thick that it is not practical to extract it. Buckwheat honey sometimes makes me think of heather honey. Probably Mr. Byers, as he is not in a buckwheat section, gets his idea of buckwheat honey from what, until recently, has been shown at the Toronto exhibition. It was thin because the present season's honey had to be shown; and

that being the case it did not have time to ripen properly. This matter is now rectified.

Mr. John Fixter, apiarist at the Dominion Experiment Farm, Ottawa, who has also been farm foreman there, left the services of the Dominion Government on October 1 to become farm superintendent at the Macdonald College and Experimental Farm, St. Anne, Que., under Prof. Robertson. We understand the apiary is likely to be abandoned and the experimental work there discontinued. Apiculturally we are not having much done for us in Canada.

Mr. Morley Pettit, Villa Nova, Ont., is also taking a very long step toward leaving the apicultural world. He has taken a circuit near Galt, Ont., among the Methodists as a preacher. Their term is now four years. While Mr. Pettit will, of course, have to devote the greater part of his time, energies, and thought to his ministerial duties—preaching and visiting the flock—he intends to run his bees for some time.

The annual meeting of the Ontario Beekeepers' Association will be held in the York County council chambers, Adelaide St., Toronto, from Nov. 7, 2 P.M., to noon Nov. 9, during the time of the fruit, flower, and honey show, which show is held at Massey Hall. One-way tickets will be sold on the certificate plan, Nov. 2 to 10 inclusive, free to return up to Nov. 14. Certificates must be validated by the railway representative at the exhibition, cost for which is 25 cents on each ticket. Buy a ticket to Toronto only, and ask your station agent for a standard certificate. Present your ticket at the exhibition in Toronto for the signature of the secretary, and validation, after which you can return home free irrespective of the number of tickets. There will also be special excursions from all points in Ontario, good going Nov. 7 and 8, and good to return up to Nov. 10, at lowest single first-class fare. The Palmer House, King St., Toronto, a few blocks from the Union Station (you need neither street-car nor bus), a \$2.00-a-day house, has given a special rate of \$1.50 a day. Members will be expected to double up in rooms. This house was headquarters for the North American Beekeepers' convention when it last met in Toronto, when many delegates, particularly those from the United States, expressed their appreciation. We hope to see many at the convention. It will be particularly convenient to York State bee-keepers, and Secretary Couse extends a hearty invitation to our United States brethren to come and take part.

A visit to the apiarian department at the National Exposition, Toronto, Ont., this year shows that the poor honey season throughout the greater part of Ontario and Quebec has had an influence upon the exhibits. In extracted as well as in comb honey the quality and the quantity, particularly the second

week of the exposition, is scarcely up to the usual mark; however, the exhibitors deserve the thanks of the bee-keepers at large for keeping honey in so conspicuous a manner before visitors to the exposition.

The past history of the honey exhibition is full of interest, and dates back close to thirty years. Mr. D. A. Jones, Beeton, Ont., was practically the founder of the present extensive exhibit, and still holds the palm for having made the largest exhibit of extracted honey, creating quite an excitement in Toronto and the Province of Ontario.

It was at the Toronto exhibition, in the apiarian department, when, with Mr. D. A. Jones, I first met Mr. Wm. McEvoy, Woodburn, Ont., Inspector of Apiaries for Ontario, well known to the apicultural world, and whose treatment of foul brood is followed by so many. I remember him with a long string of first-prize tickets for honey, and his stating that he received first prize for honey at the Philadelphia Centennial.

Mr. J. B. Hall, Woodstock, Ont., then the comb-honey king, with to-day his worldwide reputation as a comb-honey producer and bee-keeper, has made the largest exhibit of comb honey—we believe something like 20,000 lbs. Mr. R. McKnight, Owen Sound, Ont., first taught us artistic effect; the conductor of this department put up the first glass pyramid, having seen one put up at the Detroit exposition by Mr. W. Z. Hutchinson, Flint, Mich. All these have drifted into the past so far as the Toronto exposition is concerned. This year the exhibitors were Messrs. R. H. Smith, St. Thomas; D. Anguish, Southwold; George Laing, Milton; E. Grainger, Toronto; Arthur Laing, Acton, and Mrs. R. H. Smith, St. Thomas. Photographs of some of these are shown on p. 1366.



WHERE WINTER BEES? THE TEMPERATURE
INSIDE OF A CLUSTER OF BEES WHEN IT
IS ZERO WEATHER OUTSIDE.

"Good morning, Mr. Doolittle. This is a fine October morning."

"Yes. The sun shines out in all its glory, and it is so still and nice. But winter is coming, as surely as we had that unprecedented snowstorm of the 11th, when six inches of snow fell at a time never known before. But winter does not bother Jones any, does it?"

"Well, not very much, usually. But I am wondering how I had best winter my bees this winter. I have always wintered them outdoors, but somehow I am feeling a little

concerned about the matter this year. Do you know at what temperature the bees keep the interior of the cluster during winter?"

"For many years the temperature inside the cluster of bees while in winter quarters was unknown, as it was hard to get this temperature with an ordinary thermometer; for as soon as the thermometer was taken from the cluster it would commence to lower so fast that, on a cold morning, it would run down from three to five degrees while taking from the cluster and looking at it."

"But there must have been some way to overcome this matter?"

"Certainly. But it was not so easy as you may think. To do this I procured a self-registering spirit thermometer, and had no idea but that I should have an easy job with this in getting the lowest temperature inside the cluster on any cold day. In this I was mistaken, however, for in putting it in the hive the bees were aroused from their quiet slumber, which they usually take during the winter, to an activity nearly equaling that of summer."

"Ah! I see. An element comes in there which I had not taken into consideration."

"The thermometer was put in at about four o'clock one afternoon when the mercury outside marked six degrees below zero. The next morning it was still colder, so I concluded that, if I got the temperature when it was as cold as this, it would not be far from what it would average, taking the very coldest weather together with that more mild; but when I went to take the thermometer out I saw that I could take the degree registered only when the bees were at their warmest point of excitement, caused by my opening the hive, for the registered heat stood at 87 degrees, while that at which it stood on taking the thermometer from the hive was much lower."

"As I should expect, after the thought I had a moment ago. How did you overcome this?"

"I now saw that I must work my thermometer the other way, so I placed it near the stove until 100 degrees above zero was marked, on the cold side, when I set it, wrapped it in a warm cloth, and took it to the hive."

"That would accomplish what you desired, I am sure. What was the result?"

"The weather now became severe and blustering, so that I thought it best to leave the hive undisturbed for five days. During this time the mercury went as low as 16 degrees below zero, but on the afternoon of the fifth day it stood at 18 above. I now took out the thermometer, having a hot cloth ready to put it in the instant it was out from the cluster. It was immediately taken to a warm room where I had a perfect register of 63 degrees as the lowest point reached during the five days of extreme cold."

"That test must have been conclusive."

"But I was not satisfied till I had tried further. In this way I kept on experimenting for several weeks, using several different colonies during the time, until I arrived at

the following, which I think is very nearly accurate, when a colony is in perfect quietude. When the mercury stands at zero outside, the temperature in the cluster of bees is 64 degrees, and for every 15 degrees of change from this point (outside), the change in the cluster is one degree. Thus 16 degrees below gave 63 degrees; zero gave 64 degrees; 15 degrees above gave 65 degrees; while 28 above (the highest it has been during any of my winter experiments) gave 66 degrees in the cluster."

"That temperature is somewhat higher than I expected to know was maintained during winter. I should have guessed it to be about 50 degrees."

"Very many guess from 45 to 50 degrees. But guesses and actual tests do not always agree. But listen: By the above figures it will be seen that the bees must burn much fuel in times of extreme cold, in order to warm the temperature of the cluster up from away below zero to 63 above that point. This fuel is, of course, honey or some substitute in the sugar line."

"I see. The bees certainly can not use any other fuel than what they have stored in their combs."

"You are right. And from this the question naturally arises whether you have not been making a mistake in wintering your bees outdoors during the past, and losing in dollars and cents by the extra amount of honey which must be consumed in this way over cellar wintering."

"This is what I have been thinking about during the last few days; but I have never boiled the matter down to so fine a point as you have done."

"You can not but admit that there must be a loss in honey in outdoor wintering in such a climate as we have in these northern States of ours; for surely it can not take as much fuel to warm a temperature of 45 degrees (the temperature usually conceded to be right for cellar-wintering) to 65 degrees, as it does one from zero to 20 below, to the same point."

"That certainly must be right."

"Yes. And there is another item in this matter, of more import, often, than the mere saying of honey."

"What is that?"

"Where bees consume a large amount of honey as fuel there is a certain amount of soot and ashes left in the stove, or heater, after each burning."

"Ah! I see again."

"Yes; and unless there comes a chance when this accumulation can be disposed of in the natural way, which is a mid-winter flight or two, this accumulation brings on a waste of tissue by the strain on the bees; diarrhea sets in, the result of which is loss in colonies, or, what is nearly as bad, spring dwindling, to an extent which makes the colonies practically useless for surplus honey the next season."

"I am glad to have had this little talk with you; and as I have a fairly good cellar I am resolved to try cellar wintering."



J. W. Shaw inquires on page 1097 as to the value of vetch. It has seemed of little value here in western Vermont. It blooms about the time of clover, but it is rarely you see any bees at work on it, although I have watched it carefully for several years. I found them quite plentiful on it this season for the first time. It is considered by some farmers as a bad plant, or quite difficult to eradicate when once it gets a foothold.

It seems to me that the statements made by F. E. Brown, as well as by the editor some time ago in regard to the color of alfalfa honey, are of much value, for one fact is of more value than many theories. Now, if there are any other plants that produce different-colored honey on different soils or in different localities, let those who know it make it known. If the color of the various kinds of honey most gathered by bees is well known it will be helpful in buying and selling, as well as in other ways.

ALFALFA HONEY IN THE EAST.

Somewhere Dr. Miller inquires whether alfalfa yields honey here in the East. No, sir; it doesn't as a rule. I had to wait for years before I found any bees on it; yet two years ago I found some bees at work on it about as lively as on sweet clover. It was on the south side of a hill on dry gravelly soil where conditions were somewhat like those in the arid regions of the West, and I should not be surprised if some seasons, when we are parched with drouth, alfalfa should freely offer its nectar to our hungry bees.

POLLEN DURING BASSWOOD BLOOM.

"There is no pollen produced by the basswood, or linden, as you know."

"Yes, I know there is not; but the bees gather it from the wild grape and other sources, even gathering it from our common grass."

"Yes, I know they gather some pollen in the early morning from these sources, but not to the extent that they do either before basswood or after it," page 877.

Say, Mr. Doolittle, you have some pretty smart bees. I have sometimes thought they would go further for honey, and bring home larger loads of it, than any other bees I ever saw; but when you tell about their gathering pollen from the wild grape during basswood bloom and after it, I am a little skeptical—just a little—for the wild grape blossoms hereabout early in June, and goes by weeks

before the basswood throws its dainty blossoms to the breeze.

POLLEN KEEPING.

The idea you bring out, that only the pollen from clover will keep through the winter, is certainly new. It is quite true, also, that localities differ, and what is true in one place may not be in another; but I can see no good reason why one kind of pollen, when saturated with honey, and all air excluded, should not keep as well as another. Chemically they must be much alike. I should like to agree with you, for I dislike to disagree with those whom I consider my superiors; but I have watched with considerable interest, the present season, the bees putting their pollen "down" or putting it "up," as good housewives sometimes say, or preserving it for winter use. The pollen was already saturated with honey, and packed solid in the cells, and glistened with honey. It only required covering with honey, and sealing, to complete the process; but I noticed that the pollen varied in color in different cells, indicating, to my mind, that it came from different sources, and that bees treat pollen much as they do honey. Take all they want for present use from open cells, and what remains seal up for future reference without much regard to whether it was gathered from clover or—cucumbers.

HAVE THE EFFECTS OF THE COMB-HONEY CANARDS BEEN EXAGGERATED?

Some persons, myself among the number, have questioned whether the results of the various stories about the adulteration of honey have not been exaggerated; but recent events show very clearly the results of derogatory statements about food products. The effect of making public the report of Pres. Roosevelt's special committee on the meat-packers of Chicago is quickly to reduce the sales of meat in our eastern markets. With heavy headlines the *Boston Journal* said:

"BOSTON PLACES BAN ON BEEF-TRUST PRODUCTS.

"Bostonians have begun to shy at beef-trust goods. Already wholesale and retail dealers feel the effects of the sensational exposure of packing-house methods as depicted in the preliminary report to President Roosevelt, and made public by him. Our sales have fallen off amazingly, scores of these dealers told a *Journal* reporter yesterday. All sorts of the prepared meats are being blacklisted by the consumers; and to say trust sausages or potted ham to a customer now is to bring down a torrent of abuse upon the trusts, upon us, and upon every thing in general. Most of our customers have refused absolutely to buy any of the trust meat, as they call it, declared our dealer."

Much more might be quoted in the same vein; but I have given enough to show that we can not be too careful of the reputation of the quality of our honey as an article of food. More and more thought is given to

the subject of pure foods. Now as never before are the various States trying to protect their citizens from fraudulent and unwholesome foods. Let us rejoice.

CLEANING SECTIONS.

"Isn't cleaning sections the dirtiest, stickiest, and most monotonous job of the season?" Well, that depends. It is certainly dirty; and, during hot weather, it is usually sticky; whether it is monotonous depends on how you work. If you have no interest in your work but to remove the propolis you certainly have a pretty dry, uninteresting job; but if you have carefully marked each clamp when put on or taken off the hives so you can tell just which yard and hive each clamp or super came from, I know of no more interesting or fascinating work connected with bee-keeping.

"But isn't it a lot of work to mark so many clamps?" Some, but it pays. We let a letter stand for the yard; thus, N. 23-2 is enough, and reads north yard, hive 23, clamp 2. W. 10-4 stands for the fourth clamp from hive number 10 in the west yard. But it adds immensely to our pleasure while cleaning honey. We find comparatively few supers filled just alike. One may be of pearly whiteness and delicate comb; the next may be white on the outside while the central combs are badly stained; another nearly free from propolis, while another is sadly soiled. Still another may have gnawed the cloth cover over the sections and mixed the refuse with the capping, ruining them for fancy honey or any use but the extractor. You can tell which yard, and also the individual hives, that produce the whitest combs. If you find supers having many sections containing pollen it is easy, by referring to your records, to find whether this condition was caused by queenlessness or otherwise. You will find that the work in many supers was done so poorly that the hive demands a change of queen. You can tell the hives containing the most desirable queens for your use. When you find a super, as I did the other day, marked W. 43-5, with white handsome combs, you will know that this particular hive has filled five supers; and if your pulse does not quicken, and the blood in your veins tingle to your finger-tips, your experience will be different from mine.

Where one has hundreds of hives in several yards it is impossible to tell very accurately your best colonies while you handle them during the busy season. You haven't time; but when you clean your honey you may find many hives producing such superior combs in such abundance as easily to place them at the head as most desirable to breed from.

SWEET CLOVER, WHITE AND YELLOW.

I have watched the sweet clovers side by side for years, and with me the yellow is quite four weeks earlier than the white kind. My memorandum for this season is, "first yellow blossoms open May 22; first white blossoms, June 25." A. L. AMOS.
Comstock, Neb.



ALL ABOUT APICULTURE.

I was born. Circumstantial evidence to that effect is clear. As to when, I know only by hearsay. I have been living ever since I can remember. Some of my friends take issue me on this point, and say I am not alive and never was. I was brought up on a farm. That is clear too. I am a self-made man. Say! but didn't I have an easy job?

The first symptom of the bee fever manifested itself about ten years ago, and I wrote to The A. I. Root Co. to see what could be done for it. They advised me to go to some neighbor bee-keeper and get pointers. I went to a neighbor who informed me he had two gums of bees. One was in an old ice-cream freezer and the other was in a sheet-iron gasoline-oven. A nail-keg was in readiness to catch an expected swarm. This keg was thoroughly rubbed with peach-leaves as a sure preventive against absconding. My first question was: "What kind of hive do you recommend?"

"Well, the oven makes the best winter repository; but the ice-cream freezer is the best summer resort."

"How about the nail-keg?"

"Oh! well, I take that up with brimstone in the fall."

I then asked: "What constitutes the principal nectar-secreting flora in this locality?"

"The which?"

"Of what do your bees make honey?"

"They do best when the ladies next door are making sun-dried cherry and strawberry preserves."

I always heard that a fruit country is good for bees. I tried to get some more information, but he assured me that was all there was to it, so I returned home a full-fledged bee-keeper, thanks to the advice of the Root Co.

I got some bees and thought I would raise some queens. The first queen I raised had a playful way of laying a cell half full of eggs, laying them criss-cross, helter-skelter, and almost anyway. I began to think there might possibly be something about bee culture that I did not understand; but my brother helped me out this time. He said:

"That queen of yours mated with a blue-bottle fly, because that is just the way the flies lay eggs in my beefsteak."

One day a lady hearing that I wanted more bees phoned me that a tremendous swarm was hanging in a tree in her yard. I could have them by coming after them. How easy! There now was great activity about the house. A shawl-strap was hunted out from the attic, with which a hive was secured; then, mounting my bicycle, I scorch-

ed up the street. The distance was about two miles. It was Decoration day, and the parade was going by. As I shot through the crowd some one said:

"What on earth is the matter with that lunatic?"

Another answered:

"Nothing, only he has got the hives."

I arrived just as the bees were preparing to move. They were dropping off from the main cluster in bunches about the size of your fist. In an instant they were all on the wing and making across the city. But my fighting blood was up. Those bees were mine, and I did not feel as if it were asking too much to have something to say about where I should keep them. I got on the bike and sailed around the squares until I got well ahead of them. I went into a yard and summoned the family and all the neighbors, and assigned each his task. A tub was put under the pump, and a boy was asked to make the pump-handle vibrate. We all got pails and filled them with water, and awaited the arrival of the bees. When they came we certainly had a surprise in store for them. We ducked them, we doused them, we soused them. They thought they had better put up while the cyclone was in operation, and settled in the top of an osage hedge, about fifteen feet from the ground. I borrowed a step-ladder, got a long forked pole from under the clothes-line, put a pail in this fork, and manfully made the ascent. I held up the pail on the pole just under the swarm, and gave the limb a poke. The thing worked out far beyond my expectations. The whole swarm dropped *en masse* into the pail. This made things so top-heavy that bees, pail, ladder, and myself went charging down through that osage hedge. O Absalom! how I envied you that you had your little fracas in an oak instead of an osage hedge! We all landed on the hive in fairly good condition. My veil was left hanging high up in the hedge. The bees took special notice of this fact and got busy. I retreated in great disorder, but quickly set up my outfit and went after that bunch again.

I think I bailed them out of that tree about five times before they could understand that I really needed them down there in that hive. But we wheeled them home that night, and in about two weeks they made about fifteen pounds of extra-fancy white-clover honey in Danzenbaker sections. It was our first; and, wasn't it good?

A BOTTLE FEEDER.

I have hit on a device for feeding my bees with a bottle. Put a rag stopper in and put the neck through an auger-hole in the top of the hive. The flow can be regulated by tight or loose stopper, on atmospheric-pressure principle. J. H. COLLINS.

Bardwell, Ky.

[This form of feeder is by no means new; but it is a good one, nevertheless, under some conditions.—ED.]



ALEXANDER METHOD OF BUILDING UP WEAK COLONIES IN EARLY SPRING.

Why Some Have Failed.

BY E. W. ALEXANDER.

In defense of the best and most practicable method that has ever been made public in caring for our weak colonies after taking them from their winter quarters, I feel almost compelled to notice the attack made on that method by A. J. Snowden, in the Sept. 15th issue of GLEANINGS. As to his statement that I "write things that are not facts," and that in recommending this method I write things that are not practicable, I have only to say that I leave this to intelligent bee-keepers to decide for themselves.

First, I wish it to be understood that this method in question is one that we have been practicing for over 20 years with all our weak colonies in early spring, and that we never lost three per cent of those that were treated in this way. We have had 75 weak colonies at a time on strong ones, and very seldom lost one.

My friends, I hope you did not notice in his attack on me his ignorance of handling bees when you read that "a goose or turkey wing is the best kind of brush out." How strange this is, when you and I have always thought that there was nothing that would irritate bees to the stinging-point like brushing them with feathers!

For the benefit of a few bee-keepers who have made a failure of this method, and also for the benefit of a very large number of new subscribers to GLEANINGS, I will rewrite this method in question, and make it as plain as I can.

About six or seven days after taking your bees from their winter quarters, pick out and mark all your weak colonies, also your strongest ones, marking an equal number of each; then all weak colonies that have a patch of brood in one comb about as large as your hand. Set all such on top of a strong colony with a queen-excluder between, closing up entrances to the weak colony except through the excluder. Then there are those that are very weak that have only a queen, and perhaps not more than a handful of bees with no brood. Fix these last named in *this* way: Go to the strong colony you wish to set them over, and get a frame of brood with its adhering bees, being sure not to take their queen; then put the queen of the weak colony on this comb with the strange bees, and put it into the weak hive; leave them in this

way about half a day, then set them on top of a strong colony where you got the brood with a queen-excluder between. Do all this with a little smoke, and avoid exciting the strong colony in any way. If a cool day, and the bees are not flying, I usually leave the strong colony uncovered, except with the excluder, for a few hours before setting on the weak colony. The whole thing should be done as quietly as possible, so that neither colony hardly realizes that it has been touched. When the weak colony has been given some brood, and put on top in this careful and still manner, hardly one queen in a hundred will be lost, and in about 30 days each hive will be crowded with bees and maturing brood. Then when you wish to separate them, set the strongest colony on a new stand and give it also some of the bees from the hive that is left on the old stand, as a few of the working force will return to the old location; especially if they are black bees or degenerate Italians.

In every case that has come to my notice where this method has been reported a failure it has been by one of two causes—either from lack of brood in a weak colony to hold the queen and her few bees in the upper hive, or by smoking the strong colony so that, as soon as the weak one was set on top, the bees from below would rush up and sting every thing above. Therefore avoid using smoke or doing any thing that will excite the strong colony.

If done in a careful manner the bees in the lower hive never seem to realize that any strangers have been put above them, and they will all work in harmony together.

From the many complimentary letters I have received during the past summer I am sure that, when GLEANINGS gave this method to the bee-keeping world, it was the means of saving thousands of colonies for its many readers; so, give that paper all credit; and if you will put this method in practice next spring, as I have explained, it will be worth more to you than all you have ever paid out for bee-journals.

Delanson, N. Y.

OBSERVATION HIVES.

Some Improvements: the Disadvantages Connected with the Regular Style as Devised by Langstroth; How these may be Overcome.

BY DANIEL F. SAVAGE.

[For several years past there has been a growing interest in the study of the habits of the bee, and a revival of interest in the observation hive. Dr. E. F. Bigelow, of Stamford, Conn., has been a leading spirit in the movement for a better equipment for the study of bee-life. He believes that nothing is too good for his bees, and has devised several observation hives. Dr. Hodge, in his book, "Nature Study and Life," makes a strong plea for the observation hive. In the following article Mr. Savage points out the advantage of a certain form of single-frame hive, and in later articles by other contributors we shall show the comparative merits of single-frame and full-size observation hives—how to handle them, etc.—ED.]

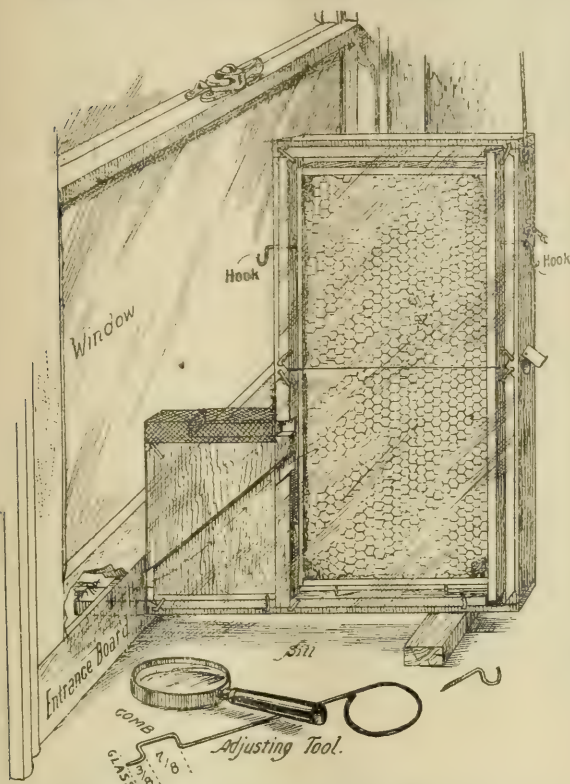
I feel confident that you will appreciate an apparatus that I have devised for convenient

and careful observation of the wonderful working of the bees, as nearly as possible in a normal condition. It is more than thirty years since I undertook to build an observatory hive on the pattern given by Langstroth in 1862, which I scrupulously followed in every particular.

Very soon I found difficulty in its use. The space between glasses was $1\frac{1}{4}$, and it was difficult to lower the comb with adhering bees down there without scraping off bees, and more difficult to get it out after the bees had fastened it to the glass here and there. Besides, the top strips concealed the top-bar and all above it, and things might be in progress right there that I wished very much to see. So I took off those top strips and nailed the top on permanently, and arranged to put the comb in from the side. Next I discarded all grooves and rabbets and strips, as it was difficult to get the glass off and on. The dark and tortuous tunnel for an entrance was a nuisance that had to be abated. It was apt to be clogged up by workers trying to drag out a dead drone. You know they never pull all together the same way, but stupidly pull every way. I have known a queen to be waylaid and smothered there, with complete congestion of all other business. Father Langstroth says that young queens could not readily find the way out, and in one instance he was obliged to place the young queen in a nucleus out of doors in order that she might take her nuptial flight. Strange that he did not rather provide a more convenient place of exit. The vestibule block, as shown, was adopted for this and for several other important purposes. It gives solidity and squareness to the whole structure. The passageways are commodious, and entirely open to view; it brings the hive away from too close contact with the window; it furnishes a convenient place for a small glass feeder, and a ventilator at the top, covered with wire cloth.

Near the top of both front and rear posts a screw-hook goes in, its point slightly entering the wood of the frame, thus keeping the same firmly fixed. In the bottom are two screws projecting upward about $\frac{3}{4}$, and upon these the frame rests. The screw-hooks are convenient for lifting the hive. A strap or cord may be attached so as to carry with one hand. If a lower sash be used it is raised so as to rest upon a strip about 4 inches wide, and through this strip an aperture is cut about $1\frac{1}{2} \times 2\frac{1}{2}$, so that the projecting end will rest upon the window-ledge and pass easily outside. The hive may be placed at any part of the window by removing a pane, say 10×16 , and substituting a pane 10×12 with a thin piece of wood 10×4 below, through which the hole is cut. From the screw-hook at the rear, a picture-cord or wire goes to the upper window-casing. No other fastening or support is needed. The foot-piece is screwed on to the bottom, and is turned crosswise when the hive is set down anywhere; when in place at the window, this piece is turned lengthwise so as to be out of the way. Glass, four sheets, $11 \times 9\frac{1}{2}$; two

sheets of a size sufficient to cover the vestibule-block. These glasses go flat upon the wood, and are secured by wires bent at an angle and put in close to the edge of the glass so as to be readily turned on or off.



No shutters are needed. The act of removing them, and especially the sudden admission of light, excites the bees. They will soon become quiet, and perhaps continue their occupations from where they were interrupted. But father Langstroth discovered that they will work on continuously, although exposed to the full light of day. Why, then, should he or any one put on those vexatious shutters? Of course, the glass hives, standing out of doors, will require them; but surely not those inside at a window. I have sometimes used a cloth, common sheeting, to throw over the hive at night, not to keep the light out, but to keep the heat in. It hangs down in contact with the glass, and thus prevents too much radiation.

From the bottom or from the center of the comb a bee-line leads to all outdoors (lower entrance not shown in the illustration). Any or all of the passageways can be promptly closed or opened by small tins, or strips cut from a postal card, that go in between the edges of front and bottom glass. There are numerous other advantages, surprising in an apparatus consisting of so few separate parts.

The manipulation is easy. I take the apparatus to the yard, set it on a level place,

remove top and bottom glass from one side, select a suitable comb, shake off most of the bees, or all of them if any cutting or grafting or other considerable preparation is needed.

Then, taking the frame by top and bottom bars near the corners, I place one end-bar up on the two screw-heads below and push the other end-bar, which now becomes the top, into place. I have hanging on my fourth finger a little implement of wire which goes over the end-bar, and carries the comb just far enough. When the projecting end touches the glass the left hand goes up to the rear screw-hook and turns it in so as to enter the wood of the top-bar of the frame, and press the projections above and below firmly against the shoulders; then the front screw hook is turned in. When the comb is adjusted centrally the top glass is put on; then if more bees are wanted they are shaken down by the side. Young bees will run up promptly; old bees are apt to take wing and fly away home. Then the bottom glass is put on, and the transaction is complete; and usually only two or three minutes of time are required, and nobody is hurt or greatly disturbed. The window being properly prepared, the end of the hive is passed through the aperture, fitting smoothly but not tightly; the cord is looped to the rear screw-hook, and the bees have begun to organize and take account of stock, and are ready for business. If there are any queen-cells which the bees have built downward, they now have a horizontal position; but you know very well that the queens will come out all right. If it were necessary to give the comb exactly the same position that it had originally (but it is not necessary) then we could easily make our apparatus accordingly. But I prefer the upright position of the L. frame for several reasons. I do not expect to secure a surplus of sections. For show purposes I find that a hole cut out from the comb will be more promptly rebuilt, and will show the process better.

Hopkinsville, Ky.

AN OLD BEE-BOOK.

BY EUGENE SECOR.

Concluded from last issue.

Mr. Evans wove into his poem the names of nearly every tree, shrub, and plant growing in the British Isles that yielded either honey or pollen. He quotes freely from the English botanies of the time and from other sources, besides seeming to exercise a wide observation himself.

Here are two lines which, with the footnote, may be of interest to present-day beekeepers:

What tho' erewhile yon Elm's emergent bud
Pour'd in the lap of Spring a poison'd flood?

The footnote is as follows, quoting from *Evelyn's Sylva*:

"But I hear an ill report of this tree for bees, that, surfeited of the blooming seeds, they are obnoxious to the lask at their first going abroad in the Spring, which endangers whole stocks, if remedies be not timely adhibited. Therefore, it is said they do not thrive in great Elm countries, but the truth of which I am yet to learn."

Mr. Evans adds to the foregoing:

"The author, having applied to some friends in Worcestershire (which abounds with Elms) on this subject, remains in the same dilemma; and is equally at a loss to say whether a real poison, or mere repletion after long fasting throughout the winter, produces this effect. Columella has long since observed the circumstance respecting both this tree and the Spurge, and ascribes it wholly to the latter of these causes."

Mr. Evans does not inform us which species of the elm produces such fatal results, and it would be interesting to know whether such effects are observed now in England or elsewhere. I regard our American white elm as a pollen-producer of some value in early spring.

The only references I find with respect to the management of bees and the production of honey are at footnotes and additional notes at the close of each division of the work.

On p. 113 of Book III. is an interesting account of Mr. Wildman's methods. Mr. Wildman is often quoted by the author as a very successful apiarist.

"A swarm being housed in one of his flat straw hives, and placed in the shed at night, a large bell glass is then placed on its top, the slider being withdrawn to allow a communication, and covered with a common straw hive, as the bees work best in the dark. If these still linger above, tho' the glass be nearly filled, and cluster without the door, a second flat hive is placed beneath the other, and the bees will soon disappear both from the glass and the doorway. The slider may then be closed, the glass of honey removed, and an empty set in its room; the same processes being repeated as often as the fineness of the season will admit, with the usual caution to reserve a winter's supply. If a straw hive be used instead of a glass, the same method will apply, with a very slight shade of difference.

"Thus the fullness of the dark hive being not so easily discernible, the second may be placed beneath about the end of the third week, the slider of this withdrawn, and the mouth of the upper one closed.

"When the bees begin to lie out, a third should be set below the others with the slider open; and before the uppermost one is taken away, its mouth should be unclosed, and the slider of the other shut. The few remaining bees will then fly off, and return to the lowest door, as being their usual entrance.

"An old stock in a round-topped hive may be similarly treated, being raised on a flat

one ten days after the first swarm; and again upon a second when the bees begin to lie out. It may then be removed and replaced by a glass, or hive, at pleasure.

"A correspondent in the *Gent. Magazine* for January, 1803, has adopted another simple and easy plan of taking the honey without destroying the bees; which differs from that of Mr. Wildman only in removing the lower instead of the upper hive. Thus, below a well-filled stall he places an *imp*, or *lift*, consisting of a few straw wreaths five or six inches deep, and covered with a board of well-seasoned wood, in which a hole is perforated (two or three inches by three-fourths of an inch) exactly over the mouth of the lift. When the hive is quite full of honey, he sets beneath another large *imp*, ten or twelve inches deep; and from this, in August, he takes several quarts of fine honey.

"In the same magazine for 1804, he assures us that he had obtained by this method, in the preceding season, from four weak stocks, weighing all together about 53 lbs., no less than 145 lbs. of honey, and 6 lbs. of wax, having fed each hive in the spring with only 4 lbs. of coarse sugar, syruiped with beer. Why his bees *bred* only in the upper he does not very clearly explain; but the success is founded on the assertion of a respectable clergyman."

As giving an additional account of what they sometimes obtained from a colony, I quote from a footnote on page 62, Book III.:

"Mr. Wildman assures us that he purchased, in the year 1798, a glass of honey, filled in the course of one month, which contained sixty-three pounds of exceedingly fine honeycombs; and that the hive off which it was taken had enough remaining for a full winter's supply."

One thing especially seems to puzzle our author and all the naturalists up to his time. They had a very imperfect knowledge of the longevity of individual bees. It was before the introduction of the Italian or other yellow race, and much speculation seems to have been entertained on this point. One line, taken by itself, looks strange at our day—

And seven fleet summers fill her utmost date.

But Mr. Evans seems to have taken this thought from Virgil, and frankly acknowledges that the length of life of the queen and workers "is but a vague conjecture." He suggests a number of experiments to determine the question.

The title-page of the volume under review says: "A POEM IN FOUR BOOKS," but only three are published in this bound volume, with no explanation why the fourth is omitted.

It has been a rare treat to study the book from which I have quoted. It is the work of a poet-naturalist who must have spent years in preparation for the self-imposed task. His wide general information, added to his literary culture and scientific training, make it a book of absorbing interest to the student of to-day.

WINTERING BABY NUCLEI.

Half a Pint of Bees may be Wintered on Three Pounds of Stores; some of the Necessary Conditions.

BY ALLEN LATHAM.

Hearing of my success in the wintering of baby nuclei, the editor of *GLEANINGS* expressed a desire that I tell how I did it. I will not only describe what I did last winter, but will also offer photographs of the wintering-case.

After mostly failures in the efforts to winter these little colonies, I first succeeded two winters ago, 1904-'05, carrying five nuclei through that severe winter. These five miniature colonies were set in a barrel open at each end. The barrel was placed on a window-screen, and over the open top was thrown a piece of mosquito-bar. The barrel stood next to the steam-heater in the full light of the cellar windows. Though close to the main passageway from stairs to coal-bin and to heater, and not four feet from a large ash-sieve, these nuclei were but little disturbed by the frequent passing, few bees leaving the little hives. Twice during the winter the hives were set out so that the bees could take a flight. They came through in such good shape

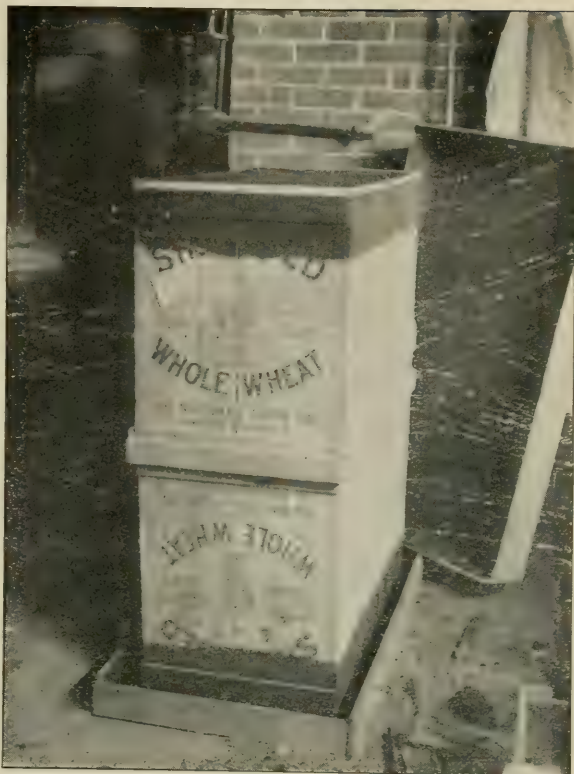


FIG. 2.—THE TWO CASES AROUND THE PILE OF BABY NUCLEI.



FIG. 1.—ALLEN LATHAM'S PLAN FOR WINTERING BABY NUCLEI IN A CELLAR: METHOD OF TIERING UP THE LITTLE HIVES.

that three of them were used to build up into regular colonies.

This success led me to try the same plan on a larger scale. The picture will show how I constructed a wintering-case of two shredded-wheat boxes. The inside of this case was painted a dead black, and the top and bottom were further protected from the light by raised edges on large covers which were held away from the case so that ventilation would be good.

In this case I tried to winter 24 nuclei, stacked in six tiers of four

each. I had 21 good ones in the spring. One or two starved, and one had too few bees to survive. Weekly I weighed some of these nuclei, and all were weighed when set in and when put out. They were given two winter flights. They were put into the cellar late in November, and set out early in April, or possibly late March—I have forgotten the exact date.

There were too many nuclei for the case, for the ventilation proved insufficient, the bees accumulating too much water in their intestines. A single nucleus left by itself in another part of the cellar wintered much better, though it was given but one flight.



FIG. 3.—BABY NUCLEI PACKED IN BOXES READY FOR WINTER IN A CELLAR.

So much for the way it was done. I will add, however, that it is not necessary to construct a wintering-case. Baby nuclei properly prepared will winter splendidly placed singly or by pairs, in empty hive-bodies, the entrance of the hive-body being left open, or the body being set on quarter-inch blocks, and a burlap sack being thrown over the open top. The temperature of the cellar should not fall much below 40 nor rise much above 55, unless, indeed, the cellar be an exceedingly dry one. In a very dry cellar the bees will not mind temperature changes of considerable range, while in a moist cellar

they suffer from the cold, and become uneasy from the heat.

The preparation of these nuclei has much to do with their wintering. One should not try to winter less than half a pint of bees alone, and a pint will do much better. I like bees enough to fill three spaces between the combs of $4\frac{1}{2} \times 4\frac{1}{2}$ sections. Fewer bees find it difficult to keep warm. These nuclei should have not less than three pounds of stores, and I prefer four to five pounds. My baby hives will hold nearly five pounds of stores when well stocked. My weighings of last winter showed that a pound will carry one of these nuclei two months, it being remarkable to see with what regularity these nuclei lost just two ounces per week.

If one wishes to try wintering a few, let him proceed as follows: Make a box with an inside measure, of $8 \times 4\frac{1}{2} \times 4\frac{1}{2}$, with a loose bottom. Bore a $\frac{3}{4}$ -inch hole in one end close to the open side. Wedge four sections of cheap honey in this box. Go to some hive which can spare a pint of bees, and shake out on the grass two quarts of bees. Soon the old bees will mostly go to the hive. I should have said, to be sure, that the queen is with the shaken bees, a caged queen being placed in the hive from which the bees are taken. Set the little hive over the pint of young bees on the ground and let bees and queen run into it. If this operation is done toward evening the bees will stay, very few deserting the queen. If a strange queen is given, then the hive will have to stand in a dark cellar about three days. A hive prepared thus in late October will winter well.

I have even used an entirely empty hive and fed the pint of bees with honey and syrup, forcing them to build their own combs. This was done with two such lots of bees last fall, being forced to build and fill not only their own combs but a set for another lot of bees. Each of these lots wintered excellently. They reared no brood, and wintered on honey in virgin comb. They win-

tered much better than many lots which had younger bees.

I have fed these nuclei as late as November 25th, and always practice feeding them all through October and the first half of November, at which time robber bees are not so troublesome.

Many of these nuclei are those which have been used all the season for the mating of queens. The stronger of these and enough others are prepared to care for all the good surplus queens which I care to winter. I like to winter about a score of good vigorous queens with which to requeen colonies in the

spring in case of need. Such as are not used for this purpose in the spring are kept for my queen-mating. Some are used in this way. If a colony has died leaving plenty of stores, one of these babies is set bodily in the hive of combs, being given one frame of brood in exchange for one of the frames of honey. The queen quickly takes possession of the larger brood-nest, and the nucleus in the space of a month becomes a very respectable colony.

When set out in spring these nuclei are very apt to desert their hives. It is well to place excluder zinc over the entrances, and even with this precaution the queen is often deserted, the bees joining in with others. If set out for an afternoon, and then put back in the cellar for three or four days, there is less likelihood of desertion.

CONCRETE BEE-CELLARS.

How the Same can be Built at about Half the Cost of Brick or Cut Stone, with Unskilled Labor.

BY E. R. ROOT.

As our readers already know, The A. I. Root Co. is putting up a publishing house and office, 140×100, all of concrete. Not a brick or stone is to be found in the entire structure. The accompanying engravings show snap-shots of the work as it is going on, and they were taken especially for this article, in order that the reader may understand

just how to build the wooden forms for holding the concrete mixture until it is set, when the forms are to be removed and raised up higher, ready for another pour.

Before going further it might be well to explain something about the modern uses of concrete, both for foundation walls and superstructures in place of either brick or stone. Many modern factory buildings are now being built of concrete. In not a few cases the walls of this material are a great deal cheaper than the same thickness of brick, and much stronger, and absolutely fireproof. They are as permanent as the rock of Gibraltar. It is true that we have heard in the papers of how some foolish contractors, who, in a hurry to rush forward a job, took away the forms before the cement had set, with the result that there was a general collapse, and in some cases a loss of life. But builders and architects alike are learning better now; and when the concrete is *properly made*, nothing can be stronger or more permanent.

Reinforced concrete—that is, ordinary concrete in which iron or steel rods are imbedded—is something that is coming rapidly forward. This is now beginning to be used for building some of the tall sky-scrapers in our big cities. Notwithstanding the great height of these buildings, there is not an I beam nor a brick in the whole structure—nothing but concrete and slender iron rods passing lengthwise through the mass. Buildings of this construction stood the San Francisco earthquake and fire much better than the



THE A. I. ROOT CO.'S NEW CONCRETE BUILDING IN THE PROCESS OF CONSTRUCTION.



MANNER OF POURING THE SOFT CONCRETE FROM A WHEELBARROW INTO THE FORM.

steel sky-scrappers that were damaged much by the fire.

But I will not attempt to take space here to show the value of concrete in place of brick or stone; but suffice it to say that it is taking the place of both materials to an extent that it is cutting down the price of brick in many localities, and in some places putting the ordinary brick mason out of a job,

for the reason that unskilled labor will take the cheap material and put up a substantial wall. Perhaps the following incident will illustrate why this is so:

One of our contractors in this town was figuring on the cost of a concrete foundation, one of brick, and one of stone. After getting all the bids in he found that the one of concrete was going to cost only half as much as one of brick — brick at \$7.00 per 1000 and Portland cement at \$1.75 per barrel, and ordinary river sand and gravel at \$1.00 per cubic yard. If these proportions were borne out generally, no bee-keeper could afford to use brick or stone.

Much more might be said; but for the purpose of this article I simply wish to describe how one can build a bee-cellar all of concrete, doing all the work himself at odd hours, without the employment of a high-priced man to do the work.

HOW TO MAKE THE FORMS FOR A BEE-CELLAR.

As will be apparent from the engravings, in all concrete work it is necessary to make a form to hold the soft mortar before it sets to the shape we desire to have it stand permanently. As this concrete mixture when first poured is very heavy it puts a severe strain on the panels, and it is, therefore, impor-



NEAR VIEW OF WOODEN FORM FOR HOLDING CONCRETE.

tant they they be most *thoroughly braced* by 2×4's edgewise against the boarding, with iron bolts passing clear through to hold the two panels securely in position (see illustrations). These iron bolts can be easily pulled out in 24 hours when the forms are removed. The panel-work is then raised up nearly its width on top of the concrete already hardened, the bolts are reinserted in the same holes, the work brought to line and plumb, when another pour is made; but in building a bee-cellar in a clay foundation it would not be necessary to have more than one set of panels. The clay wall would answer for the backing.

I have talked with our contractor and builder, Mr. A. K. Loomis, of Medina, and he says the easiest way for the bee-keeper to build a bee-cellar or a cistern is to construct a square frame made up of four panels, each panel being about three or four feet wide, and long enough to reach across the cellar less the thickness of the two walls. When put together in place and suitably braced it looks like a huge shallow box without top or bottom, set in the center of the cellar dug out, or in a position that will leave an eight-inch wall or filling between the framework and the cellar. The cement is mixed in the cellar according to the instructions to be given further on, and is then poured by scoop-shovelfuls into the space between the framework and the cellar. When filled to the

height of the frame the work is stopped for 24 hours, at the expiration of which time the frame is raised and moved up to nearly the height of its width, and braced again, when another pour is made as before. In this way the work is carried on until the proper height is reached.

If it is desired to cover the top of the cellar with a concrete roof, make a platform of the panels, putting them overhead in the form of a ceiling, supporting them thoroughly with bracework underneath so they will not settle by the weight of the concrete. Procure some old railway irons or some old cast-away iron pipes, and lay them crosswise of the top of the cellar at equal distances. Pour the concrete on top, imbedding the old scrap iron in the center of the concrete. Level it off nicely, and at the end of a couple of weeks pull out the wooden ceiling from underneath, when the concrete roof with its reinforcements of scrap iron will hold all the earth you can pile on the top of it. But for the purpose of making it waterproof, paint the top with asphalt or tar, then pile the earth on top at least four or five feet deep. Indeed, it could be rounded up, as this thickness of earth on top would make a cellar absolutely uniform in temperature, and perfectly dry within, providing there is a good drain-tile at the bottom. It is always best to have bee-cellars, if possible, built on a side-hill for the purpose of drainage, and



END VIEW OF THE FORMS, SHOWING THE BOLTS AND CROSS-STICKS AT THE TOP TO HOLD THE PANELS APART.

at the same time have an easy entrance. I omitted to explain that, for a roofed-over cellar on level ground a door-frame should be inserted back of the panel work on one side for a hatchway entrance, and the concrete poured around each side. If the cellar is to be entered through the top, from a building above, then it will not be necessary to provide for such doorway.

I also omitted to explain that the panel-work should be so constructed that it can be taken down in order to get it loose and put it up again. If lumber is expensive, the forms need not be more than a foot deep; but in that case you would make a pour of cement once in 24 hours for every foot deep of the cellar. With a cellar six feet deep it would take a week before it would be completed.

BUILDING A CELLAR IN SANDY SOIL.

Where there is loose sand, and the cellar is liable to cave in, it will be necessary to make double forms like those shown in the

ry to get some coarse gravel or crushed stone, such as is used for paving purposes, and mix with the sand. Any old brick or broken stone, or even cobblestone, that may be found on a farm, can be used. The more of them the better, as it will cheapen the cost of the mixture without weakening the wall. If you can get a wagonload or two of cobblestones as large as your fist, you are fortunate; for every one of these stones will save just that much cement. They must be clean so that the cement will adhere.

WHAT KIND OF CEMENT TO USE.

There are several good grades; but get nothing but the best Portland. Water lime is unreliable, and should never be used; and, besides, you would have to use enough more of it to make it more expensive than the Portland. In talking with our contractor he mentioned the following cements as being standard and high-grade in every respect: Pen Allen, Buckhorn, Lehigh, Buckeye, Medusa, North Hampton, and Atlas. There



E. GRAINGER.



GEORGE LAING.



MR. AND MRS. R. H. SMITH.

SOME OF THE EXHIBITORS AT THE NATIONAL EXHIBITION, TORONTO, CANADA.

See Canadian Department on page 1352.

appended illustrations. Be sure to get the bracing very strong, for we found by some experience that, after pouring the concrete, the pressure against the forms became so great, by reason of the weight, that the brace-work would let go at the bottom. This simply means that the material is wasted, or liable to be so, and that the forms will have to be reconstructed or rebraced; for when the cement is once mixed it should be used before it begins to set. While the forms will cost slightly more in a sandy soil, yet one will have one important advantage on that account—sand—right at hand, without hauling. But I would not use such sand unless it is reasonably free from clay and dirt. The more gravel in it the better.

HOW TO PREPARE THE CONCRETE.

Procure good clean gravel and sand mixed, if you can obtain it. Ordinary creek or river gravel answers a most excellent purpose. In case there is not plenty of coarse pebbles mixed in the sand it will be necessary

to get some coarse gravel or crushed stone, such as is used for paving purposes, and mix with the sand.

As to the proportion of cement, gravel, and sand, the ratios should run all the way from 1 to 5 to 1 to 8, the amount of cement depending on the cleanness of the gravel and the amount of stone that is put in the wall. In our building we used 1 to 7, using a very sharp clean bank sand and crushed stone, such as is used for macadamizing roads. For a bee-cellar, 1 to 7 would make a very fair proportion. For those bee-cellars that are covered overhead, and reinforced, I would advise a little stronger—1 to 6 or 1 to 5 if the river gravel has more or less of clay or dirt in it. The clay simply weakens the cement, and, when present, more cement should be used.

In mixing cement and gravel, first lay the gravel or sand on a wooden platform, spreading it out about 4 inches deep. Next pour on, by measure, the right proportion of Portland cement, spreading it evenly over the surface of the layer of gravel and sand.

Before any water is put on, shovel it over repeatedly, mixing it so that the cement is thoroughly distributed and the color uniform. When thoroughly mixed, sprinkle on water with a watering-pot, turning the mass over with a shovel again until it is of about the consistency of thin mortar, or so that it will pour readily from a bucket into the forms.

On a large job, dump the wet concrete into a Paddy's wheelbarrow, and then pour it in the form as shown in the illustrations. On a small job like a bee-cellar, mix the concrete in the cellar itself, providing you can get the necessary room between the braces. The cement could then be poured in an ordinary coal-bucket, and from that dumped into the forms.

Any one interested in the various uses of concrete on the farm, how to make concrete hitching-posts, concrete water-troughs, concrete soft-water cisterns, concrete cellars, walls or buildings of any construction, would do well to send to the Atlas Portland Cement Co., 30 Broad St., New York, for their circular and booklet giving elaborate illustrations showing how to do general concrete work. It even goes so far as to show how to make a concrete stove, concrete dwelling-houses, and concrete floors for stables. Among other uses for concrete are silos; and for bee-keepers in particular, concrete hive-foundations.

The great feature about concrete construction is that it is something that unskilled labor, if intelligent enough to follow proper instructions, can do and make a nice job.

CELLAR WINTERING OF BEES,

A Vestibule Containing a Stove Necessary: the Advantages of Specially Designed Bottom-boards; Providing an Enclosed Space Under the Hives.

BY O. L. HERSHISER.

Concluded from last issue.

My bees, being all in out-yards, and it being necessary to place them in the cellar immediately on bringing them home, as there is no suitable place to set them to allow of a flight before placing them in the cellar, some departure from orthodox methods became necessary. The necessary special requirements resulted in the evolution of my combined hive-stand and bottom-board (patent pending). This device is so constructed that it meets every requirement of a bottom-board, and also, when closed, enables the moving of the bees and their long confinement in the cellar without their flying about or becoming bothersome to operatives in any way. It is so constructed that the bees have ample ventilation and room to cluster directly under the brood-frames. They remain so confined all the time they are in the cellar, and until placed on the summer stand again. There are, therefore, no dead bees scattered about the cellar floor; but all dead fall on the floor-

board, where they remain until the hives are carried out in the spring, or, if it is wished to do so, the bottom-boards may be withdrawn as often as is desired, while the bees are in the cellar, and the dead bees scraped and cleaned therefrom. The bees are instantly confined for moving and cellaring, and admitted to flight when removed from the cellar and placed on their stands. This device has been thoroughly tested under very severe conditions, with highly favorable results. Some notes have been taken which will serve to illustrate the ease and rapidity of handling bees in placing them in and removing them from the cellar when confined to their hives by means of wire screen as used in this device.

Dec. 4, 1905. I commenced at 9:30 in the forenoon, and by noon I had closed the hives (by means of my bottom-boards) of 88 colonies of bees, and hauled them in two sleigh-loads a distance of $\frac{3}{4}$ mile, carrying them a distance of about 75 feet to the cellar-door. After dinner, by three o'clock in the afternoon I had them safely placed in the cellar, all with the assistance of one man all the time and a boy teamster and his team from 10 o'clock until noon. The temperature was at about the freezing-point, and a few live bees dropped on to the floor-boards. After the bees were placed in the cellar, a brisk fire in the furnace soon raised the temperature to a point which enabled the live bees to regain the cluster, after which the cellar was allowed to cool. On account of excessive heat in the middle of the winter, and the impossibility of keeping the cellar at an even and proper temperature, the results of summer wintering for that season were not as satisfactory as might be wished, the loss reaching nearly or quite 20 per cent. The story of too high temperature was plainly told by the fact that there was not a dead colony on the bottom tier next to the cellar floor, but all such were very strong, and with only a few dead bees. Nearly all the dead were found to be on the two top tiers. The hives were piled up four and five high.

A year ago last winter I made my first experiment in wintering bees, in considerable numbers, confined to their hives, although I had tried it on a small scale the winter previous. One hundred and thirty-five colonies were placed in the cellar, confined as described. Four-fifths or more of the colonies were nuclei, occupying from three to five Langstroth combs. Most of these could not have been wintered out of doors. Many of them were rather light in stores, probably one-fourth of them having less than 16 lbs. each. They had been fed up on sugar syrup late in the season. The average loss in weight per colony, in wintering, was a little in excess of 7 lbs. for four months of confinement. My winter loss from this lot was 2 colonies which died of starvation, and a few that swarmed out and joined other colonies, which was due to the inadvisability of setting bees out in the middle of a hot day such as it was on the 28th of March of that year, the temperature being nearly 78 degrees F. all

day. The strength of the weak, as compared with the strong colonies in the spring, was as nearly in proportion to their strength the fall previous as could be estimated, the full colonies being correspondingly stronger than the nuclei. This lot of weak colonies wintered at least 15 per cent better than the strong colonies wintered outdoors, and consumed not more than half as much food per colony. All colonies wintered outdoors were in first-class condition in the fall with more than 25 lbs. of honey per colony, and well packed and protected.

The advantages of confining the bees to their hives for cellar wintering are even more marked when it comes to setting them out in the spring. At this season of the year they instinctively long for a flight and to commence the season's work; and, even if the weather is not very mild, soon there is a lot of bees flying about the cellar, while carrying out is in progress, especially where there are many colonies to handle. By following the orthodox methods of cellar wintering it becomes necessary, or at least desirable, as taught by good authority, to have one or two smokers lighted and ready for instant use; to have on hand a supply of wet rags to close the entrance to hives while being moved; to keep the cellar darkened and the door closed, except to admit the operative in and out in carrying the hives, etc., all of which precautions are undoubtedly advisable in the old-time method of cellar wintering. By my method of confining the bees while in the cellar, on the 4th of last April I set out 106 colonies with no other assistance, taking them from the cellar between four and five feet below the surrounding level and carrying them an average of seven rods to their temporary stands. No smoker was lighted; no wet rags prepared or used, and no bees flying about the cellar, although a lighted lantern hung therein for my convenience; no anxiety if a hive was accidentally jarred, and no extreme caution to prevent the bees from being aroused. I commenced carrying out the bees at 6:55 in the evening, and finished at 11:25 the same evening, or 4½ hours' work in carrying out 106 colonies. You see there was nothing to do but to pick up the hive, with two strips of board for a temporary stand, and carry it out and set it down. After all were out I ate and relished a midnight lunch, and then adjusted the floor and alighting-boards. I opened the fronts, withdrew the floor-boards, scraped the dead bees therefrom with one stroke of a sharp-edged board, and readjusted the floor and alighting-boards of the 106 hives, all without having a lighted smoker or using any means of quieting the bees, in just 52 minutes from the time I left the house until I returned, and received but one slight sting in the operation. The operation of adjusting the device is so simple in either closing or opening it, and it is done so quickly, that the bees are not aroused by the slight disturbance.

It is not often that we have a winter like the one last past, when bees winter nearly

or quite as well outdoors as in the cellar. Most of the winters are more or less severe on the outdoor colonies, and some of them are little short of disastrous, as was the case in the winter of 1903, when the losses throughout the North and East reached in many localities as high as 75 per cent and upward. Because of the uncertainty of cellar or special-repository wintering, the latter method is destined to grow in favor with each succeeding severe winter. Better cellars and greater ease in handling the bees in placing them in and removing them therefrom, by reason of better and specially constructed devices to confine the bees and do away with the annoyance of dead bees littering the cellar floor, will do much to bring cellar wintering into the favor it merits. It is well for the person who contemplates the subject to remember that the saving in honey and bees in one severe winter will nearly if not quite pay for all the extra expense of cellar and special equipment.

Buffalo, N. Y.

WINTERING BEES IN CLAMPS.

Hives Covered with Straw, and Buried in Sand; No Ventilation Necessary Except what Comes Through the Sandy Soil; Spring Protection.

BY E. D. TOWNSEND.

It is hot this morning, August 20—a morning the least suggestive of zero weather and the wintering of bees; but it was so last year, and winter followed, so we will prepare as usual.

With a pencil and a roll of paper I have wandered down to the Pine Lake bee-yard, three-fourths of a mile south of the town. Long before I reached the apiary the low hum of the bees could be distinctly heard; then a little later that well-known (to beekeepers) aroma of the buckwheat was evident; then the birds are gathering in flocks preparatory for that southern flight to winter quarters. In the distance the katydids could be heard chirping. The leaves are turning golden, as in fall. These and many other indications give evidence that the season is nearing its end, and we can not help asking, "What has the harvest been?" Yes, I live in town, and have no home yard, so my experience for the last six years has been wholly with out-yards. Then I had another reason besides writing for coming out to one of my yards. I said the buckwheat was in bloom. Yes, and it has been for the past ten days—a two or three pound flow per day, and during all this time there have been no surplus receptacles on the hives. The consequences are, the brood-nests are just bulging out with this early August buckwheat honey for winter stores. It would do your heart good, Editor Root, to raise the covers off some of the 400 colonies here near Remus and see the great fat combs of honey the bees are storing and sealing for their win-

ter supplies: for you know those York State bee-keepers tell us that this early buckwheat honey is fine for wintering bees, and from what experience I have had with it I am satisfied it is all right; but I do not want any aster or late unsealed fall honey left in the hive for winter stores: so as fast as the stronger colonies—in fact, as fast as any of the colonies get their combs sealed up full of this early buckwheat honey—we gave them upper stories to catch this latter end of the flow or that part of the honey that is undesirable for winter stores.

A few years ago we used to get all the honey we could put into the upper stories; then during the last half of September in this location, when the brood was pretty well hatched out, we fed granulated-sugar syrup to make up any shortage in winter stores.

yard this beautiful August morning. It is this: The allowing of the bees to crowd their hives so full of honey has caused a very few to swarm; and to catch these stray swarms is the other reason. What I do with these late swarms is another subject.

By this time the reader will have a pretty good idea of the condition our bees will be in when the season closes, so I can now take up the main subject, the wintering of bees in clamps, and, with the assistance of a few illustrations, I will try to describe my method in as few words as possible.

In the first place, the word "clamp" may confuse some. It is nothing more than a trench dug in the earth, about 18 inches deep, and wide enough so two rows of hives will go in nicely without crowding; then the length of the clamp will depend on the length

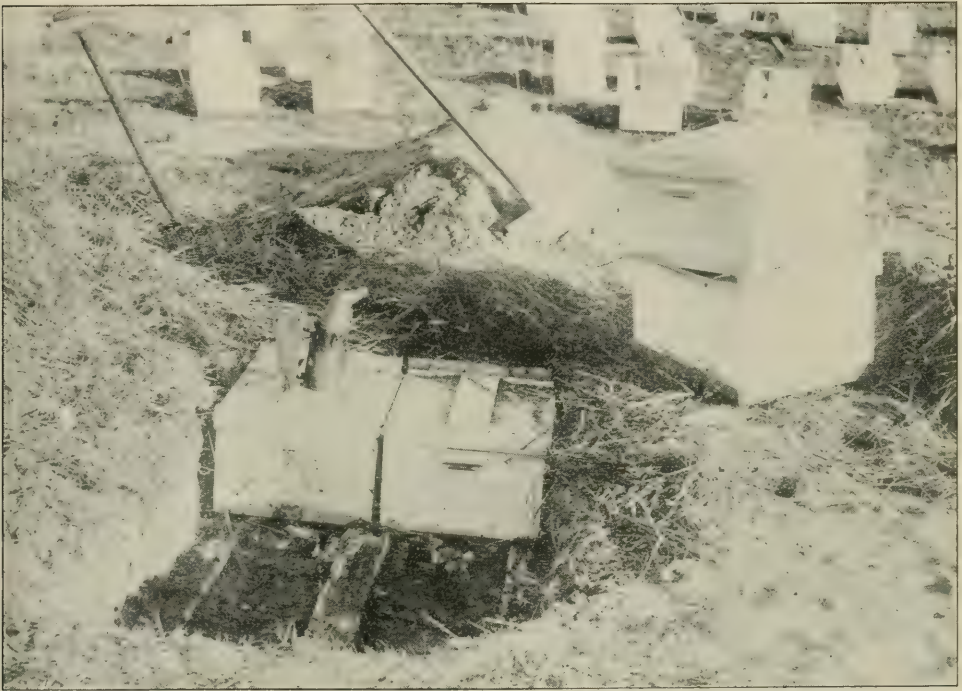


FIG. 1.—WINTERING COLONIES IN "CLAMPS." A METHOD THAT GIVES GOOD SUCCESS IN NORTHERN MICHIGAN.

This latter plan is very good indeed when one has but few bees and plenty of time; but when one begins to count his colonies by the hundred, and many of them are away from home, we find that many methods we used to tolerate and practice with one home yard are not practical when one is managing several out-yards. Then from a financial standpoint the difference in price between the buckwheat honey and granulated sugar is offset by the item of labor in extracting the honey and feeding back the sugar.

I told you above there was one reason besides writing that called me to the bee-

of our 2×4 scantling which we place in the bottom of the clamp lengthwise to set the hives on. It may seem strange that the length of the scantling should have any thing to do with the length of the pit. The fact is, it does not. We simply dig our pits this length for convenience, for we find that it does not make any difference about the length, only we had rather better results with from 20 to 35 colonies to the pit, so of late years we make three to four pits to the yard of 20 odd colonies. Three scantling are laid in the bottom of the pits—one in the center and one at each side, flat side down, to set the hives

on. The hives are set in without bottoms, or with the deep entrance open if the bottom is left on. Then we think the combs come through the winter in better shape—that is, with less mold and dampness—if we raise the covers half an inch or so to provide upward ventilation through the hives. As we give no outside ventilation, the hives and combs are somewhat damp when we dig them out in spring. We have tried outside ventilation. While the hives and combs come through the winter in a little better condition, the bees did not come through quite as strong; for you see it is hard to arrange an outside ventilator in a clamp so it will not let in more or less light; and we lay it to this light that the bees worry and lose a larger per cent of their numbers than without ventilation.

When a pit is full of hives arranged as above, the top of the hives will be three or four inches below the surface of the ground our pit is dug in. We now throw on 18 inches of long straw, the same as if you were burying potatoes, apples, etc. Of course it will not be 18 inches deep when the earth is shoveled on, but it ought to be 18 inches when arranged with the fork ready for the earth. Now shovel on earth until you are sure no frost will reach them. It usually takes some more earth than we throw out of the pit to cover them properly. See Fig. 1.

They are now ready for their long winter sleep; and if it is your first venture in this way of wintering I know just how you feel

when you are throwing on the last shovelful of earth, thus (to you) shutting off the last bit of air from them, as if you were glad it's only a few of your bees you are running this risk on. We used to call our first-buried pit of 22 colonies "the grave," and the neighbors would look dubious, and make remarks something like this: "He is a little off;" "one would think to look at him he had more brains;" "bull-headed people sometimes go wrong," etc.

Of course, we knew nothing of these sayings until years afterward, when the success of this way of wintering was assured; then one and then another would speak out and say, "I did not think it possible to bury bees up, excluding all the air, and have a single bee come through alive." Then he would tell of what Jones said when he first heard of my burying bees, something on the line of the quotations above.

The soil ought to be of a loose sandy consistency. Keep throwing on dirt until no more will stay, as we depend on this steep slope of the pit to turn the water off. Then a good idea is to have surface drains along each side of the pits to carry off any water that may come that way.

In this location we bury during the last half of November and dig them out as soon as the frost is out of the pits, usually the last week of March.

In uncovering the pits, shovel all the earth except, say, two inches, leaving enough sand so the bees can not get out. Of course, this

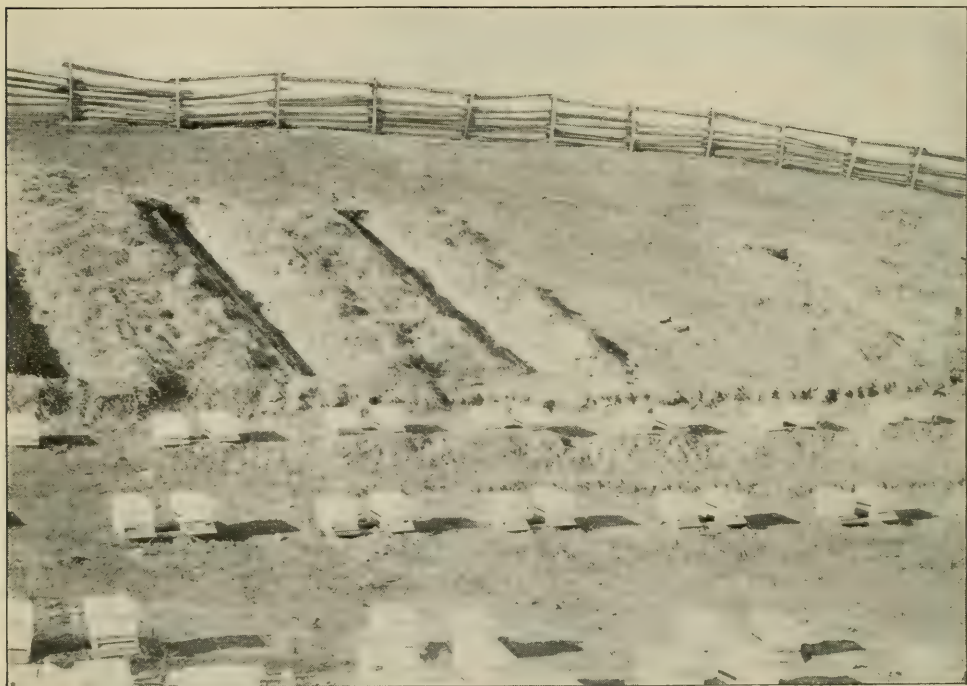


FIG. 2.—COLONIES JUST REMOVED FROM PITS AT MR. E. D. TOWNSEND'S YARD, KALKASKA, MICHIGAN.

getting a whiff of fresh air will cause the bees to make quite a demonstration; but they will not leave their hives then. Just at night, when it is too late for the bees to fly, remove the rest of the earth and straw.

Thus far the uncovering has been done the day before you expect a good day for them to fly. The next morning the bees will all be clustered in their hives, and can be set on their summer stands without a single bee flying. After trying several different plans of removing bees from clamps, the one described above is decidedly the best. It might give some timid bee-keeper courage to try this plan to know that we wintered 300 colonies last winter in clamps without the loss of a single good one, and that we will winter 450 of our 600 colonies this way next winter.

Fig. 2 shows four of the pits at the Kalkaska yard, just after the bees (nearly 250 colonies) were set on their summer stands—not a single dead colony; that is, all that were in a normal condition when put in came through in good condition.

BUILDING-PAPER FOR SPRING PROTECTION OF BEES.

If you will look at the half-tone, Fig. 3, you will see our mode of protecting bees during spring with building-paper. The ideal way, and the way we do when we are supplied with those 8-thick board, brood-nest covers, is to remove the hive-cover and place one of these thin covers on, then fold the paper around the hive nicely, as the half-tone will show, then nail on four lath at the bottom. Put your hive-cover on, held down with a stone or brick, as the wind is more likely to blow covers off when papered. With this protection, even in the coldest weather in April, the bees will be clustered clear across our ten-frame hives, just as they do in chaff hives, with the additional advantage over the chaff hive of the benefit of the sun heat during the day.

Although this cut shows white paper, we prefer a dark color, and have been using with perfect success an oiled paper 36 inches wide. A piece 40 inches long is about right for a ten-frame hive, while paper 32 inches wide might do for eight-frame hives.

Remus, Mich.



FIG. 3. E. D. TOWNSEND'S PLAN OF PROTECTING HIVES WITH PAPER IN THE SPRING.

A BEE-HOUSE ENTIRELY ABOVE THE GROUND.

Two Compartments for Bees, Separated by a Third One, to be Used in Controlling the Temperature; the Advantage in Placing the Colonies in the Spring on the Same Locations they Occupied the Season Before.

BY H. R. BOARDMAN.

The bee-keeper who makes bee-keeping much of a business soon finds that he needs some kind of bee-house, not only for wintering the bees, but also for the convenience of much of the work. The important object of indoor wintering is to reduce the risk of losses. The saving in stores is by no means a small item, but not easily estimated, as well as preserving the stores by protecting from the cold. It is to some extent the solution of the wintering problem here in the North, and divests the business of much of its uncertainty and risk, and places it on a more permanent basis; yet not all make a success of wintering indoors.

With an ideal bee-house I am certain some would come short of success in wintering. A low temperature I regard as an unfavorable condition; moisture and a low temperature combined, doubly so. I have never been able to maintain a uniform temperature in the bee-room, nor have I found it essential to successful wintering. A high temperature is safer than a low one, and the bees will be easier to control when a warm spell comes. Ventilation I consider necessary only in controlling the temperature.

TEMPERATURE.

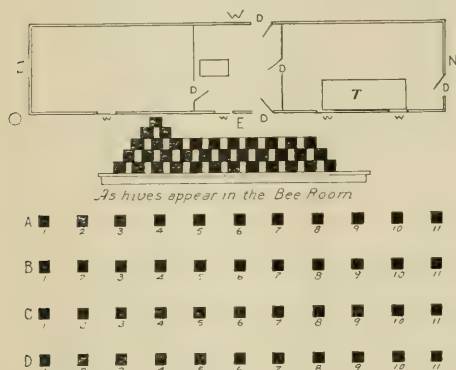
From 45 to 50° I consider nearly right—45 in the fore part of winter and 50 in the latter part.

MY BEE-HOUSE.

The bee-house I am now using was built 30 years ago. I have used it for wintering my bees, with entire satisfaction, during all of these years. It was built in a permanent manner, and is in a good state of preservation now. While it is not perfect in all the details, I consider it pretty nearly an ideal bee-house.

DETAILS OF CONSTRUCTION.

It is entirely above ground, resting upon a foundation wall of masonry. It is 50×12, and 7 feet high inside, with double walls 12 inches thick inside, packed with sawdust, and sawdust on the floor overhead, making it pretty nearly frost-proof without the bees. It is now under a painted shingle roof. Where there is much shade I think I should prefer tarred paper or felt roofing. It is covered with $\frac{1}{2}$ -inch pine lumber, single surface, boarded up and down, and battened outside and ceiled inside. The floor is cement. It is divided into three rooms, two of which were designed for winter repositories for the bees. A room in the middle between these two is 10 ft. square inside, leav-



The upper diagram is the floor plan of the bee-house. T shows the location of the table, and C the cistern. The black squares in the lower diagram represent the hives in the yard. This illustrates also the system of numbering.

ing the bee-rooms 10×19 feet inside. This middle room was designed for an ante-room to the bee-rooms in winter, and also serves for a ventilating-room through which the bee-rooms may be ventilated without admitting the outside air directly to the bees.

This room contains a stove used for various purposes, and used to be a prominent feature in artificial heat for the bees when I thought it necessary, and often with favorable results; but I have abandoned the use of artificial heat in the bee-room.

There are two doors to this room, front and back, and one window. All of the windows, of which there are four in the house, face the bee-yard on the east. They tip on pivots to let out bees that get in by accident or are brought in on the honey. They fasten at the top with spring stops.

They are provided with shutters inside to make the rooms dark as well as warmer in winter. Double doors are also provided for

winter, and screens for summer. The rooms are all bee-proof.

The other rooms, one of which was designed for a bee-room exclusively, and has been used for little else, has only one window and no outside door. This is the south room.

The other room is in the north end of the bee-house. It has one outside door and two windows. It was designed for a store-room and work-shop as well as a bee-room. The comb honey and store combs, surplus empty combs, and wide frames containing sections are stored overhead, hanging upon light strips between the joists, which were spaced at the right distance apart, especially for this purpose.

This method of overhead storage has much to recommend it besides economy of space. The whole stock is accessible from below, and can be readily inspected in every part. If it becomes necessary to fumigate (and it must sometimes be done), the room can be closed and the whole stock treated at once. A long table stands before the windows, upon which much of the work comes. A cistern is one of the indispensable conveniences of my bee-house. I would have this storage and work room provided with a liberal exposure of glass, and at the south end of the house if possible. For the benefit of comb honey I think this is important. I am contemplating such an improvement now in my bee-house. When I had several out-yards the bees were wintered at these yards in cellars under dwelling-houses. Some of these cellars were very good ones. I partitioned the bee-rooms from the rest of the cellar; but with the best conditions I could provide, none ever gave as good results in wintering as the up-ground bee-house at home. The latter was a distributing-point of supplies for the out-yards, as well as storage-house for stores and surplus from the out-yards.

I would not think of building any kind of permanent bee-house or cellar that did not provide safe storage for comb honey and convenience for doing work unless I already had such convenience.

I think two rooms answer very well if not more than 100 or 150 colonies are to be kept; but for a large number I am sure the three-room plan will give best results. I am not in favor of putting much over 100 colonies in one room to winter.

I have already alluded to the method of influencing the temperature of the bee-rooms by ventilating through the middle room without admitting the outside air to the bee-rooms. This worked very well; but the room was not of sufficient capacity to control the temperature of both bee-rooms during a warm spell. Acting upon this suggestion I put all the bees in one room, nearly as many as I usually put in both. I depended upon the well-filled room for keeping the temperature up, and upon the other two rooms of cold air to keep it under control. It has given excellent results for several years.

I used to open the outside doors of the bee-room to admit the fresh cool air at night to quiet the bees down during a warm

spell; but I am sure it is a mistake to ventilate in that way. I find I can keep the bees in better condition by excluding the outside air from the bee-room as I have described.

During the notable warm spell last winter from the 19th to the 23d of January, which continued hot, night and day, which bee-men are likely to remember, I had 100 strong colonies in one room treated by the plan I have given, and carried them through without trouble. No fresh air was admitted from the outside. The bees became very quiet as soon as the weather outside began to cool, and remained so the rest of the winter, although the room remained at a temperature of 50° and upward. If the bee-rooms should be allowed to become hot, and

A few days before I am ready to carry in the bees I break all of the hives loose so they can be lifted from the bottom-boards without disturbing the bees. If the swarm is extra strong I place a small block under the hive at the back side. This induces the bees to vacate the bottom-boards.

In the bee-house the hives that are now without bottoms are placed about six inches apart, and tiered up, each over the open space below. The first row is set on hive-covers arranged in the same way. This gives abundant ventilation to each colony, and allows the dead bees and all other refuse to drop out of the hives. This plan of arranging the hives in the bee-room is better adapted to my style of hive—which is a deep



H. R. BOARDMAN'S BEE-HOUSE FOR WINTERING BEES: BUILT ENTIRELY ABOVE GROUND.

the bees in an uproar of excitement at such a time, I should despair of any thing short of a cold wave to reduce the temperature and restore quiet.

SETTING IN THE BEES.

I like to put the bees in winter quarters before severe cold weather, or usually about Nov. 15 in my locality, and in a falling temperature, as they will be more quiet, and handle better. They should have stores to carry them through to the early bloom of spring. If any are short, feed up early in autumn with sugar syrup. In this case an abundance is economy. I should hardly think of feeding in the bee-house in winter unless it were by giving sealed stores, and this only in an emergency.

square hive—than to the shallow hive of the Simplicity pattern. I regard this method as one of the very practical things in my bee-house management.

SETTING THE BEES OUT.

I used to set the bees out for a winter flight. I am now satisfied there is no benefit from it. If the bees are wintered properly, and are in good condition, they certainly do not need it. If in bad condition, it will not help the matter. I have not found it necessary to set out any bees in winter for many years, and prefer that they stay in until near the first of April, depending something upon the condition of the weather. I consider it important that they be set out on a warm pleasant day. Bees are demoralized in try-

ing to make their first flight when the weather is too cold. I set each hive out on the old stand from which they were taken. They are all lettered and numbered at the time of setting in to correspond with the stands in the yard, which enables me to do this readily, and the bees will return to the hives where they belong, without confusion.

I am convinced by years of experience that this is one of the little things that pay me well to do.

The first impulse of the bees on being set out on a warm day is to fly; and, indeed, so strong is that impulse it would seem sometimes, when the weather is favorable, that all of the bees in the hives had taken flight at once, and were having their annual spring picnic. In their anxiety to be on the wing they scarcely hesitate to note their surroundings, but fly and fly until the desire for flight is for the time gratified. Then they begin to hunt for the well-marked locality of last fall, which these old bees surely remember. If the bee-keeper has not preserved the former order in setting the hives upon the old stands from which they were taken, confusion will prevail. Not knowing where to go, the bees are attracted where the flight is the thickest and the confusion greatest; and at the hives where most bees are alighting, there most bees will be attracted to alight, until it would seem as if all the available bees in the yard had joined in a few mammoth swarms at the expense of depleting the rest.

The bees that are set out of the bee-house are mostly old, and require careful treatment. They will last but a short time at most; so it is important that the colonies all become strong as soon as possible while they have the assistance of these veterans.

Stimulative feeding at this time is not, I am sure, the best way to do this. The increased activity rapidly exhausts the vitality, and shortens the lives of the old bees, and results in harm.

A colony in normal condition, with an abundance of sealed stores, will remain quiet, and be among the first to become strong, without any fussing, and usually make the best record. There is no reason why colonies wintered indoors should not be superior to those wintered in the open air. Every thing being equal, I think they *are*.

East Townsend, O.

WINTER LOSS VS. LOSS BY DISEASE.

Plenty of Well-ripened Stores in Wintering, the Essential Point.

BY GRANT STANLEY.

The subject of wintering our bees is one of as much importance as the storing of surplus; for surely if they fail to winter we shall have no bees to store it. So we see it is a very important matter that we supply every essential possible in order to have them come through the winter in the very pink of condition, and this must be furnished somewhat in advance of their needs. The great trouble

with too many bee-keepers is that they wait until frost has cut off every vestige of bloom before any attempt whatever is made to prepare them, else, in their greed for a few pounds of honey, put the matter off until cold weather arrives, and then (as some men do in all business) trust to "luck" and the chances of a moderate winter that the bees may "pull through."

It is the opinion of the writer that more bees perish in winter from an insufficient quantity of well-ripened stores than from all other causes combined, including foul and black brood. The sulphur-pit of old may also be thrown in. If we watch the journals each spring we shall see the reports of vast numbers of colonies that perish. Then along with this we are told that less than one bee-keeper in every ten reads the journals. How many colonies perish in the hands of such bee-keepers, the reports of which never come to light? It has been said that colonies will often simply "give up the ghost" when it is found the larder is running low. As I said at the beginning, if the colonies are not properly wintered there will not be a great deal of surplus stored, so we see the question of wintering is of first importance to our success, and not a secondary matter, as many suppose. Weak colonies in spring are more often the result of a scant supply of well-ripened stores than any other cause. We see much space in our journals devoted to the subject of foul and black brood, while very little mention is made regarding wintering; but I believe if the latter subject is well catered to we shall hear less of the former. There is more in this subject than many bee-keepers suppose. We are told by so good an authority as Mr. France that improper wintering which results in starved, chilled, or pickled brood, is very conducive to foul brood. In other words, it opens the way and invites the disease; and if this be true, it is possible that foul brood can be traced to a faulty system of wintering in many instances.

Now, while I have not lost a single colony in wintering, with the exception of the winter of 1903, when so much loss in bees prevailed over a large portion of country, still I have spent no small thought on this subject, not only that we may avoid a loss in a like winter, but I want the bees to feel so "sassy" in the way of plenty of well-ripened stores that I need feel no uneasiness on this score until warm weather has arrived. I am using shallow (Danzenbaker) brood-frames, for I believe they possess many points of merit not found in any other hive on the market; but the question of the colonies having plenty of well-sealed stores had to be thought out, as, with the use of this frame, all honey is carried up into the sections (of course, just where it is wanted during the harvest), so that, if we leave the supers on the hives until frost has cut off all nectar, we shall have very little honey in the brood-chamber for winter—possibly an inch or two in the top of each frame, which the bees have placed there during the latter part

of the season. The last two seasons I have removed all supers about the first of September, compelling the bees to store all honey below. As this fall honey is dark, and not nearly as salable as the light honey, yet equally good for wintering, I know it pays better than to leave the supers on until frost, and buy sugar and feed them. Then, too, by this method the danger of robbing is also avoided. We do not get frost until the latter part of September, so the bees have plenty of time to fill the hives with this dark honey, thoroughly ripen and seal it, and place it within easy reach during cold weather. These hives on being raised to ascertain their weight seem as heavy as immense stones. We hear a great deal about colonies being light in stores, but not much about their having too much. Last spring I did not open the hives until warm weather arrived and bees were flying freely; and, to my surprise, I found the hives fairly boiling over with bees with sealed brood galore, new white wax at the tops of the frames, and plenty of sealed honey in sight. I had honey sealed in sections during apple-bloom—something I never had before. These colonies have averaged over one hundred pounds to the colony, and not an ideal season either.

Now, in conclusion it is well to remember that bees will build up in spring just according to the amount of stores in sight; and if plenty has been supplied the fall previous, there will be no question about the hives being full of bees when wanted, without coaxing them with daily applications of syrup. Tampering with bees in early spring results in far more harm than good. By all means see that your bees have plenty of well-ripened stores for winter; pack them well with good porous material, and leave them alone until warm weather arrives; and if the colonies are kept together, and any honey to gather, they will surely get it.

Nisbet, Pa.

GENERAL PRINCIPLES IN CELLAR WINTERING.

Why Air in Motion in a Cellar Lowers the Temperature inside the Hives; the Limitations of a Thermometer.

BY C. A. OLMSTEAD.

About your bees in the cellar you say, p. 142, "We put a small electric fan in the doorway and let it run for an hour or two, when, presto! the temperature dropped, and the bees stopped buzzing." Further, "Of course a blast of air does not change the temperature; but if the air in any part of the cellar is lowered" (you probably meant *lower*) "it will tend to equalize the temperature." Now, I suppose, the idea you meant to convey is that, while the air *in motion* was no lower in temperature, it caused a rapid circulation of air from one compartment to the other; that yours is a large cellar partitioned off, one room within another, so to speak, and that the air in the bee-compartment

stood at near 70° while that in the outer or adjoining rooms or compartments stood at 60 or perhaps lower; that the fan merely forced the cooler air into the bee-room, and the warm air out, very much as if one had a gallon of boiling water from which he took a quart and then put in its place a quart of cold water.

Now, what I am getting at is this: In your article you seem to want it understood that it was the change of air that caused them to quiet down, for you say, "Now, mind you, the temperature had *not changed one degree*, but the *air was changed, and freshened up*." Just above this statement you say (fourth line), "presto! the temperature dropped" (sixth line), "the temperature went down no lower than 62°" (fifteenth line), "and reduced the temperature." This looks as if you were willing to concede the fact that the temperature lowered somewhat on this day—probably eight degrees.

On this day you may have thought it due to the combined influence of fresh air and a lower temperature; but when Sunday came, and the air outside, that which you forced in with the fan, was no cooler than that in the bee-cellar, you seem to have been convinced beyond a doubt that it was fresh air and nothing else that quieted them.

Now, while you are right in saying that air in motion—or that in effect—is no colder than the same air when quiet, you must not for a minute think that the effect is not materially different, for it is. You look at the thermometer and draw your conclusions from it; but in this case it is not to be relied upon; in fact, it does not have a fair show. It is not a question whether the blast of air lowered the temperature of the cellar or not. The question is, "Did it lower the temperature of the air inside of the hives?" or, perhaps, more properly, did it cool off the bees? *I say it did.* Don't understand me as thinking that the blast was cooler than the same air was before it was set in motion, for it was not; but it evaporated the moisture on and around the bees; and it is a fundamental principle that evaporation is attended by a lowering of the temperature.

I have asked many people why they used a fan. They say it cools them, and in this they are right; but when asked how or why it does so, nearly every one says, "Oh! it makes such a cool breeze;" or, "The wind from the fan is cold," and similar explanations, when it really is only the evaporation of the moisture on their skin that is cooling. They might fan a perfectly dry surface until the cows come home, and the temperature would be the same. How is it in July, when bees by the thousand are fanning to keep up a circulation of air? Is it for purifying the air inside of the hive, or to cool it? I say it is to keep the temperature down, which is accomplished, in many instances, only by evaporation.

I am a great believer in ventilation, and do not doubt that the pure air in your case might have helped; but I believe if you had had some other way of lowering the temper-

ature it would have done just as well, and I guess better.

I wonder how it would do to have part of the floor *above* them of metal on which one could put ice. Of course, a drainage-pipe would be needed to carry off the water from said metal floor, then in cold weather cover with sawdust. But we may never have another winter like this.

In regard to the proper temperature for a bee-cellar, I want to go on record as an advocate of anywhere from 38, possibly 35 to 55, according to the atmospheric condition of the cellar. If a cellar be very dry a low temperature will do; but if damp it must be kept up. In December, 45 might be right, while in February 50 or 55 might be best for the same cellar, or *vice versa*. Dampness in a cellar does not necessarily injure bees; but moisture *inside* of the hives *does*. Now, I suppose some are thinking, "Yes, how nice it is to have the hives dry and sweet inside! but how are we to secure such a condition?"

The first move toward it is, not to let the moisture get into the hives to any extent. The second is, to provide means for its escape if it is there. Moisture in a hive can not be dispelled only as it is done at the expense of the colony, as long as the hive has a sealed cover. Leaving the bottoms off helps some, but the many disadvantages due to it, and the piling of hives up zigzag style, as you have advised, more than offsets the little gained.

One can not put them in as you advise without *waking* them. They take more room. If one colony becomes uneasy the bees crawl over and into adjoining hives and stir them up also. Any disturbance of one hive is transmitted to all in the same pile, or as many as are on the same scantling; and when ready to be taken out it is "just awful" the way they crawl out and all over the hives just as soon as a few have been taken off, and the rest disturbed by the jarring. To get rid of the moisture in the hives, just cover the frames with a thickness of cloth, burlap, or, better, a piece of carpet; then a thickness of paper, over which lay another cloth. If there is much moisture in the hive the paper should not be used. If the colony is small a thin cushion over all is needed. Leave the bottoms on: set the first one on a box or short blocks, *never* on long scantling. Pile up with sticks between. Half an inch is enough.

These directions are for bees put in when they ought to be, which is just as soon as they cease to fly in search of honey, and seem to be in a semi-dormant condition. Here this occurs the last of October and first part of December, depending on the colony.

I have said something about not letting the moisture get into the hives. By this I mean put them in early, or at least at a time when the combs and hives are thoroughly dry if possible. When the bees have become settled for winter, a flight two weeks later is of no particular value to them providing they have been in the proper quarters. But if they pass that—two or more

weeks in cold damp quarters they are pretty likely to be in a condition that makes a flight desirable before putting them in the cellar.

This is not mere theory or guesswork, for the early cellaring of bees has ceased to be even an experiment with me; and while on this subject I want to call your attention to the question of who was the first one to advocate the early cellaring of bees. In your editorials you speak of it as Hutchinson's plan, or idea; and while he is *now* an advocate of it (for he is quick to know a good thing), if you will turn to the *Review* for November, 1905, page 332, you will see that I sent him an article a year earlier (see date of article), advocating it and stating my reasons for so doing. These conclusions had been reached after several experiments made by putting in a part of my bees on the first of November, and the rest a few weeks later. The early-celared ones *always* come out best. Among those that I put in the



Be proud of your swollen eye!

It isn't the fact that you're licked that counts:
It's how did you fight—and why?

EDMOND VANCE COOKE.

last of October or first of November, 1904, were ten that I hauled six miles and took them right from the wagon to the cellar. They wintered perfectly. All of my bees were in before Nov. 15, and none had a flight until taken out in March and April, and I think the loss was not two per cent. I took ten colonies out March 15, and all went lovely. I shall try more this spring. I don't *know* that it is a good plan to set bees out early in March, but I think that, if they are at all restless, they are better off out than in. The idea held by many, that they are more sensitive to cold after being

in the cellar is all bosh. Is there the slightest reason why a bee that has spent four months in a nice *warm, dry* place, and is bright and healthy, can not stand a sudden drop in the temperature a good deal better than one that has spent most of its vitality in keeping warm? I say, no, and I shall put some out when the first warm days of March come, and leave them out. I wish others would try a few and see how it works. Mind you, I mean healthy ones.

East Bloomfield, N. Y.

[Having read over very carefully all you say, I do not see very much in your general philosophy to criticize, on the subject of a change of air. Indeed, I think I can agree with most of your propositions if not all of them.

In quoting Mr. Hutchinson I did not mean to say that he was the first or *only* advocate of early setting in. I merely referred to him as being the most prominent advocate of the practice at the time.—Ed.]



DARK-GREEN HONEY.

Will you kindly tell me whence came my dark-green honey? The time of this honey-flow was the latter part of July, at about the height of the linden blossom; and I had supposed that they were the source, but I noticed in the Aug. 15th GLEANINGS your report of the clear white honey you cut from your little hives, and I concluded that I was wrong. The amount gathered of the green honey was large—as, for example, in 75 lbs. extracted from 3 hives there was about 62 lbs. of the green honey; the remainder was like that of earlier in the season—clear amber yellow. The flavor of the dark-green honey is very delicious—better than any except the apple-blossom honey of the very early part of the season. My neighbor, with 20 hives, has about the same proportion also.

Boston, Mass.

ART. STONE.

[The honey from sweet clover has a slightly greenish tinge, but not a "dark green." It is possible your bees might have gathered the honey in question from this source. When mixed with other honey, sweet clover has a very fine flavor, and might be classed by some as quite green, and by others as only slightly so. I can scarcely conceive of any honey being a dark green unless the bees gathered considerable Paris green that had been used as a spray; but in that case the honey, of course, would be poisonous.—Ed.]

BUILDING UP A WEAK COLONY IN THE FALL.

Would you expect a weak colony of bees placed over a very strong colony to build up in the fall of the year as successfully as in the spring? or would the bees kill the queen and the bees of the weak colony? I placed a weak colony over a strong one, and they killed the queen and bees.

Springfield, Mo. E. W. ALEXANDER.

[The results in the fall, perhaps, would not be quite the equal of those in early spring; but when I hear a report of a queen being immediately killed, and the bees, I feel satisfied that some important detail of direction was not carefully followed. Probably in your case the two sets of bees were put together so that either one or both lots of bees were more or less disturbed. See the article by E. W. Alexander of Delanson, N. Y., on this subject on p. 1357 of this issue.—Ed.]

A CEMENT BEE-CELLAR BUILT IN A SAND-BANK.

I have built a fine bee-cellar and beehouse. The material cost \$300 for lumber and cement, \$65 for brick in the walls; 20 feet square, one foot thick, built in the center of the bee-yard in a gravel and sand-bank. I had the right material in the hole to build the wall without drawing any sand or gravel. It is 8 feet deep. I shall use a tackle to let the hives down, four at a time, through the floor. I have stairs to go down. I have five ventilators, one on each corner, one in the center of the roof, 12×22 inches square. I used hard oak sills, 8×10 inches square. There is a cement wall to the top of the sills, inside; building is eight feet high; four windows in the center of each side; roof, four-foot slant; roof of paroid, lined inside with red rope siding, plowed and grooved, 6 inches wide, painted on the four sides red, with blue from the bottom to the top. I can put in 56 hives. I built it myself, or it would have cost about \$500 dollars. Carpenters here want \$4.00 a day. J. W. UTTER.

Amity, N. Y.

A COLONY THAT CONTINUALLY RAISES QUEEN-CELLS.

I have a queenless hive that keeps on raising queen-cells. The queens hatch out all right; but when I give them a frame of brood they will raise queen-cells again. They have been doing this for two months without a miss, and there has never been an egg laid in the hive, that I have seen. Can you explain?

There has been plenty of drones ever since spring. The bees have made a living every day this summer. There has not been an egg laid in the hive since the first of June, so there are no fertile workers.

Salem, N. J.

HENRY BASSETT.

[At first sight this looks like a case of laying workers; but when you say the queens hatch out of the cells, that throws that supposition out of consideration. I give it up.—Ed.]

MATING OF QUEEN WITNESSED.

We just witnessed the mating of a queen, and I thought I would report the same. It is the first instance where we had a chance to observe the matter so closely. In a few previous instances we thought we saw copulation take place, but could hardly swear to it if we had been called upon to do so. In the latter instance it occurred in a yard of baby nuclei. The queen was flying about five feet from the ground; half a dozen drones were in pursuit, and the noise made with their high keynote would remind one of a young cyclone condensed into a two-inch gas-pipe. It seems that every bit of life and energy of the drone were concentrated in his wings. Almost immediately after catching sight of the queen and drones, copulation took place, and I after them. The impetus of the queen carried both about twenty feet, when they dropped to the ground, just an arm's length the other side of a barbed-wire fence. The queen was a leather-colored one. We wanted to pick up both queen and drone; but before we could catch hold of the queen she had torn loose and skipped away. The drone was dead. The whole thing from start to finish went like a streak of lightning.

There also came under our observation a case where a queen was gone on her wedding-flight for two hours, and then returned all right, mated. We thought to ourselves that that old lady must have started for Europe on her wedding-tour.

THE ADVANTAGE OF HAVING BEES SCATTERED IN DIFFERENT YARDS.

Our yards which did so well last season are doing practically nothing this year; and those not doing so well last season are doing well this season. It appears that basswood does not yield in all localities. This season we have two yards which are 25 miles apart. Both have basswood, but it's only the one location where it is yielding any surplus to amount to any thing. H. G. QUIRIN.

Bellevue, Ohio, July 6.

CHICKENS THAT WILL NOT EAT LIVE BEES; PROFITS IN BOTH POULTRY AND BEES.

I should like to have a pen of Mr. Hillebrand's chickens, page 868. I think such chickens could be trained to snap up the black drones and leave the yellow ones. My chickens run in the bee-yard, but they will not touch a live bee, drone or otherwise. They visit the hive-entrances and pick up the dead bees in front, but I never saw one molest a live bee, except one very inexperienced chick. It will not do so again. It died as a result of the encounter. A few weeks ago I trapped some drones and tried to feed them to the chickens next morning. Those that were too chilled to move were snapped up quickly; but the drones that were able to crawl were not touched.

In regard to the discussion now going on as to the relative importance of apiculture and poultry culture as a money-making pursuit, I can say that there is money in both.

The trouble is, too many bee-keepers handle poultry as too many poultry-men keep bees.

This is said to be the poorest season for honey in twenty years in this region. The fields were white with clover; but on account of the drouth there was no nectar. The drouth has been completely broken, but the clover is killed out. D. D. DOWNING.

Kansas City, Kan.

ALFALFA IN PENNSYLVANIA.

I note that Dr. Miller expresses considerable agitation, due to my statement that alfalfa is a nectar-bearing plant in this State, and asks for an explanation. At one time I had decided to omit alfalfa from the list of honey-producing plants, especially as very few farmers, even if they grow it, ever permit it to blossom. However, I had occasion to inspect it where it was sown on the banks of the Cumberland Valley R. R. to keep the banks from washing away, and it did well where other plants would have found it too dry. It was in full bloom, and several species of butterflies and skippers as well as bumble-bees and honey-bees were on its blossoms. It is true I did not see many honey-bees, but this was probably because it was some distance from an apiary, and the sweet clover had come into blossom, and the common white clover was still producing nectar.

I know that the plants also formed well-developed seeds, and it is apparent that the insects would not have worked on them, and perfect seeds would not have developed, if they were not producing either nectar or pollen to feed the insects. I hope to know more about this by next year.

H. A. SURFACE.

Pres. Pa. State Bee-keepers' Asso.
Harrisburg, Pa., Aug. 13.

GETTING BEES OUT OF TREES.

I want to indorse A. I. Mills' plan of getting bees out of buildings, page 827. It is well to give a young queen as well as the comb of brood. In three days take the bee-escape off and insert a glass tube in its place—a ten-inch one, the kind used for water-gauges. I take bees out of trees when the owner of the land forbids cutting the trees, and where it is impossible to save the bees on account of rough gulches or bluffs. This tube inserted in place of the escape allows enough bees to return to supply water and nurse brood until hatched. In 20 or 25 days take out the tube and the bees will do the rest.

HALF-INCH STARTERS.

B. J. Holden, page 831, will have success with one-inch starters if he uses a $\frac{1}{2}$ -in. comb-guide like that used in the old style of all-wood frames. Fasten your foundation to the side; have your hive level. I never use any thing but inch stuff in all my brood-frames. I put inch starters in sections, with $\frac{1}{2}$ inch in bottom side. I always have success.

Kingscreek, N. C.

G. W. KELLER.



Woe unto him that giveth his neighbor drink, that putteth thy bottle to him, and maketh him drunken also.—HAB. 3: 15.

THE CHARACTER OF THE ENEMY WE ARE FIGHTING.

Some months ago, learning that the *Chicago Record-Herald* had spent about a quarter of a million of dollars in equipping Wellman on a voyage to the North Pole, I subscribed for it in order to have daily news in regard to the "air-ship." As I have another daily, printed nearer home, I simply glanced over the *Record-Herald* to find something about the air-ship. Of course, my eye incidentally struck on other items, and I pretty soon decided the *Record-Herald* was not particularly a temperance paper. Along about the first of August an item of news with big headlines almost took me off my feet (figuratively, you know), and it was not about the air-ship either. I am sorry I did not preserve the headings. I clipped out the article and hustled it off to competent friends of temperance, demanding that the truth be speedily brought to light. Here is a part of the clipping from the *Record-Herald* that shook me up so badly:

Kansas City, Mo., Aug. 6.—Drifting toward bankruptcy at the rate of \$3000 a day, \$21,000 a week, or \$109,500 a year, is the fate of Kansas City, Kan., a commonwealth of 55,000 people, and the largest city in the Sunflower State. This condition has been brought about by the enforcement of the prohibition law after the appointment of Assistant Attorney-General Trickett some months ago.

Of course, I knew something of the way Gen. Trickett had been putting on the lid in Kansas City; but the idea that enforcing the law was going to produce bankruptcy at such a rate was astounding. Let us now read some more of that wonderful news item from the *Record-Herald*:

Previous to Mr. Trickett's appointment no other city in Kansas enjoyed such prosperity as Kansas City. The police, fire, street, and other departments compared favorably with a city twice its size. Now the police force has been cut in two, the fire department reduced, and the street department practically abolished. And that is not the worst. At present, employees of the city find themselves unable to cash their pay-checks.

There are some funny things about this piece of news (?) and you want to read it carefully. No doubt that Kansas City heretofore has had an enormous police force—a police force that would compare well with other cities of twice the size as stated above; but I do not think I ever before heard of a city's prosperity being weighed by the size of its police force. No wonder Mr. Trickett cut the police force in two; and it would not be at all surprising if it did also reduce the number needed to run the fire department;

but I could not well understand how these two items should have the effect of making the city bankrupt or preventing it from paying its honest debts to its employees. We shall have something more about this later. Let us now have a little more from this special news (?) item:

Until three months ago no effort was made to enforce the prohibition law. Saloons were not licensed, but each saloon-keeper paid regularly into the city treasury a fine ranging from \$20 to \$50 a month according to the size and location of his place of business. From the 200 "joints," as they were termed, the city received enough income to put it on "Easy Street."

Yes, they are probably correct in their statement that, until within two months, nobody thought it was a possible thing to enforce law and close the saloons in Kansas City, Kan. Yet notice the cold-blooded cheek with which the *Record-Herald* item tells us that the city was kept going nicely—yes, on "Easy Street"—by letting the saloons go on provided they would pay the officers "hush money" * to the amount of \$20 to \$50 a month according to the size. As there were over 200 joints this made quite a little income, and every thing was lovely. I might tell you, incidentally, that, besides the 200 saloons, there were at least another hundred illegal "gambling-dens" that, when Mr. Trickett "got a going," were all cleaned out. No wonder half the number of policemen could "do the work." Some of you may blame me for holding this Chicago daily—in fact, the leading Chicago daily, it has been called—responsible for communications sent in. Had there been some name signed at the bottom to tell who was responsible for this article it might have relieved them somewhat. I hope the time is soon coming when the reading people of our land will hold the editors and publishers of all journals responsible for what they place in their columns.

The end of this strange story is as follows:

With the abolishment of the joints, and the strict enforcement of the prohibition law, the city is in such straits that retrenchment in every department has become necessary; but even with the present reductions a huge deficit is accumulating daily. The city at present is in debt to the amount of \$4,575,000. It requires \$225,000 to meet expenses, and its income from all sources is only \$112,000 yearly.

Well, \$4,575,000 is a big pile of money, especially when you are in debt that much. Until I read these figures I had an idea that the article had at least a semblance of truth about it; but I could not believe it possible that Kansas City, Kan., was in debt almost \$5,000,000, and getting deeper in debt every

* Now, friends, we have not got to the bottom of this iniquitous business. This individual (we could hardly call him an official) who collected the hush money from those illegal joints did actually obtain for the city something over \$10,000 a month; but he turned over only a part of it. Why should he? The whole thing from beginning to end was a sort of highway robbery legalized by custom, and he probably reasoned that the man who did the dirty work was entitled to a slice; besides, the size of this slice he could fix himself. What was to hinder or who was to hinder? And yet the *Record-Herald* recommended this plan of doing business. Yes, it is the fashion, or, rather, it was the fashion in Cincinnati, Philadelphia, and a lot of other large cities; but God forbid that such a "fashion" should long continue in this country of ours.

day as a consequence of starting out to enforce the laws of the State. As the result of my protest, and perhaps that of similar letters (for this article was copied in other papers, and, indeed, the *intention* was to have it scattered broadcast, especially by papers of that kind), for it seems others took it up as well as myself, and a thorough investigation was made. I soon learned that, instead of Kansas City having a population of only 55,000, as the *Record-Herald* gives it, it has between 80,000 and 100,000. The *Kansas City Star* says:

When Mr. Rose was reelected mayor he appointed a host of "ex-jointists," gamblers, thugs, and bums to serve on the police force. This was done for their political support. The council refused to confirm these appointments, and they could not draw pay from the city. They were paid, however, from the collection from the "joints" until the "joints" were put out of business, when their pay stopped. Most of these have now quit.

I gather further from the *Star* and other periodicals sent me that this same Mayor Rose had the jail so full of criminals that they were making plans to enlarge it. Read the following clipping:

There are now no prisoners in the West Side city jail. The doors of the cells stand open as though they had given up their victims for all time to come. The old rock pile in the rear of the jail on North James street looks neglected and abandoned. The hammers and shovels are loose on the handles and covered with dust.

It is said that law enforcement brought about this radical change. Only a few months ago the city jail and stockade were so crowded city officials were considering plans of enlarging them. A rock quarry was established so as to find means to employ the large number of prisoners who crowded the rock pile stockade. This was when 200 open "joints," many gambling-houses and other unlawful places ran in defiance of law. It was before C. W. Trickett, the assistant attorney-general, who enforces the law in Wyandotte County, began his crusade.

The enforcement of the law has had a wonderful effect on reducing the amount of crimes," said a West Side city official this morning. "The city is about rid of the large number of crooks and criminals who frequented joints and gambling-houses. Practically everybody, except some of the law-breakers, is happy over the change."

"I discharged two city guards this morning who have been employed guarding prisoners at the rock pile," said Joseph Laughlin, acting mayor. "Their services were no longer needed. We are getting good fast. We will soon get the city on a basis where it can live within its revenue and a number of other changes to be made."

Again, read the report below, from a clipping dated Sept. 14:

Twice in one week this banner prohibition city of the world, with its 100,000 population, has passed a whole twenty-four hours' day without an arrest or a crime discoverable by the vigilant police department. Never in all her history in recent years has such a record been achieved. Monday and Thursday were the two crimeless days, and Tuesday and Friday mornings there was absolutely "nothing doing" in Judge Sims' court. It is the silent tribute of events to the victory of Attorney Trickett over the former law-breakers of this community.

In police court this morning Attorney Ralph Nelson informed Judge J. T. Sims that there had been no arrests reported and the "docket" was clear. Here is Judge Sims' response, as given by the *Star* reporter: "What! Do you mean to say that in this city of 85,000 people we are getting so good that not a single arrest has been made in twenty-four hours?" Judge Sims asked in surprise. "That is a record-breaker! After all, it is the duty of the largest city in Kansas to set a good example for the younger and smaller cities that have been subjected to temptations, especially in the case of Topeka. This is the first time for many years that there has not been an arrest in twenty-four hours. In the last few weeks I have noticed that there have been fewer arrests every day."

Before C. W. Trickett began to enforce the law there were from ten to thirty arrests every day. He has closed more than 200 "joints," and driven many of the law-breakers out of the city.

In regard to the debt of nearly \$5,000,000, the *Kansas City Star* of Aug. 8 gives a lot of figures, winding up as follows:

The indebtedness of the city, outside of the internal-improvement bonds, is only \$838,000. Its bonded indebtedness was reduced \$166,427 last year, and it will be reduced again this year.

Instead of being on the "verge of bankruptcy," the metropolis of Kansas is awakening to an era of unusual prosperity and development. It has risen above the necessity of collecting illicit revenue from law-breakers to pay the expenses of its city government, and it is now building on such a solid foundation that no misrepresentations can retard its growth or affect its stability.

It is no longer a "commonwealth of 55,000 people;" it is a city of 80,000 people, and its representative men say that within ten years it will be a city of 200,000 people. It would be perfectly appropriate for the Chicago journalists to become better acquainted with the conditions in Kansas. It has been a long time since the people of that State have had to deal with conditions "verging on bankruptcy."

If the object of this attack is to discredit law enforcement in Wyandotte County, the foolishness of it should soon be apparent to its authors.

When the story was headed off in telling how Col. Trickett had got the city into debt, another report was started by the liquor-papers that:

Assistant Attorney Trickett's work has been extravagantly costly to the municipality and Wyandotte County, and it would be impossible for the State to keep it up.

In reply to that, Mr. Trickett speaks as follows:

So far my effort to close the joints in Wyandotte County have cost the city, county, or State not one cent. On the contrary it has placed \$1000 in the county treasury. I do not see a possibility of one cent being thrown on the county. I have avoided jury trials, because, if the jointist is acquitted by a jury, the county must pay the costs. By using the injunction a vastly different result is obtained. When a jointist can not disprove a charge, the court will fine him. The liquor-men do not fight this kind of case—they go into court and allow the injunction to be made permanent. In these cases the jointists pay the costs and my fee. The men who were tried were fined, and the costs charged against them. T. T. Gregg, who was charged with violating an injunction, paid the clerk of the common-pleas court \$1000 last week. This is the \$1000 that is now in the county treasury. There is just one way that the county can be put to an expense in the matter of closing joints. That is for the county commissioners to pardon the jointists after they are sent to jail. The law provides that the costs may be thrown on the county if the jointist is not compelled to pay them.

The *Star* adds:

Mr. Trickett has obtained fifty-seven permanent injunctions, and in each of these cases the jointist or brewery has paid the costs and agreed not to reopen his place. In most of these cases bonds were given not to reopen if Mr. Trickett would not insist on a fine being imposed on the jointist.

"The brewers are paying the costs, not the city and State," said a West Side merchant this morning. "They have lost more than they can ever accuse the State of losing, you can bet on that."

Now in closing let us see what the *Record-Herald* did when confronted with the facts. Perhaps we ought to be satisfied with it, but I am not. Where a paper makes such a statement as the one I have quoted, with *big headlines*, and puts it on the first page, it seems to me that they ought to put in some sort of apology, say like this:

"We are convinced that our statements in our issue of Aug. 8, in regard to Kansas City

becoming bankrupt, was a mistake, and a slander on that growing city," etc.

They did not say any thing of the kind; in fact, they made no allusion whatever to the former editorial, but they did publish the following, with a single headline as I give it below:

LIQUOR LAWS AND A CITY'S PROSPERITY.

Statements have been repeatedly circulated to the effect that Kansas City, Kan., had suffered severely from the closing of the saloons and dives as the result of a strict enforcement of the State prohibitory laws. Indeed, it has been said that the municipality is on the verge of bankruptcy because of the loss of the revenue which it formerly received from the fines periodically imposed on the law-breakers.

In refutation of these statements an interview recently given by Attorney C. W. Trickett, one of the leaders of the law-enforcement movement, is unusually interesting. The city has now, he says, not a single saloon, gambling-house, nor disorderly resort. There are practically no empty dwellings in the city, and the only vacant business places are those formerly used by the "joints;" indeed, many of these have already been rented. Three hundred new buildings were erected in the first six months of the year, and new buildings are being started as rapidly as ever. New residents are arriving, and real-estate prices are increasing. Mr. Trickett adds that he has found only two men who claim their business has been hurt—one an ice-man and the other a cigar-man, who sold almost exclusively to the dive-keepers, and who had signed bonds for a number of them which he will have to pay.

As for the city's financial position, he says the revenue from police-court fines, including all the "periodical" fines, was less than \$30,000 last year, or only a fifth of the city's ordinary receipts, while a new assessment on an improved basis will increase the revenue next year sufficiently to answer all the city's needs.

These facts deal only with the strictly material side of the question; and do not take account of the wider benefits Kansas City has received from the suppression of vice and from the introduction of a new spirit of respect for the law. It is well that the truth has been made public to counteract the effect of former misstatements.

In closing up this matter in regard to prohibition in Kansas City, let me repeat what has appeared for some time in dozens of papers, and has never been contradicted:

As an economic statement of what prohibition has done for Kansas, take this one item out of scores of others: From 105 counties in Kansas, only 21 have pauperism in them; only 25 have poorhouses; 35 have their jails absolutely empty; 37 have no criminal cases on their docket.

Now, friends, if you have gone through the above you can see how much dependence is to be placed on some of the statements in our daily papers, especially a periodical defending the *millionaire brewers*. Jesus said, "He that is not for me is against me;" and in times such as we are having here in Medina, not only should every individual stand for temperance, purity, and righteousness, but every periodical *must* take sides. The one who has nothing to say when a conflict like ours is going on may be counted where I counted the *Record-Herald*. It was responsible for the big headlines over that article, if for nothing else; and, by the way, an effort to trace down the source of that slanderous report showed that it came from Kansas City, Mo., and *probably* from a brewer who has been exceedingly active there in getting out statements of this kind.

A communication in regard to Xenia, O., has recently appeared in one of our Medina papers; and an investigation would probably show that many of the statements there are

as false and unwarranted as those I have given you about Kansas City. Of course, we do all we can to correct such falsehoods after they once get in the papers; but thousands of people who read them never get a glimpse of the real truth of the matter;* and even here in our town of Medina I fear there are a good many well-meaning people who are misled by false statements slyly put out by unscrupulous brewers and liquor-dealers who have no interest in caring for the youth of the country—no interest in *any thing* except in raking in the almighty dollars; and after they get so rich they do not know what to do with their money, and have become weary of the pastime of wrecking and ruining homes, they commit suicide.

Friends, the above is the story of just one city in the United States *with* saloons and *without* them. San Francisco has recently also tried running a big city with open saloons, or, if you choose, *taxed* saloons, and then also tried it without any. You have read the papers, and I hardly need take space to go over the matter. With the saloons closed they had decency and order; with the saloons open, a great addition to the police force was needed, and even with this it was hardly safe for women to be out on the streets. Atlanta, Ga., has recently had an exhibition of lynching and outlawry. When the saloons were closed they had law and order at once. Now, is it possible that our town of Medina, after a record of more than twenty years—a record that has made us a landmark throughout the State for law and order and decency—is it possible that the voters in such a town as this are going—the majority of them—to vote to bring back the saloon? God forbid. It could never happen without some outside agency being brought to bear. In this recent conflict in Kansas City that I have told you about, the brewers fought desperately to hold their ground; in fact, I believe it transpired that a large portion of the saloons are *owned* by brewers. Now, if Medina goes wet it will be because the Christian people and the temperance people allow the brewers to use their money in such a way as to defeat us. Is money and not principle going to rule here in Medina? In behalf of our children and of our children's children, shall we not take up the fight, even as our forefathers, in times past, fought, bled, and died, to make this land of ours the "land of the free and the home of the brave," and *not* the home of outlaws and criminals?

*Somebody has said a *lie* may travel clear around the world while *Truth* is pulling on his boots to go after the lie, in an attempt to head it off.

WHAT OUR GREAT RAILWAY COMPANIES THINK OF THE SALOON BUSINESS.

A few weeks ago it was my pleasure to make a trip through the celebrated Wind Cave of the Black Hills of South Dakota. One of our party was a locomotive engineer on the Northwestern R. R. He informed me and the rest of our crowd that every employee on that great road at the present time is obliged to sign his name to a card such as

he had in his possession. I did not take a copy of it; but as nearly as I can remember it was something as follows:

"Every employee on our road, from the smallest to the greatest, is informed that he is liable to dismissal, without notice, if he is found in or around any saloon or groggery; or if it is found he is boarding in or near any place where intoxicating liquors are kept for sale. You are hereby requested to read over the above rules and regulations of this road, so that, if a dismissal should come, you will not be able to say you did not know about it or did not understand it. I (John Smith) have read over and considered the above regulation, and fully understand it, and subscribe my name to it. JOHN SMITH."

This engineer said that he felt it an honor to work for a road that makes such regulations and restrictions; and he felt proud of the privilege of signing his name at the bottom of it. He said he was willing to have it known wherever he went, and in whatever crowd he happened to be, that he belonged to a gang that "touched not, tasted not, and handled not." He said that, when his boys were old enough to read the above card, he wanted them to learn it by heart and live by it. Long live the Chicago and Great Northern Railway and every other railroad that makes similar rules and regulations for the protection of human traffic. I am told by a leading railway official that almost every railroad in the United States has prescribed such or a similar rule; and I predict that our great manufacturing companies that have not already made similar regulations will do so very soon.

Now, friends, are we going to be behind the great railway companies of our land—the corporations that are sometimes said to be "soulless"? Surely they should know by their past wide experience whether saloons are an advantage to *business* or not.*

*The above Home paper was used as a bulletin during our Medina Beal-law election, which took place Oct. 22. I am happy to announce that, out of 682 votes, Medina gave a majority of 97 against the saloon. The church-bells were rung when it came to the final count, and there was a general rejoicing among Christian people all over the town. We have several hundred of the bulletins left, which will be mailed free on application to any town or people where they are having a like conflict in an attempt to drive out the saloon.

BEEES AND FRUIT.

We take pleasure in copying the following from *Green's Fruit Grower* for October:

I shall continue to insist that the honey-bee is the friend of the fruit-grower. If you are growing fruits, and your neighbors have bees, you should consider yourself fortunate. If you can keep a few swarms of bees on your own fruit-farm you will find them helpful in fertilizing the blossoms. Never spray your fruit-trees when they are in blossom, for if you do you will destroy many of your best friends, the bees, who are visiting the blossoms to gather honey at that date.

It would seem from the amount of evidence that we are getting constantly from all over the world that there should be no further discussion of this matter. I believe *Green's Fruit Grower* is as good an authority as we

have on the subject; and so long as our experiment stations throughout the United States—in fact, all over the world—tell the same story, the individual or the people who think the bees an enemy are behind the times; and the man who sprays his trees while they are in full bloom so as to injure the bees is certainly cutting off his own nose.



THE HOT SPRINGS OF BLACK HILLS, SOUTH DAKOTA.

After taking the hot bath mentioned in our last issue, I was told that, as the air was chilly, I must not go outdoors for about an hour; and although there was a very pleasant sitting-room, periodicals, and lots of nice people to talk with, at the end of half an hour I began to get impatient to go. A pleasant-looking young lady at the desk informed me there would be no danger of taking cold if I walked briskly, buttoned up my overcoat, etc. Now, when the hack brought us up from friend Huebner's to the Minnekahta Springs—that is where I took my bath—they circled around among the hills so much that it seemed to me they almost made a horseshoe bend in getting to the bath-house sanitarium. I made up my mind I could make a shorter cut on foot. On inquiry about it of some boys, they agreed that my shortest route was around by the postoffice, the way I came.

"Why, boys, I know where Huebner's hotel is, for I just came from there. It is right over this way, I am sure. I can get there crosslots and save a lot of trouble."

"All right, sir; go ahead if you want to; but you see if you don't 'get left.'"

I found a pretty fair road up the mountain, and followed in the direction of my hotel as nearly as I could. Pretty soon I was out on a plain. The dwellings had all vanished, the city of three or four thousand inhabitants had all vanished; in fact, there did not seem to be any place for a city at all. I mention this to show how easily one unused to mountain scenery and mountain canyons may get "rattled." I knew the city was not far off, for I had not been walking fifteen minutes, and yet there was no trace of it, and no place to put a city. I met some workmen going home with their dinner-pails, and I asked them to direct me to Huebner's hotel, but they did not know of any such place. They said I had better go back by the path I came. Finally, when I explained the matter more fully one of them said, "Oh! it is away off beyond that barn you can just get

a glimpse of in the distance. You had better go back and go around by the post-office."

But I do not like to be beat when I start out on a speculation of my own, and so I pushed ahead, and found some new things, even if I did take more time than by taking the beaten track. My "short cut" turned out to be the furthest way home; and when I got to Huebner's his whole institution was turned about. The front door was on the back side, and *vice versa*. You see I had got turned round.

While I am considering this particular illusion of the hills, I wish to bring up another incident right here. While passing along the streets of the city I saw some very pretty Red Astrakhan apples just getting ripe. I picked out a fair-sized one and laid down a nickel, and stood waiting for my change. As the good-looking woman who presided seemed to think the nickel closed the transaction I mentioned it to friend Huebner, and was greatly surprised when he told me a nickel was the regular price for a fair-sized apple. When I looked up to his thrifty young apple-trees, some of them pretty well filled with fruit, I asked him why everybody did not go to raising apples. He told me the people had just caught on to the fact that apples would grow in that region, and said I would have to get out into the country and see some of their young orchards.

The following morning, while waiting for breakfast I strayed off on a point of the hills. I soon happened to look down into a little ravine and caught a glimpse of some thrifty green foliage. As I got nearer I noticed a very tall fence of wire netting. The height was so unusual that I began wondering if it were not an inclosure for ostriches, such as I saw in California and Arizona. Just then a man went through a big gate in the stout wire fence, and left it slightly ajar. I ventured to push through and follow him.

"My good friend, am I intruding in taking the liberty to go through this inclosure?"

"Not at all. Come in. Are you a stranger in these parts?"

"Yes, sir, I am a stranger, but that is not all. I am a born Yankee, and am naturally curious to know why this great high fence, almost chicken-tight, is here."

"This fence is to keep the 'kids' from the town from getting into my orchard. If you are interested in apples, come in."

Then for the first time I discovered there was an acre of ground or more tucked down in that little canyon out of sight where one would hardly believe there was room for a little garden-patch. The apple-trees, like friend Huebner's, were smooth and glossy, and the foliage was of that rich healthy dark green that an apple-grower loves to see; and last, but not least, every tree in that whole orchard was bending with fruit. The Red Astrakhans and the Yellow Transparent were just ripening. Like the orchard I found in the Arizona desert, there was scarcely a wormy apple nor a scrubby one, nor a one-sided one, in that whole orchard. The cod-

ding-moth had not got there; the fungus and other pests were unknown.

In the Black Hills, apples sell by the pound—5 cts. per lb. for firsts, and 3 cts. for wind-falls and seconds. This man was one of the first to find out that apples would grow in that region. Of course, he has to irrigate. The medical hot water is run all through the orchard once in 30 days. By means of this thorough irrigation, the trees bear every year. But this excessive bearing exhausts in a little time the vitality of the tree, or at least Mr. Geo. M. Trimmer, the owner, said such seemed to be the case. He showed me some of his oldest trees that seemed to be failing on account of the constant heavy cropping. He thought that hand picking would remedy the matter and make the fruit still larger.

Besides the two apples I have mentioned, there is quite a little trade on a pretty good-sized crabapple called Whitney's No. 20. I first saw these on a fruit-stand. I said to the boy, "Why, what do you have crabapples on a fruit-stand for?"

"Why, these crabapples are good to eat. Have you never tried one? Just taste. They are Whitney's No. 20—a new thing, and they succeed splendidly here in the Black Hills."

You get about half a dozen of these crabapples for a nickel; and as soon as I tasted one I uttered an exclamation of surprise. I decided then and there that some of Whitney's No. 20 crabapples should be planted on my grounds next spring. My good friend Trimmer, who owned the orchard, said it was his breakfast time, but told me to make myself at home, look the orchard all over, sample the fruit, and, if I thought best to write up his little enterprise, to send him a sample copy of the journal containing it. Oh how I did enjoy the walk through that beautiful young apple-orchard before breakfast! I think I never saw such a handsome bloom on all the fruit as I found there in that little notch in the hills near Hot Springs. This man was an enthusiast. He had been for a good many years studying apple culture in that region, and experimenting. He found what kinds would succeed, the kind of treatment best for them, and was then getting his reward. He told me he would not swap that little apple-orchard for the best hotel in Hot Springs. The apples were all hand-picked except what fell on the ground. But even the wind-falls, and those that were partly decayed, found a ready market at some price, so there was almost no waste.

THE BLACK HILLS HOT SPRINGS AS A HEALTH-RESORT.

I fear that, in my last issue, I did not give this region the credit it should have. It is a great place for sunshine. The records of the Weather Bureau show that, for a period of eight years, there is an average of 332 sunshiny days in a year. The average temperature for June, July, and August, during the same period, was 62. As an indication of what the United States government thinks of this region, I may mention that a great

army of workmen are now at work on a national sanitarium for disabled soldiers. It will be known as the Battle Mountain Sanitarium. Half a million dollars has already been appropriated, and before it is finished we are told it will cost about two millions. This will include landscape gardening, etc. The South Dakota home for disabled soldiers is a very pretty and comfortable institution situated on a hill overlooking the city. If I am correct the greater part of the Black Hills region is now under government supervision. Reasonable restrictions are imposed so that no syndicate or trust can monopolize the natural advantages of this region.

THE WIND CAVE OF THE BLACK HILLS, S. D.

I had heard a great deal of this wonderful cave which, in some respects, is said to rival the famous Mammoth Cave of Kentucky. The entrance is twelve miles from the springs; but there are so many visitors almost every day in the year that the passengers are carried in very comfortable vehicles for only a dollar for the round trip. In order that this cave may not get into the hands of a monopoly the government has purchased 23,000 acres around its entrance. The reason it is called "Wind Cave" is because there is a strong blast of wind constantly blowing in or out of the mouth of the cave. It was first discovered by a cowboy who rode past there on horseback. The blast of wind was so strong coming out of the fissure in the rocks that it blew off his hat while he was still on his horse. He recovered his hat, went back, and had this thing repeated. Then he went and told his story to some other boys, but they ridiculed his statements, but afterward consented to go with him and see this wonderful blast of wind that came out of the ground. They all approached the spot, the discoverer, of course, being foremost. What was their surprise or consternation to find that, although no wind was coming out, a strong current was blowing *into* the crevice. So strong, in fact, was it that *this time* the hat went down into the hole and was lost. Of course, this made an excitement. After a little chipping away of the rock around the entrance they found they could get down into the cave. Since that time explorations have been made more or less all the time, and now there are no less than 100 miles of passages, and over 3000 rooms have been explored.

Just as soon as the conveyance stopped at the hotel near the entrance I climbed down the stairs to see that wonderful wind blast. It was a hot day, but the air came out so strong and cold that I could not stand it. It gave me the chills. Perhaps I had better say right here that the number of those apples I ate before breakfast the morning before might have had something to do with said chills. I knew I was eating too many; but the apples were so beautiful and luscious, and I was so apple-hungry, that I almost decided I would rather be sick than to lose such a treat. Now, don't you forget, friends, that there may be such a thing as "too much of a good thing," even if this good thing is nice, mellow, luscious ripe apples. Well, this

wind out of the cave I think would have blown off my fur cap if I had not held it on. The guide said the blast of wind and the direction it took were governed by the rising and falling of the barometer. When the pressure of the air increases outside it pushes the air into these acres and acres under ground. When the air pressure is lighter, say just before a storm, the air pushes out. I presume likely the varying *temperature* outside may have something to do with it, but I am not enough of a scientist to decide. I should suppose, however, that these air-currents ought to make a good barometer.

I think there were about a dozen in our party—perhaps half of them women. The long route, which most of us took, was about three miles. The shorter one was only about half that far. This latter route was conducted by the wife of the guide. By the way, I very much like the idea of a woman for a guide through such a place. I wanted to know a lot of things all along the whole route; and the woman was more talkative (naturally) than her good husband, who was certainly in no respects remiss. Before starting we all had to remove our head gear and put on a white cotton cap. When I said I should catch cold, especially in a temperature of 46°, the guide said my fur cap would be all right if I pulled it down well. You see the ordinary head gear of both men and women would be more likely to knock off the stalactites and other things on the roof of the cave that they wished to preserve from injury. Then we all had tallow candles on the end of a stick. Of course, you can not carry a candle down through that blast of air; but after you get away from the entrance there is hardly any breeze perceptible. Candles were kept burning in small protected niches in the rock so visitors could light theirs after they had got down out of the blast. It took quite a lot of expensive mason and carpenter work near the entrance to make it safe for people to clamber down. The United States government has placed guide-boards and figures, not only to tell how far you go, but to tell you how deep you are below the mouth of the cavern. There is probably no other opening to the outside air. This seems evident from the blast of air that is constantly going through, out or in.

SELLING SECRETS, ETC.

The following from T. Greiner we copy from the *Practical Farmer*:

NO SECRETS WANTED.

It is a safe rule absolutely and emphatically to refuse paying good money for any thing offered as a secret in agriculture. I have yet to find the first so-called "secret" in agricultural methods or practices, or secret recipes, etc., that is worth paying money for. Any innovation of real value, any new method or practice that has real merit, is sure to become quickly the property of the public, while the things advertised by unknown parties as "secrets" for a money consideration, and under the pledge of keeping them secret, are not worth the postage-stamp on the letter containing the remittance.

If any reader wishes to spend money for secrets, let him buy standard agricultural works, or the periodicals in his particular line or brand of agriculture.

Now, friends, it seems to me the time has come to make a protest when you find secrets advertised in any of your home papers. Our readers know how much money I have spent, and yet not a thing has ever been received that was not either worthless or had already appeared in print. Our agricultural and class journals should be ashamed of helping on such schemes for robbing people of their money, no matter whether it appears in the reading or advertising pages. Such folks are behind the times. Our experiment stations, our agricultural books and periodicals, give you all the knowledge and information at a fair price that is of any value or any moment.

Special Notices by A. I. Root.

PAULOWNIA IMPERIALIS.

About the middle of October, just before our first heavy frost, the tree was 16½ feet tall. It had begun to drop its leaves before the frost caught it, so I think it will stand the winter all right. A part of the top may, however, be killed because it was growing so rapidly. Quite a number of the leaves were a yard wide. Now, is not 16½ feet a pretty good record for a tree that started from the ground about May 1? We will tell you more about it next spring.

BASSWOOD-TREES FOR FALL PLANTING.

They have now dropped their leaves, and are ready to be shipped; but we have at present only one size—one to five feet tall. One tree, 10 cts.; 10, 75 cts.; 100, \$5.00. These are rather large to be mailed, but we can pick out the smallest ones to send by mail. Ten trees, 40 cts. postpaid. I presume fall planting is not as favorable, taking the country at large generally; but there are special localities and sometimes special reasons why the work can be done better in the fall. The basswood is a very hardy tree, and where they are put out with reasonable care, either in the fall or spring, not one in ten should fail to grow.

FAKE TESTIMONIALS, ETC.

On page 1318, last issue, I am led to believe I spoke rather more severely of E. J. Worst, of Ashland, Ohio, than he deserves. The item headed "United States Health Report" was the work of an advertising agency that he employed; and just as soon as he found out how he was being misrepresented he promptly put a stop to all such advertising. Mr. Worst has not written a word to us; but one of his friends, who believes him to be a good honorable man furnished us this information. The moral is, we should all be more careful about whom we employ to do advertising for us. This "United States Health Co." is a fake, pure and simple, and the Postoffice Department has been trying to chase it up and head it off for ten years past, we are told.

ALL ABOUT MOSQUITOES.

Bulletin 109, from the Maryland Agricultural Experiment Station, College Park, Md., is a most valuable contribution to our mosquito literature. It contains 124 pages, with beautiful illustrations from beginning to end; and it is a wonder to me how the Maryland station can undertake to furnish this valuable work to all the world free of charge—or at least I understand it that way. Mosquitoes are not only guilty of disseminating yellow fever, but we have good reason to believe they are quite active in spreading malarial fever, and that hits me. In fact, it hit me once in my life so I presume I shall never get entirely over it. This bulletin gives an exhaustive report, finely illustrated, in regard to all the pernicious mosquitoes known, or pretty nearly all of them, and there are about 500 species of them in all. It gives their life history, and then winds up by telling what has been done in the way of banishing them from localities where they were formerly troublesome. The principal agency for their prevention is to get rid of stagnant water, draining of the ground either by underdraining or open drains, and also, more than

either, getting rid of or protecting water in rain-barrels, old cans, broken bottles, and every thing else. Wherever you find wrigglers about your home, get rid of them. Where you must have a receptacle for rain water (and that hits me too), either cover the barrel or receptacle with cloth to keep out the mother mosquito, or put a little kerosene on the surface of the water. You need not say you can not have kerosene in the rain-water barrel because you use it for cooking, for you can put a spigot at the bottom of the barrel and draw off the water to use, without disturbing the surface. The light film on top will not mix with the water below unless stirred up. In the case of the mosquito, prevention is not only better than cure, but it seems to be almost the *only* cure. Of course, you can drive the "live animals" away with smoke, and banish them from a room by fumigation; but killing them before they are born, or, better still, before the egg is laid, is the way to do it. I think I read somewhere that, in the region of Maryland, something like a quarter of a million of dollars had been spent, and spent wisely, in getting rid of mosquitoes. Rich land that was unpopulated because of the mosquitoes has become valuable because these pests are now practically banished. If you want the bulletin, address as above.

Convention Notices.

The annual meeting of the Ontario Bee-keepers' Association will be held in Toronto, November 7, 8, 9, 1906, at the same time the Ontario Horticultural Society will hold their exhibition of fruit, flowers, honey, and vegetables. A cordial invitation is extended to all American bee-keepers to attend. We hope our program will be one of the best. W. COUSE, Sec. Streetsville, Ont., Sep. 29.

PROGRAM FOR THE NATIONAL CONVENTION.

The National Bee-keepers' Association will hold its annual convention Nov. 8, 9, 10, in the Market Hall, San Antonio, Texas.

Headquarters for bee-keepers will be at the Grand Central Hotel, only one block from the I. & G. N. passenger station. This is a new hotel, nicely furnished, and has 100 rooms. There will be special rates to bee-keepers, of 50 cents a berth and 25 cents a meal.

Thursday, Nov. 8, is bee-keepers' day at the fair, and is so announced by the Fair Association.

During the last few years the program at the National conventions has been overloaded with papers, thus crowding out, to a great extent, the most important part of a convention—viz., the question-box: and I determined this year to avoid that objection.

FIRST DAY—FIRST SESSION.

The first session will be on the evening of Nov. 8, beginning at 7:30. This session will be devoted to the reception of members, paying of dues, distribution of badges and numbers, and the question-box.

SECOND DAY—FIRST SESSION.

9:00 A. M.—A paper by E. D. Townsend, Remus, Mich., entitled "The Profitable Production of Extracted Honey." Question-box.

SECOND DAY—SECOND SESSION.

1:30 P. M.—A paper by R. F. Holtermann, of Brantford, Ont., Canada, entitled, "The Difference between Ripening and Evaporating Nectar." Question-box.

SECOND DAY—THIRD SESSION.

7:30 P. M.—A paper by Dr. E. F. Phillips, of Washington, D. C., entitled "What Science May do for Bee-keeping." Question-box.

THIRD DAY—FIRST SESSION.

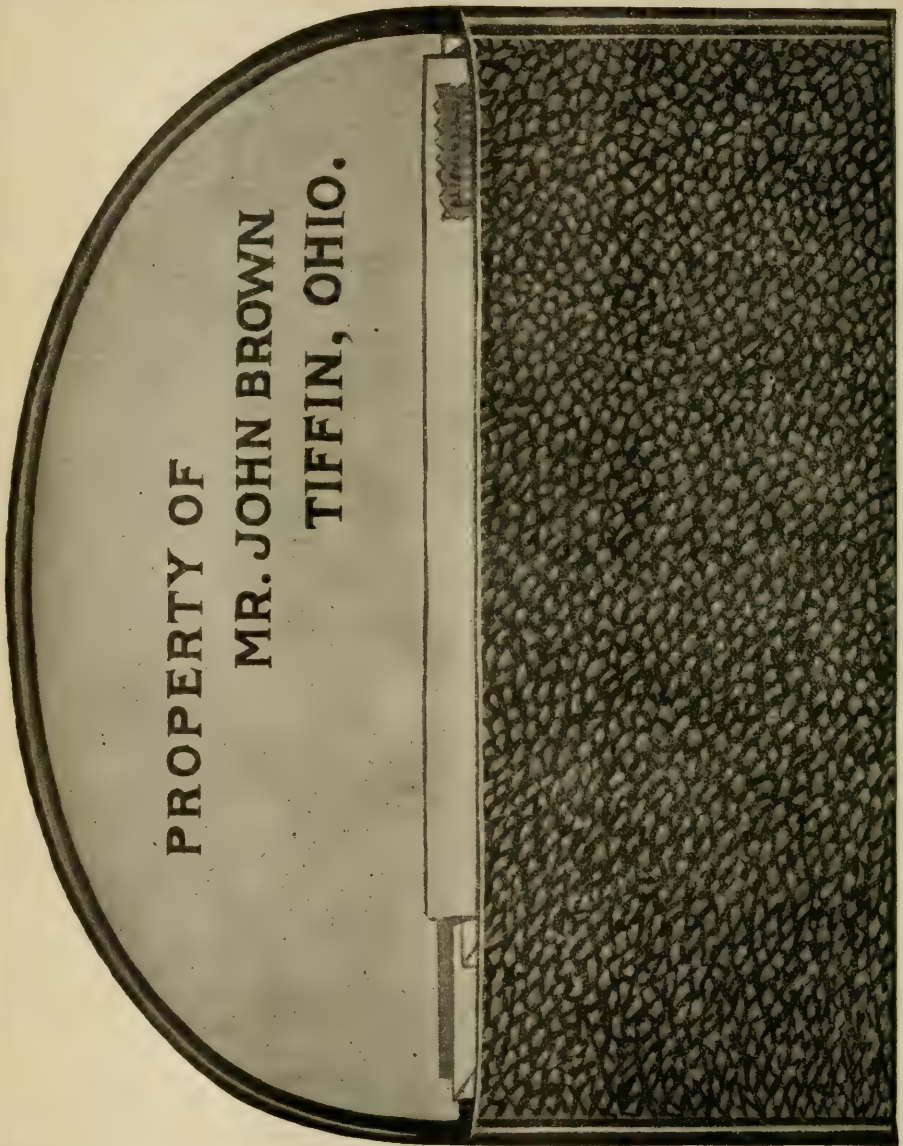
9:00 A. M.—A paper by W. H. Laws, Beeville, Texas, entitled "The Comparative Profits of Queen-rearing and Honey-production." Question-box.

THIRD DAY—SECOND SESSION.

1:30 P. M.—A paper by C. A. Hatch, Richland Center, Wisconsin, entitled "How can the National Assist its Members in Buying Goods and Selling Honey?" Question-box. Adjournment.

W. Z. HUTCHINSON, Sec.

With Your Name Printed on It. . . Just the Thing for Valuable Papers.



FREE POCKET-BOOK BLANK

Sign This and Send to Me at Once

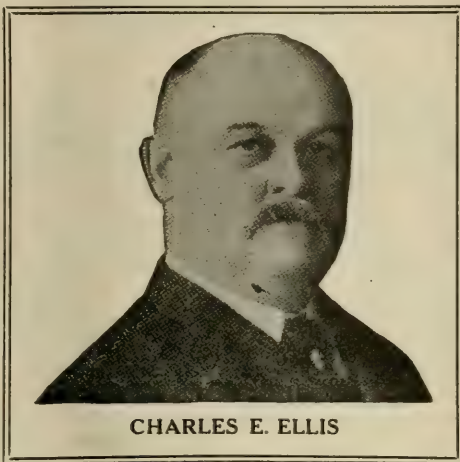
C. E. ELLIS, New York. Dear Sir:—Send me **The Metropolitan and Rural Home** for a year unless I tell you to stop it at the end of three months. Also send me one of those **Free** Pocket-books with my name printed on it. I inclose 20 cents (silver or stamps) which you are to return to me if I tell you at the end of three months to stop my subscription to your paper.

SIGN..... ADDRESS.....
 Dept. 216 NAME TOWN STATE

Five Thousand Pocket-books!

I am Going to Give Them Away!

FREE



CHARLES E. ELLIS

FREE

I PUBLISH the Greatest Farm Paper in the World—**The Metropolitan and Rural Home**. Before I was a publisher I was a farmer. Now I am intensely interested in both. I believe farming and publishing are the greatest and best businesses going. Sometimes I even think farming beats publishing.

And now—just to show you how I feel toward farmers, I want to give five thousand of them each one of these Pocket-books. If you are a farmer I want to give you one. I want to give you one of these Pocket-books so you can show it to your friends and say, "My friend Ellis, publisher of the Greatest Farm Paper in the World, gave me this." Then you and your friends will think of me and my paper—**The Metropolitan and Rural Home**—that goes to half a million farmers every month—and you will say among yourselves, "That Ellis must be all right. I want to read his paper and see what he says in it." These Pocket-books I am going to give you are made from genuine rubber-covered cloth. They are just the thing to carry valuable papers, such as notes, contracts, fire-insurance policies, weight receipts, etc., as well as money. They fold up flat and fit your inside coat-pocket—just the kind of Pocket-book every man likes to own.

Now, you don't pay anything for the Pocket-book. It's FREE. I send it to you postpaid, and don't ask you a cent. But to show that you are willing to be just as liberal with me as I am with you, I want you to send me 20 cents for **The Metropolitan and Rural Home** for a year. Now don't say, "That's what I expected." Wait a minute and read the rest. You haven't got to the most liberal part of my offer yet. Read this announcement all through. I would do as much for you if you were I and I were you. If you will do as I ask, I will have your name and address printed on the inside of your Pocket-book, so if it gets lost it will be returned to you at once. When I send it to you I will also send you some sample copies of **The Metropolitan and Rural Home**, and I will continue to send the paper to you for Three Months. Then, if you don't like it, just say so and I'll send you back your 20 cents and stop your subscription, and you may keep the Pocket-book for your trouble. This gives you the paper three months FREE—to say nothing of the fine Pocket-book. Now—what do you think of that for an offer?

A Great Big Illustrated Magazine Free

mind you. **The Metropolitan and Rural Home** is a great big magazine paper. It is printed with clean plain type on nice paper, and there are lots of pictures every month. I just mention these things because they are extras—it's the stock, dairy, and farm news, and good stories that make my paper the best farm paper in the world.

If you don't tell me at the end of three months to stop the paper, of course I'll keep your subscription—enter your name as a regular subscriber, and send you **The Metropolitan and Rural Home** for a full year.

Now I'm sorry I haven't got more of these Pocket-books, but there are only 5000 to give away, so you'll have to hurry a little if you want one. They are such good Pocket-books that they go like wild-fire, and you ought to stop right here, fill in the order blank, and mail it to me at once, so as to be sure to get one of these Pocket-books. I put that blank in here so you needn't hunt for paper and ink unless you want to. Use a lead-pencil, fill out the blank, inclose twenty cents (stamps or silver) and mail it me just as quickly as you can. Do it right away so the Pocket-books won't be gone when I get your subscription.

Chas. E. Ellis, Publisher, 22 No. William St.

Metropolitan and Rural Home Subscription Department 216, New York City

THE YOUTH'S COMPANION

A COMMON SOURCE OF INTEREST AND INCENTIVE FOR EVERY MEMBER OF THE FAMILY EVERY WEEK.



Copyright, 1906, Perry Mason Co., Boston, Mass.

Some of the attractions provided for subscribers to the New Volume for 1907:

250 CAPITAL STORIES

—humorous stories, character stories, stories of life on the farm, in the great cities, on the sea, in the wilderness. Among them will be SIX SERIAL STORIES by six favorite Companion story-writers, and a Historical Series illustrative of life and times in America from the first colonial planting to the close of the Civil War.

2000 ONE-MINUTE STORIES

The Companion is distinguished for the number and excellence of its sketches and stories which take not more than a minute to read. But they are always new, always well told, and in great quest by preachers and after-dinner speakers.

THE CHILDREN'S PAGE

for those who wish to read about children, those who read to children, and the young readers who choose for themselves.

The Editorial Page. The Notes on Science. The Weekly Articles on Hygiene and Emergency Treatment, Etc.

As much reading in the year as would fill twenty 400-page novels or books of history or biography ordinarily costing \$1.50 each.

Send for Sample Copies and Illustrated Announcement for 1907, Free.

EVERY NEW SUBSCRIBER

BL70

Who cuts out and sends this slip (or mentions this publication) with \$1.75 for The Companion for the 52 weeks of 1907 will receive

FREE

All the issues of The Companion for the remaining weeks of 1906. The Thanksgiving, Christmas and New Year's Double Numbers. The Companion's 12-color Four-Leaf Hanging Calendar for 1907.

\$16,290 in cash and many other special awards to subscribers who get new subscriptions. Send for information.

THE YOUTH'S COMPANION, BOSTON, MASS.

A Four-Per-Cent Investment

WITH the money absolutely safe and always available is an ideal disposition of individual savings.

This bank accepts deposits in any amount, and pays four per cent interest—compounded every six months.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system. Write for the booklet to-day.

Assets over One-half Million

THE SAVINGS DEPOSIT BANK COMPANY

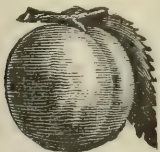
MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it six months on trial. Sample free.

The Southern Fruit Grower, Box 1, Chattanooga, Tenn



PEACH

Fine lot of trees grown on the banks of Lake Erie, more stocky and hardier than trees grown in the interior. Are two miles from any peach orchards, so free from borers as well as all other diseases. Large stock of Fruit Trees and Small Fruits, Grape Vines, Etc. Headquarters for Ornamental Trees, Shrubs, Plants, Bulbs, Etc. 40 acres of Hardy Roses; none better grown. 44 Greenhouses of Palms, Ferns, Roses, Geraniums, Araucarias, Cannas, Etc. Get the BEST direct from the grower and save all commissions. Free catalogues, No. 1 descriptive of Fruit and Ornamental Trees, No. 3 of Holland and other bulbs, Everblooming Roses and Greenhouse plants of every description. Correspondence solicited. 53 years; 1200 acres.

THE STORRS & HARRISON CO., Box 276, Painesville, Ohio

JOSEPH HORNE CO.

Pittsburgh, Penn.

New Flannels!

Now is the time to buy flannels, when assortments are complete and when there is plenty of time to make them up in readiness for real cold weather.

We have twelve different styles of Scotch Flannels that will be much in demand for making skirts, waists, pajamas, etc., 25c a yard.

Iona Flannels and Embroidered Scotch Flannels are correct for separate waists and entire dresses, 40c a yard.

Agawan Flannel in plain shades, stripes and checks, an excellent flannel for shirts, 60c a yard.

White Embroidered Wool Flannels, scalloped with hemstitched edges, 25 different styles, 50c a yard.

In the matter of Flannelettes we have a very pleasing collection of pretty printings in this inexpensive and useful material—stripes, plaids, Persian effects and dots—10, 12, and 15c a yard.

SAVE YOUR BACK

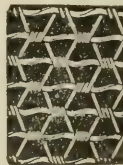
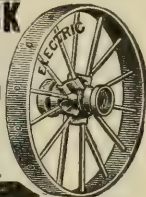
Save time, horses, work and money by using an

Electric Handy Wagon

Low wheels, broad tires. No living man can build a better.

Book on "WheelSense" free.

Electric Wheel Co. Bx 95, Quincy, Ill.



FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 3 styles and heights of farm and poultry fence. It's free. Buy direct. Write today.

COILED SPRING FENCE CO.

Box 101 WINCHESTER, INDIANA.

The "SUN"

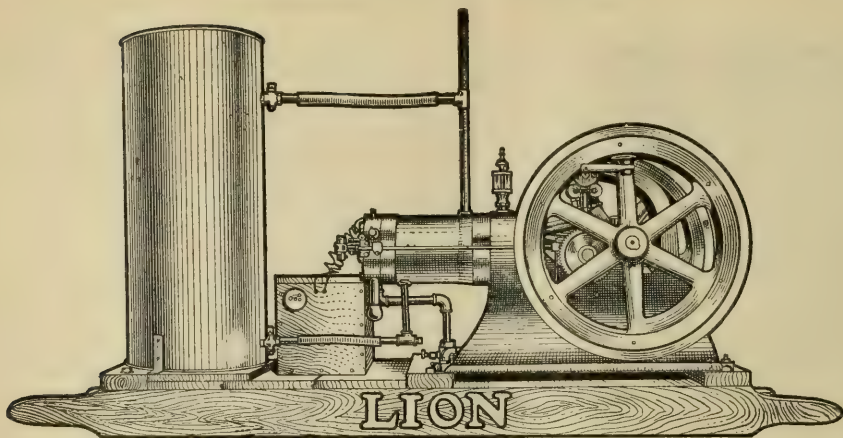
Incandescent Gasoline LAMP

5th YEAR OF SUCCESS
The "SUN" outshines them all.

Be an Agent and Make Big Money. Write for catalog, Get up Club and receive special discount. Go to insurance underwriters' rules.

SUN VAPOR LIGHT CO., Box 111, Canton, O.

Licensee of the Campbell patent



IT'S READY TO OPERATE

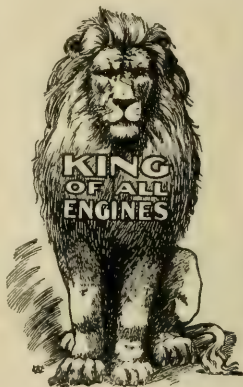
There's no firing-up—no waiting for steam with a **Lion** Gasoline Engine. It is **always ready to operate**. Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

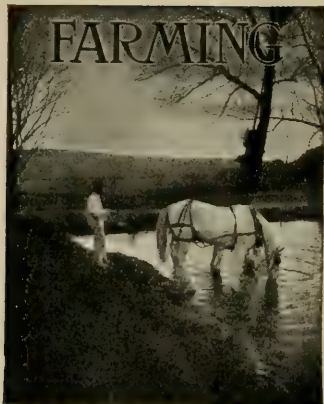
The Lion Engine

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

We sell direct from factory to buyer, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion** engine and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion** engine. It is free if you mention this paper when you write.

Lyons Engine Company
LYONS, MICHIGAN





A Delightful Combination

GLEANINGS IN BEE CULTURE, \$1.00 per year.
FARMING MAGAZINE, \$1.00 per year.

PRICE FOR THE TWO, \$1.50.

*Nothing need be said about GLEANINGS. It is the best publication of its class in the world; semi-monthly, 72 to 80 pages, fully illustrated.

†FARMING is a new publication—a beautiful journal for the man who produces from the soil. It is edited and published by the Doubleday-Page Co., the people who edit *Country Life*, *World's Work*, and the *Garden Magazine*, a sufficient guarantee of its merit. Larger than GLEANINGS—fully illustrated. Published monthly.

THIS OFFER IS GOOD, EITHER FOR NEW GLEANINGS SUBSCRIPTIONS OR RENEWALS, BUT MUST BE TAKEN ADVANTAGE OF WITHOUT DELAY.

WE CAN ACCEPT SUBSCRIPTIONS FOR THIS COMBINATION AT THIS SPECIAL RATE ONLY WHEN SENT DIRECT TO THE PUBLISHERS OF GLEANINGS,

The A. I. Root Company, Medina, Ohio.

*Sample copies of either publication will be sent upon request.

†Publications will be sent to two different addresses if desired.

The Whole Family Group

THIS is the greatest magazine offer ever made. The four magazines, each at the head of its class, cover the reading-matter for the whole family. ♡ ♡ These sixty numbers cover about 6000 pages of the best literature and art by famous writers and artists, including nearly 500 pages of newest things in fashion and tasteful color printing. ♡ ♡ ♡ No such chance has occurred for years, and it is not likely to be repeated at this price. ♡ ♡ ♡ HERE IS THE OFFER

GLEANINGS IN BEE CULTURE The DELINEATOR.

24 issues (semi-monthly) one year..\$1.00

Twelve numbers at 15 cents each would cost..\$1.80

The recognized international fashion and literary magazine, greatly enlarged and improved, and a full-sized 15-cent magazine with many colored plates. *Yearly subscriptions must not be taken by any agent or added to any club at less than \$1.00 net.*

McCLURE'S MAGAZINE

Twelve numbers at 10 cents each would cost..\$1.20

A subscriber writes: "We have taken McClure's since it began, and the articles are always interesting, always timely, and always dependable; the fiction is always good literature, always good morals, and always in good taste, and my family would be lost without McClure's Magazine. *Yearly subscriptions must not be taken by any agent or added to any club at less than \$1.00 net.*"

The WORLD'S WORK.

Twelve numbers at 25 cents each would cost..\$3.00

This magazine, edited by Walter H. Page, is for the men who do things. It tells with cheerful optimism of the inspiring things which are going on in this work-a-day world. It is profusely illustrated from photographs of actual people and places. *Yearly subscriptions must not be taken by any agent or added to any club at less than \$3.00 net.*

OUR PRICE IS \$7 00
\$3.75

The A. I. Root Co., Medina, Ohio:

For the enclosed \$3.75 send me The Whole Family Group for one year.

NAME..... CITY.....

ADDRESS..... * STATE

"If Goods are wanted quick, send to Pouder."

Established 1889

Bee-Keepers' Supplies

Distributor of Root's Goods from the best shipping-point in the Country. My prices are at all times identical with those of The A. I. Root Company, and I can save you money by way of transportation charges.

Special Notice!

During this month (November) I am offering a special discount of five (5) per cent for cash orders for Bee-supplies for next season's use. After December 1st the discount will be 4 per cent.

**New Metal-spaced
Hoffman Frames
are Here in Stock**



**Headquarters for the
Danzenbaker
Hive**

**Dovetailed Hives, Section Honey-boxes,
Weed-process Comb Foundation,
Honey and Wax Extractors, Bee-smokers,
Bee-veils, Pouder Honey-jars, and,
in fact, Every Thing used by Bee-keepers.**

BEESWAX WANTED!

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight. Always be sure to attach name to package.

If you wish to secure finest grades of Honey with which to supply your neighbors, write for my market Quotations of the Indianapolis honey market, free.

Catalog Free

Walter S. Pouder
513-5 Massachusetts Av., Indianapolis, Ind.

At St. Louis

On a  Line

to all points in the South and
Middle West.

Send for our free illustrated catalog of

Root's Bee-supplies

We sell at factory prices, and are allowing a five per cent cash discount during November. Send us a trial order.

Beeswax Wanted.

Blanke & Hauk Supply Co.

DEPT. B,

202-204 Market St., St. Louis, Mo.

Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

9 per cent Discount During November!

In order to liven up business during the dull months we will give nine per cent off all supplies, in the catalog, whole-sale or retail, during November for goods for next year.

Jobbers for
Central : Pennsylvania
— for —
ROOT'S GOODS

Now's the time to save money on goods for next season. Send for catalog. Best shipping facilities in the State.

Frank W. Prothero
Dubois, : : : Pennsylvania

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company

H. G. ACKLIN, MANAGER

1024 Mississippi Street, St. Paul, Minn.

Dittmer's Foundation

is the best foundation for you to use because it is tough, transparent, will not sag, and has the odor of pure beeswax.

**Working Wax for
Cash a Specialty**

This is the cheapest way for you to secure your foundation

Beeswax Always Wanted!

Our warehouse is well filled with all kinds of bee-keepers' supplies. Five per cent discount during November.

Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trestler Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.

Established 1881

YES!

Same Place 1906

THIS IS THE MAN

WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year. ♣ ♣ ♣ ♣ ♣

Geo. E. Hilton, - Fremont, Mich.

SPECIAL BARGAINS

In dovetailed **HIVES**, plain and beeway **SECTIONS**, Hoffman **BROOD-FRAMES**, Section-holders, Separators, etc.

We are enlarging our **FACTORY**, and all of these goods have to be moved. If you want any thing in your apiary, you will do well by writing us at once, and we will make you **DELIVERED PRICES** that will surprise you. Our stock is all new and up-to-date. We do not keep poor or second-grade goods. Our sizes are standard. Quality and finish can not be surpassed by any one. We make any thing used in the apiary, and can save you money and delay at any time of the season. Give us a trial and be convinced. We aim to please our customers, and guarantee all our goods to give entire satisfaction or refund the money.

MINNESOTA BEE-KEEPERS SUPPLY COMPANY,
NICOLETT ISLAND NO. 20. John Doll & Son, Proprietors. **MINNEAPOLIS, MINN.**

BEE - SUPPLIES

Best of every thing needed.
Big Discount from now to
April 1st. Catalog free.

C. M. Scott & Co., Indianapolis, Ind.
1004 East Washington Street

PATENTS.

Twenty-five Years' Practice.

PRINDLE & WILLIAMSON,

Second Nat'l Bank Bldg., Washington, D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.

BINGHAM• Original
Direct Draft
CLEAN
Bee Smokers

Pat'd 1878, '82, '89, '92 & 1903

Long Advertising

Twenty-seven years ago the first patent bee-smoker surprised bee-keepers. The Bingham Smoker patented improvements are dated 1878, 1882, 1892, and 1903. They always please; they always sell. For October orders we discount 6 per cent; any number, any size, delivered any time.

T. F. Bingham - Farwell, Mich.

How to Keep Bees

By Anna Botsford Comstock

228 pages. 32 pages of illustrations.

A charmingly written manual describing clearly and in detail the outfit, first steps, and methods. The author's well-known literary ability has combined with her enthusiasm for a subject to produce a very unusual volume. It is a handbook for those who keep bees for happiness and honey, and incidentally for money. It serves as well as an introduction to the more extended manuals already in the field. "Finally with all due deference to the authors of the excellent books on bee culture which we have already, my opinion is that this new book, 'How to Keep Bees,' is the best one for a beginner, or one who does not wish or expect to keep more than a dozen colonies, that has yet come before the world."—*A. I. Root, in Gleanings, July 1, 1906.*

Chap. 1. "Why Keep Bees," urges honey, perhaps money, recreation, love of nature study, and the need of bees in "a perfect garden," as good reasons for keeping bees. The second chapter tells "how to begin" in a small way, and we may get all the necessary detailed information for management from later chapters, arranged in order of demand for information.

Price \$1.00. Postage 10 cents extra.

Money refunded to any dissatisfied purchaser.

The A. I. Root Co., Medina, O.

HONEY-JARS

No. 25, with burnished cap, heavy clear glass, per gross, \$5.00; 3 gross, \$13.50.
11-ounce nickel-cap jar, gross, \$4.00; 3 gross, \$11.00.
1-lb. square jar with cork, gross, \$5.00.
Heavy cartons, \$5.50 per M.
Italian queens, 75c. Catalog free.

I. J. Stringham

105 Park Place, N. Y. City
Apiaries at Glen Cove, L. I.

Swarthmore Books!

BABY NUCLEI (2d ed.)—The second edition of this popular treatise is off the press. This book thoroughly covers the field of small mating under management. The experience of twenty years in mating young queens in baby nuclei is given. A delightful little book—good printing, enjoyable reading, and easy understanding. Price 25 cts. postpaid.

SIMPLIFIED QUEEN-REARING.—A revised edition of this book just out. It tells the honey-producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just an effective and economical plan for the bee-keeper who works for profit. Price 25 cts. postpaid.

INCREASE.—Don't depend entirely upon swarming for your increase. It's too slow and uncertain. Swarthmore tells of a way in his delightful little book entitled "Increase"—a natural way, simple and safe, no labor, little trouble. Colonies formed on this plan will work like prime swarms, and store a surplus. Price 25 cts. a copy postpaid.

CELL-GETTING.—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life. Price, postpaid, 50 cts.

SWARTHMORE QUEEN-REARING TOOLS.—Complete outfits or separate parts. Write for price list.

FOR SALE BY

The A. I. Root Company

ALL BRANCHES AND AGENCIES

Northeastern and New England BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

ITALIAN QUEENS

bred from best of honey-gatherers, either three or five banded or Golden races. Untested, 65c each, 3 for \$2.00, 6 for \$3.75, 12 for 7.25; tested, \$1.00 each, 6 for \$5.00, 12 for \$9.00; select tested, \$1.50 each; breeders, \$300 each.

J. W. Taylor, Beeville, Bee Co., Texas

When a Thing Needs Doing

Now is the time to do it. How about those worthless queens? Will you tolerate them for another season, when the best of stock can be obtained so readily? Laws' bees and queens are bringing the best of reports. I could fill many pages of testimonials, but give you only one. Mr. T. P. Robinson, of Bartlett Texas, says:

"Dear Sir.—The car of bees shipped June 20th are now all safely landed, and I have overhauled the entire lot. The bees are from 25 to 40 per cent better than contract, and you ought to hear my wife's exclamations of delight at seeing those fine yellow bees so quietly nestle between the combs at the very approach of smoke. I can certainly recommend you. . ."

Leather and Golden Italians, Holy Lands, and Carniolans—single queen, \$1.00; six for \$5.00. Quantity lots, prices on application.

I also manufacture the Hoffman frames, both new and old style, at \$16.00 per M; single-story eight frame hive complete, 75c; 1½-story for extractor, \$1.00. Price list on application.

W. H. Laws, Beeville, Bee Co., Tex.

Yellow from Tip to Tip!!!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce Golden queens and beautiful bees; non-swarmlers, very gentle, and hustlers for honey. Single queen, \$1.00; three queens, \$2.50; six, \$4.50, or \$8.00 per dozen. Large select breeding queen, \$2.00 each. Every thing guaranteed.

H. ALLEY, - - Wenham, Mass.

MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, 75c; six, \$4.00; twelve, \$7.50. Tested, \$1.25; six, \$6.00. Twelve, \$11.00. Best breeders, \$2.50. Safe arrival guaranteed.

W. H. Rails, - - Orange, Calif.

Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest one-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy-Lands, Italians.

The JENNIE ATCHLEY CO.,

Box 18, Beeville, Bee Co., Tex

MOORE'S - STRAIN - OF - ITALIANS

as Red-clover Workers.

Wm. S. Slocum, Newport, R. I., writes: "My friend, W. O. Sweet, West Mansfield, Mass., asked me about two years ago where he could get good queens, and I referred him to you. To-day he called on me and said he noticed the colonies with your queens were storing much faster than others. He went immediately to his red-clover field, and saw bees working there freely."

Untested queens, 75c each; six, \$4.00; dozen, \$7.50.

Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00.

Safe arrival and satisfaction guaranteed. Descriptive circular free.

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Ky.

Boston Headquarters

—FOR—

Bees-Queens-Supplies

H. H. Jepson, - 182 Friend St.

A. H. REEVES & CO.

DISTRIBUTORS OF

"ROOT'S QUALITY" BEE-SUPPLIES

Cash paid for beeswax. Send for catalog and price list.

17 Morrison Street, Watertown, New York
Phone 1296

Big Reduction in Supplies!

Until May 1

Big stock of Dovetailed hives and Marshfield sections to draw from. FREE—a year's subscription with order amounting to \$15.00 or over. Send for 32-page illustrated catalog free.

W. D. Soper, Jackson, Mich.
Rural Route 3

Queens from 50 Cents Up!

Bred from Root's Imported Italians.

Write for prices, stating wants. . .

C. M. Church, Arnold, Pa.

Fire Sale Bee and Poultry Supplies

Come or send, and save 25 to 50 per cent on slightly damaged goods. *NEW LEWIS GOODS at factory prices by return freight. Golden Italian or Red-clover queens by return mail. Untested, 75c; select untested, \$1.00; tested, \$1.25; select tested, \$2.25. Full colonies in up-to-date hives, and nuclei.

Six per cent Discount for October Orders

H. M. Arnd, Propr. York Honey & Bee Supply Co. (Not Inc.)

Long Distance Telephone, North 1559.

191 and 193 Superior St., Chicago, Ills

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Wanted, Situations.

WANTED.—Situation by a young man of very best habits; will either take full charge of an apiary or work as helper; understands the business in all its branches. Employed the last two years by The A. I. Root Co. Speaks three languages.

A. L. HEMPELINGER, Sta. A, Box 3, Cleveland, O.

Help Wanted.

WANTED.—Young man to help on farm of 26 acres. O. D. BELDING, Claremont, Va.

WANTED.—Auctioneer to sell stock of bee supplies at San Antonio, Texas, during coming national convention. W. H. PUTNAM, River Falls, Wis.

WANTED.—To correspond with young man who wishes to work with bees next season. Steady work the year round to the right party.

CHAS. ADAMS, R. F. D. No. 4, Greeley, Colo.

WANTED.—Manager for small fruit and poultry farm of 20 acres. Must understand fruit, poultry, underdraining, etc. State salary expected, age, experience, references, etc.

Box A, GLEANINGS.

WANTED.—A man who wants a permanent position to do all kinds of work on a small farm to help with bees and an extensive honey business. Write wages wanted, and particulars.

H. C. AHLERS, Tel. 829, ring 4. R. F. D. 1, West Bend, Wis.

WANTED.—Boy, 16 to 18 years of age, to work with bees, and in garden, fruit, etc. Must be willing to learn, and of good habits. No user of profanity or tobacco need apply.

S. MAZELLA GALLUP, Mt. Lebanon, N. Y.

WANTED.—Young or middle-aged man, married or single; married with small family preferred, to work in fruit and vegetable gardens, and help with work in small apiary. Honest, industrious, and energetic man will receive good wages and chance to advance himself.

I. L. POWELL, Millbrook, N. Y.

For Sale.

FOR SALE.—Two good improved Iowa farms, each one a rare bargain. D. E. LHOMMEDIEU, Colo, Iowa.

FOR SALE.—4000 ferrets; some trained. Prices and book mailed free. N. A. KNAPP, Rochester, Ohio.

FOR SALE.—Telephones. First-class, slightly used Standard phones, less than half price.

G. A. WATT, Bellevue, Ohio.

FOR SALE.—Smith Premier, Hammond, and Oliver typewriters. Prices from \$25 up. Will exchange for wax or honey. THE A. I. ROOT CO., Medina, O.

FOR SALE.—Twenty acres of choice corn, potato, and strawberry land; fair buildings; forty colonies of bees in good location.

F. MATTHEWS, Route 6, Ithaca, Mich.

FOR SALE.—Forty-acre ranch, fenced but unimproved except small frame house; fine spring near house; good soil, no alkali, fine alfalfa and fruit land. Also for sale, 100 or more colonies bees. Location very good for alfalfa and sweet-clover honey. Good reason for selling.

R. S. BECKETT, Grand Valley, Garfield Co., Colo.

FOR SALE.—Fine O. I. C. pigs; the famous L. B. Silver strain; pedigree free.

WM. H. BRUBAKER, Briggs, Clarke Co., Va.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to

FRANK S. STEPHENS,

(Root's Goods.) Paden City, W. Va.

FOR SALE.—Ten new Root Dovetailed hives, eight-frame, 1½-story, for extracted honey, with one-inch starters, nailed and painted. Price \$20.00.

W. F. MORGAN, Gatesville, Texas.

FOR SALE.—Seeds of honey-plants—seven-head turnips, motherwort, catnip at 5c a package, postpaid; still a few sections at reduced price; 24-lb. shipping-cases, complete, 14c.

H. S. DUBY, St. Anne, Ills.

FOR SALE.—Till Jan. 1, best Wisconsin sections per 1000, \$4.00; No. 2, \$3.40; plain, 25c less. Seven per cent discount for October, 6% for November, on Root and Danz. hives and other Root goods.

H. S. DUBY, St. Anne, Ill.

FOR SALE.—Will sell my valuable ten acres of fruit and truck farm for one-half what it is really worth. One mile to center of good town of 7000; best market known for fruit, truck, and honey. Write for price and description. Great bargain here.

J. B. DOUGLAS, Mena, Arkansas.

FOR SALE.—A Florida home is offered cheap, owing to old age and infirmities. Six acres of land, all cleared, and fronting on a fine lake. A good two-story house on cement foundations; a few bearing orange-trees and grape-fruit, guavas, and grapes in great abundance. A good chance for a bee-man. Twelve stands of bees in frame hives, on cement and iron. An excellent honey-extractor; ¼ mile to church and school; ½ mile to store and postoffice. Call on or write to me.

J. A. BARBER, Chuluota, Orange Co., Fla.

FOR SALE.—I will sell for fifty dollars cash the following-named property, situated three miles north of Canton, Barron Co., Wis. Buyer does the hauling. 260 hive-bodies; 172 supers for 4¼x4¼ plain sections; 190 covers, 164 bottoms; 100 excluders (all zinc); 1800 empty frames (no comb); 3000 sections, 4¼x4¼; 1300 separators and fences; 100 shipping-cases (32 sections), new; 60 nuclei-boxes (2-fr.); 60 entrance-guards; 250 dummies; 1 tank, tin; wood jacket; capacity, 2500 lbs.; 1 two-frame Cowan extractor (foot-brake); 10 bee-escapes (cone); 15 Doolittle feeders; 60 entrance-feeders; 2 uncapping-knives; coil wire, sheet zinc, gauges, veneer, crates, smokers, strainers. Every thing adapted to eight-frame standard Langstroth hives. Don't write unless you mean business. This advertisement appears only once.

ARNT ARNESON, Rice Lake, Barron Co., Wis. Rt. 5.

Bees and Queens.

FOR SALE.—Apiaries or colonies to suit in new State of Oklahoma; range and market unsurpassed. Address

J. T. HAIRSTON, Salina, I. T.

FOR SALE.—Eighteen colonies in modern hives and fixtures very cheap.

W. A. LAWRENCE, Rt. 3, Wayland, N. Y.

FOR SALE.—400 colonies pure Italian bees in lots to suit. Write for prices.

F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—200 colonies of Italian bees in Baldwin 2-story hives for comb honey. Bees are in fine condition, plenty of stores, etc.

R. L. TUCKER, Lock Box 60, Independence, Mo.

FOR SALE.—75 colonies in good shape for winter. A bargain. Also spare combs and supers, hives, extractors, etc. Must sell this fall. Write for list and details.

W. R. ANSELL, 274 Midway Ave., St. Paul, Minn.

FOR SALE.—450 colonies Italian bees free from disease, in 8 and 10-fr. dovetailed hives heavy with honey. Super with each hive all painted two coats. \$2.75 per hive, on Sacramento River.

ALBERT LANE, Vorden, Sac. Co., Cal.

FOR SALE.—Twenty-five colonies of bees, all good strong swarms in new hives, with straight combs; will sell cheap. **JOS. BALDWIN**, Sandy Creek, N. Y.

FOR SALE.—I am old and tired of caring for 180 hives of bees, and want to dispose of them to some good financial bee-keeper. Address
C. A. GREENFIELD, Rt. 1, Caro, Tuscola Co., Mich.

FOR SALE.—40 colonies of bees in Danz. and L. hives, and some empty hives and supers, in Hamilton Co., Ind., a bargain if taken at once.
JOHN E. HUGHES, Foreston, Minn. Rt. 1.

FOR SALE.—200 colonies of bees, with fixtures; ten-frame extracting hives, Hoffman frames, \$3.50 per colony. Address
H. G. NUTTER,
1506 Arapahoe St., Los Angeles, Cal.

FOR SALE.—Brightest Golden in the world—priceless breeders; Italian, Caucasian, Banat, Carniolan, Cyprian—pure imported mothers. Swarthmore outfits and books. Circular free.
E. L. PRATT, Swarthmore, Pa.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell, shall want a good man to run them next season. **W. N. CANNON**, Greenville, Ala.

FOR SALE.—Two apiaries—one of 100 stands of bees close to Pomona, Cal., and the other containing 150 stands near Etiwanda, Cal. Will sell both or either one. For particulars address, enclosing stamp,
M. R. KUEHNE, 173 White Ave., Pomona, Cal.

FOR SALE.—An out-apiary of about fifty colonies of Italian bees in large non-swarming hives cheap. I never saw bees swarming from these hives in the last twenty years, not even in the production of comb honey.
G. H. ADAMS,
Mill St., Bellevue Sta., Schenectady, N. Y.

Poultry Offers.

FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free.
A. H. DUFF, Larned, Kan.

FOR SALE.—Rose Comb R. I. Red, Buff Wyandotte, and Plymouth Rock cockerels; few Barred Rock and Buff Wyandotte pullets; about a dozen untested Root R. C. queens at 50c. **A. H. KANAGY**, Milroy, Pa.

FOR SALE.—Twenty-five White Rock cockerels, good strain and May hatch, at \$1.00 apiece.
S. A. PALMER, Liberty Center, Henry Co., O.

Blacks and Hybrids.

FOR SALE.—A few hybrids at 15 cts.; mismated at 25 cts., and pure at 40 cts.
C. G. FENN, Washington, Conn.

Wants and Exchange.

WANTED.—A Barnes second-hand foot-power saw.
J. R. MINTLE, Glenwood, Ia.

WANTED.—Early American and foreign books on bee-keeping.
A. L. BOYDEN, Medina, Ohio.

WANTED.—A few copies of the *Bee-keepers' Review* for June, 1904. If you have a perfect copy we will send GLEANINGS three months in exchange. Write us before sending.
THE A. I. ROOT CO., Medina, O.

WANTED.—Bee supplies in exchange for 300 colonies bees. Ad. elsewhere. Manufacturers write if interested.
LEO F. HANEGAN, Glenwood, Wis.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange a ten-inch foundation-mill for a 12 or 14 inch mill, wax, cash, or supplies.
P. W. STAHLMAN, West Berne, N. Y.

WANTED.—To exchange carload of apples for carload of ear corn; 70-lb. bushel of ears for one bushel of apples, apples to be shipped in November, corn in December. **J. P. WATTS**, Kermoor, Clearfield Co., Pa.

WANTED.—Australasian readers to know that Root's publications, Root's strain of Italian bees, and Root's world-famed goods are all obtainable from
H. L. JONES, Goodna, Queensland, Australia.

WANTED.—To exchange small stock of Swarthmore queen-rearing goods, mating-boxes, etc., for bees, queens, honey, wax, hive-fixtures in flat, or anything I can use; to close present limited stock only.
E. L. PRATT, Swarthmore, Pa.

WANTED.—To exchange a 6x9 Victor improved hand-lever self-sinking printing-press, almost new; type, etc., three-fourths value, for extracted honey, books, tools, etc., or offers.
W. H. GARDNER, Roxabell, Ohio. **R. R.**

Honey and Wax Wanted.

WANTED.—Choice white comb and extracted honey; clover preferred.
B. WALKER, Clyde, Ills.

WANTED.—Comb and ext'd honey. State kind and lowest price. **CHAS. KOEPPEN**, Fredericksburg, Va.

WANTED.—Comb and ext'd honey. Good price paid.
THE BARTLETT HONEY CO., West Milford, W. Va.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.
GRIGGS BROS., Toledo, O.

WANTED.—20,000 pounds pure clover honey. Send average sample and state best price.
J. E. CRANE & SON, Middlebury, Vt.

WANTED.—To buy for cash, fancy comb and extracted honey.
ROBT. A. HOLEKAMP,
4263 Virginia Ave., St. Louis, Mo.

WANTED.—Comb and extracted honey. Must guarantee pure and of best quality. State price and how put up. Cash paid.
C. M. CHURCH, Arnold, Pa.

WANTED.—No. 1 and fancy white comb honey (unglassed), Danz. sections preferred.
THE A. I. ROOT CO., Medina, Ohio.

WANTED.—Beeswax. We will pay 30 cts. per pound for fancy pure yellow beeswax delivered in New York until further notice.
CHAS. ISRAEL & BROS.,
486 Canal St., New York City.

WANTED.—Immediately, honey in large and small lots for spot cash. Only dealer in Utah selling Root's goods at factory prices. Write us.
SUPERIOR HONEY CO., Ogden, Utah.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
285-287 Greenwich St., New York.

WANTED.—Honey, steadily from September 1 to April 1. Prices given on application. Suggestions and advice about packing and shipping honey cheerfully given from long experience, close study, and observation.
H. R. WRIGHT, Albany, N. Y.

Honey and Wax For Sale.

FOR SALE.—Buckwheat honey, extracted, in 160-lb. kegs, at 6c. **IRA WILSON, Ovid, N. Y.**

FOR SALE.—Buckwheat honey in 60-lb. cans, at 6c per lb. **C. J. BALDRIDGE, Homestead Farm, Kendaia, Seneca Co., N. Y.**

FOR SALE.—Five tons of comb and extracted honey in lots to suit purchaser. **QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.**

FOR SALE.—350,000 pounds California water-white extracted honey by the case or car. **H. J. MERCER, 731 E. Third St., Los Angeles, Cal.**

FOR SALE.—2000 lbs. fancy white and amber comb honey in 24-lb. cases. Prices: White, per lb., 15c; amber, 14c; f. o. b. here. **W. I. HARBOUGH, Kernstown, Va.**

FOR SALE.—Well-ripened fancy extracted clover and basswood honey in 60-lb. tin cans, two in a case, at \$10.00 a case, f. o. b. here. Sample on request. **ERNEST W. FOX, Hillsboro, Wis.**

FOR SALE.—10,000 lbs. of clover and buckwheat honey at 8c per lb. for clover and 7c for buckwheat, in 60-lb. cans. **G. H. ADAMS, Mill St., Bellevue Sta., Schenectady, N. Y.**

FOR SALE.—Light extracted honey, good quality; two 60-lb. cans, 8½c per lb., barrel at 7½c; amber, 60-lb. cans at 7½c, barrel at 6c; sample, 10c. We pay 29c for beeswax. **I. J. STRINGHAM, 105 Park Pl., N. Y.**

FOR SALE.—Choice ripe clover and basswood honey, two 60-lb. cans, per case, 8½c, f. o. b. here, cash with order. Also 40-acre farm N. W. Missouri. **ELIAS FOX, Hillsboro, Wis.**

FOR SALE.—Several hundred cases of 60-pound cans (two in a case); fine bright ones, good as new. Ten cases, \$4.00; 100 cases, \$35.00. **J. A. BUCHANAN & SONS, Holliday's Cove, W. Va.**

FOR SALE.—Carload of comb honey. For prices and particulars address **FRANK H. DREXEL, Crawford, Delta Co., Colo.**

FOR SALE.—800 lbs. ext'd clover and basswood honey in 60-lb. cans (2 in a case) at \$10.00 a case, f. o. b. here. Sample, 5 cts. **R. H. BAILEY, Ausable Forks, N. Y.**

FOR SALE.—3000 lbs. of white-clover and locust honey, in 20-lb. no-drip cases. Fancy, 15c; No. 1, 13c.; f. o. b. Nice article. **H. W. BASS, Front Royal, Va.**

FOR SALE.—Buckwheat extracted honey; 6000 lbs.; not extracted until the combs were all sealed—ripe, rich, and thick; 60-lb. tin cans, two in a case, at 6 cts. a pound. Sample sent upon request. **W. Z. HUTCHINSON, Flint, Mich.**

Bee-keepers' Directory.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. **Geo. H. REA, Reynoldsville, Pa. R. 2.**

ROOT'S SUPPLIES at factory prices; wholesale and retail. **ANTON G. ANDERSON, Holden, Mo.**

ITALIAN BEES, queens, and bee supplies. **H. H. JEPSON, 182 Friend St., Boston, Mass.**

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. **M. E. TRIBBLE, Marshall, Mo.**

FOR SALE.—Bee-keepers' Supplies. Write for catalog. **Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.**

ITALIAN BEES and queens—red clover and golden strains. **E. E. MOTT, Glenwood, Cass Co., Mich.**

ITALIAN BEES, queens, honey, and bee-keepers' supplies. **A. T. DOCKHAM, Box 95, Rt. 1, Eagle Bend, Minn.**



A YEAR'S WORK IN THE APIARY.

As will be noticed, we have concluded the special series of articles by G. M. Doolittle, entitled "A Year's Work in the Apiary." In this series he described a system for controlling swarming and increasing the honey crop. We desire to know of our readers whether they would like to get this in book form. If we get enough responses we will try to make some arrangement with the author for its publication in the form of a text-book for ready reference.

BEE-SUPPLIES IN BOSTON.

New England bee-keepers will be interested in the announcement that a full line of bee-supplies can be obtained in Boston, which is the best shipping point east of New York. The former dealer, Mr. Farmer, at 182 Friend Street, built up a very large business; and his successor, Mr. H. H. Jepson, whose adv't appears on page 1396, at the same location, is prepared to care for your interests in every way. We suggest you write Mr. Jepson for his catalog, and if in the city you should call at his store and examine his line of goods.

AWARDS IN PHOTO CONTEST ENDING NOV. 1, 1906.

CLASS A.

T. F. Robbins, Scarborough, N. Y., first prize, \$5.00
R. E. Lee Harkness, Irena, Ont., second prize, \$3.00
Frank Wanstall, Whiteplains, N. Y., third prize, \$2.00
C. A. Phillips, Rushville, Ill., fourth prize, A B C of Bee Culture.

CLASS B.

E. Fleming, Victoria, B. C., first prize, \$3.00
Mrs. F. G. Odell, Lincoln, Neb., second prize, \$2.00
W. W. Case, Frenchtown, N. J., third prize, A B C of Bee Culture.
Bro. Emil, Cincinnati, Ohio, fourth prize, GLEANINGS one year.

CLASS C.

G. H. Kirkpatrick, Rapid City, Mich., first prize, \$3.00
Chas. G. Macklin, Morrison, Ill., second prize, \$2.00
B. S. K. Bennett, Los Angeles, Cal., third prize, A B C of Bee Culture.

65c for 25 NAMES—for names and P. O. of 25 farmers and 15c (stamps taken) we will send for 2 years the Farmer's Call—regular subscription price, 40c a year. F. C. is a weekly, 25 years old; 1300 pages a year; sample free. **Farmer's Call, Quincy, Ill.**

HEAVIEST FENCE MADE
15c to 35c Per Rod
No. 9 Steel Wire. Weighs ½ more than most fences. A fence that will not rust.
BROWN FENCE
Send for Fence Book showing 133 styles. Brown Fence & Wire Co., Cleveland, O.
WE PAY FREIGHT

450,000 TREES
200 varieties. Also Grapes, Small Fruits etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. **LEWIS ROESCH, Fredonia, N. Y.**

COILED SPRING FENCE

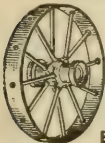


Closely Woven. Can not Sag. Every wire and every twist is a brace to all other wires and twists full height of the fence. Horse-high, Bull-strong, Pig-tight. Every rod guaranteed.

30 DAYS FREE TRIAL and sold direct to farmer. Freight prepaid, at lowest factory price. Our Catalogue tells how Wire is made--how it is galvanized--why some is good and some is bad. Its brimful of fence facts. You should have this information. Write for it today. Its Free.

KITSELMAN BROS.,
Box 21 MUNCIE, INDIANA

FARMERS HANDY WAGON



Low steel wheels, wide tires, make loading and handling easier. We furnish steel wheels to fit any axle, to carry any load. Straight or staggered spokes. Catalogue free.

EMPIRE MFG. CO., Box 91 Quincy, Ill.



Hatch Chickens by Steam with the EXCELSIOR INCUBATOR Or WOODEN HEN

Send for free Catalogue.

Simple, perfect, self-regulating. Hatch every fertile egg. Lowest priced first-class hatcher made.

GEO. H. STAHL, Quincy, Ill.

\$5 NO MONEY IN ADVANCE

The "Dandy" is the easiest operated, best built, fastest cutting green bone cutter made. Sold on 15 days free trial with a broad guarantee. If it suits keep it, if not, send it back. Free catalog.

Sutton Mfg. Co. Box 54, Erie, Pa.





THE HUMPHREY

GREEN BONE and VEGETABLE CUTTER

will save half your feed bills and double egg yield. Guarantee to cut more bone, in less time, with less labor, than any other. Send for Special Trial Offer and handsome catalogue.

HUMPHREY,
Mine St. Factory, Joliet, Ills.



HOW TO MAKE POULTRY PAY

is the greatest book published on Poultry and is attracting attention. It contains 116 pages also 9 beautiful color plate reproductions from oil paintings. 500 black and white illustrations representing over 90 different breeds.

You can get it FREE.

Address **INLAND POULTRY JOURNAL,**
15 Lord Bldg, Ind. anapolis, Ind

You Need It. : : : :

If you have only a few chickens;
If you are at all interested in poultry;
If you are breeding for fancy points;
If you cater to the market trade;
If you are in the business on large scale, you need

Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. **AT HALF PRICE** for a short time to introduce it to readers of Gleanings. Send 25 cts. and get it a year; or if you send us \$1 for a year's subscription to Gleanings in Bee Culture we will send you Ohio Poultry Journal for a year free. Address **Ohio Poultry Journal Dept. 14, Dayton, Ohio.**

\$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size 8x 11 1/4 inches) of valuable poultry, pigeon, and pet-stock reading, costing us thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

Poultry Item. Sellersville, Bucks Co., Pennsylvania

DO YOU RAISE CHICKENS?

If so, you will find the Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cents a year. If you have poultry to sell. The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

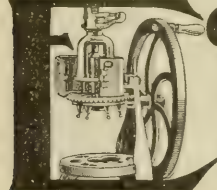


25c Book Free

Conkey's book on poultry diseases contains just the information you need to keep your flock strong and healthy--and that means to **Get Paying Results.** The regular price of this valuable book is 25c, but we are offering it free for a limited time to those who will send 4 cents for postage and give us the names and addresses of two other poultry raisers. Write for it today.

THE G. E. COKEY CO., 315 Ottawa Bldg., Cleveland, Ohio.

Egg Profits for You



Insured by feeding green bone fresh cut. Rich in protein and all other egg elements. Doubles the egg yield, increases fertility, makes more vigorous chicks, earlier broilers, reduces grain bill and makes heavier fowls. Make these profits yours by using

MANN'S Latest BONE CUTTER On Ten Days Free Trial.

Makes bone cutting simple, easy and rapid. No money in advance. Cuts all bone and adhering gristle. Wastes nothing. Cat's free.

F. W. MANN CO., Box 37, MILFORD, MASS.

A New Factory

and also a new firm name,
but in the same place with
the same management. We
have just put in a complete

Weed Process Comb Foundation Factory

of the very latest type, and
we are now ready to work
up wax for western bee-
keepers at low prices.

We want several thousand
pounds of beeswax at once,
and will pay top market
price for same. Let us hear
from any one having wax
to offer.

Buck & Wilson, Augusta, Kan.

Butler County

Y
O
U

C
A
N

M
A
K
E

I
T

P
A
Y

By sending for our
forty-page catalog.
It gives full partic-
ulars about scores
of different hive-
combinations and
other supplies that
we always keep in
stock. We have

handled
ROOT'S GOODS
for twenty years.
They are the best.
Don't fail to write
us about your
wants for next
season's use.

**John Nebel & Son
Supply : Company**

High Hill, Missouri
Montgomery : County

MR. TEXAS BEE-KEEPER

I would like to talk to you *personally*.

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's *better* in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you supplies with the utmost promptness.

Then, too, I have installed a complete Weed-Process Foundation factory. I can turn out 500-lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when at San Antonio. You are *always* welcome. I have fitted up my office with plenty of desks and chairs, with writing material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red-clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein - San Antonio, Texas

1322 South Flores Street

Gloves for Handling Bees

Something New. Something You Want.

Our specially prepared Gloves soften the hands, and prevent and cure chapped hands. The fabric contains a preparation which prevents the gloves from becoming hard and stiff. We furnish them without armlets or sleeves for using in sweeping, gardening, or general housework, driving, or outdoor work. They are just the thing for driving in the rain, as they are absolutely waterproof. If worn at night they keep the hands soft and white. All their points of excellence can not be here enumerated, but they never fail to give the greatest satisfaction. To introduce them, we will send by mail or with other goods at the following low prices:

Bee-gloves—long arms, fleece-lined in two sizes—large for men, small for ladies.....35 cents

Men's gauntlets, fleece lined 35 cents Ladies' gauntlets, fleece lined.....35 cents

Ladies' unlined for wearing at night or doing light housework.....40 cents

Early-order discounts on bee-supplies (excepting above and a few other articles) as follows:

5% for cash with order before December 1st

4% for cash with order before January 1st

3% for cash with order before February 1st

If you haven't our 1906 catalog send for one and a free copy of The American Bee-keeper (50c a year).

The W. T. Falconer Manufacturing Co., Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 124 West Liberty St., Savannah, Ga.

Dadant's

Foundation

It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!
No Sagging; no Loss.
Twenty-eighth Year.
We Guarantee Satisfaction.
Wax Worked into Foundation.

Bee-supplies of All Kinds

Beeswax Wanted at all Times.
Send for Our 1906 Catalog.

Dadant & Sons, Hamilton, Ills.

Root Goods

for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

Jos. Nysewander, Des Moines, Iowa
565, 567 West Seventh Street

GLEANNINGS IN BEE CULTURE

VOL. 34

NOV. 15, 1906

NO. 22.



A Bee-Keeper and his Automobile

THE A.I. ROOT CO.,
MEDINA — OHIO

BEE-KEEPERS

We carry the largest stock of goods in the Middle West. The low freight rates from

Toledo

will save you money. We will buy your HONEY and beeswax, and pay highest market price. It will pay you to correspond with us when your crop is ready to market. No shipment is too large for us. Carloads a specialty.

Queens! Queens!

We have a yard at Toledo with 100 colonies and over, which we use for queen-rearing only; besides several out-yards which we run for honey, also for extra bees and brood, and queens are mailed same day order is received.

Our 70-page Catalog

is sent free to any one asking for it. No matter whether you keep one colony or five hundred. We also handle a large line of poultry supplies, and sell eggs for hatching. Our 1906 mailing list is sent with every catalog. Don't buy until you have seen it.

Griggs Brothers

523 Monroe St. : Toledo, Ohio

BIENENZÜCHTER

von Deutschland, Schweiz, Osterreich,
u. s. w., schreiben Sie uns um unsere
1906 Preisliste für

Bienenwohnungen,
Walzwerke,
Honigschleüder,
Rauchapparat,
Bienenschleier,
Handschuhe,
Futterkasten,
Bienenflucht "PORTER,"
Fluglochschieber für Kasten,
Koniginnenabsperrgitter,
Weiselhäuschen,
Schwarmfangbeittel,
Entdeckungsmesser,
Dampfwachsschmelzer,
Wabenentdeckungsapparat, und
alle anderen Artikel von.

The A. I. ROOT Company,

Der grösste Fabrik der Welt.

EMILE BONDONNEAU.

General Vertreter für Europa und Kolonien.

142 Faubourg Saint Denis. Paris, 10me.

CENTRAL AND NORTHERN PENNSYLVANIA

Distributor of Root's Goods from the
Best Shipping - point in this State.
WHOLESALE - AND - RETAIL

I sell at catalog prices, and, with the low low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also rear Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

E. E. PRESSLER, WILLIAMSPORT, PENN.

Headquarters for

Bee - Supplies.

"Root's Goods at Root's Factory Prices."

If you want to purchase bee-supplies, THE BEST MADE, order from Cincinnati, as you will save the freight charges and time it takes for goods to be shipped from Medina to Cincinnati. Cincinnati is one of the best shipping-points, particularly for the South. I keep all the time a large stock on hand and can ship promptly on receipt of order.

A Special Discount  
   **on Early Orders**

Will buy or sell **HONEY** extracted or comb

If you have honey to sell describe quality or mail sample with lowest price delivered Cincinnati. If in need, state quality and quantity wanted and we will cheerfully quote you prices.

Beeswax Wanted!

We all the time pay highest market price on delivery of goods.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
 Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Markets.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain, or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW YORK.—There is a good demand, principally for fancy stock of both white and buckwheat honey. Mixed and off grades are more or less neglected. Receipts have been quite heavy of late, but there is no overstock whatsoever, as the demand has been good right along. We quote fancy white at 15; No. 1 at 13, 14; No. 2 at 12; buckwheat and mixed, at 10 to 11 cts. Extracted, demand good, especially for fancy grades. Prices are ruling higher. We quote California white sage at 7½ to 8; light amber, 7 to 7½; amber at 6½ to 7c per lb.; Southern in barrels at 55 to 65 cts. per gallon, according to quality. There is not much demand for extracted buckwheat, and we do not expect any for some time to come. There seems to be a large crop of this grade, judging from the offerings made. The nominal price at present is from 6 to 6½. Beeswax, 29 to 30.

Nov. 9.

HILDBRETH & SEGELKEN,
265-267 Greenwich St., New York.

PHILADELPHIA.—While the supply of comb honey is equal to the demand, large quantities of comb honey having arrived in the market in the last few days, the price still remains high. The outlook, however, is that, when the season advances, and the beekeepers ship more of their crop to the market, the prices will be a little weaker. We quote: fancy white comb honey, 16 to 18c; No. 1, 14 to 15; amber, 11 to 13; fancy white extracted, 7½ to 8½; light amber, 6½ to 7c. We are producers of honey, and do not handle on commission.

Nov. 8.

W. A. SELSER,
10 Vine St., Philadelphia, Pa.

INDIANAPOLIS.—Fancy and A No. 1 white comb sells for 16 to 17, and demand is good; fancy amber, 11 to 12, with slow demand; No. 1 white, 13 to 14, demand not good. Best grades of extracted honey in 60-lb. cans bring 8 to 9, and demand is good, but higher prices will retard the market; amber extracted bringing 6½. Good average beeswax sells here at \$33.00 per 100 lbs.

Nov. 7.

WALTER S. POWDER,
513 Mass. Ave., Indianapolis, Ind.

MILWAUKEE.—This market is in good condition as touching the best qualities of honey, either comb or extracted. Values are steadily firm at quotations. The supply is only moderate, and receipts meet quite ready sale when in good order and quality pleasing to the eye as well as the taste. We feel justified in advising shippers to send forward their good honey, and feel sure the next 60 days will show satisfactory results. We continue to quote honey in cases, 1-lb. sections, fancy, 16 to 17; 1-lb. sections, mixed, 15 to 16; extracted in barrels, cases, and pails, white, 8 to 8½; ditto dark, 7 to 8. Beeswax, 28 to 30.

Nov. 12.

A. V. BISHOP & Co.,
119 Buffalo St., Milwaukee, Wis.

ST. LOUIS.—We wish to state that the receipts of comb honey, also extracted, are very small and inadequate to the demand. We quote: Fancy white comb honey, 15 to 16; No. 1, 13 to 14; light amber, 13 to 13½. Broken and inferior, less. Extracted, light amber, California, firm at 7 to 7½. Spanish needle, 7½ to 8. In 5-gallon cans; Southern, in barrels, in good demand at 5½ to 6. The market is bare of the latter description. Beeswax, prime, at 29 to 29½. All impure and inferior, less.

Nov. 9.

R. HARTMAN & Co.,
14 So. Second St., St. Louis, Mo.

CINCINNATI.—The honey market is rather quiet at this date, owing to the market being flooded with comb honey which sells slowly at from 14 to 16 cts. Extracted amber honey sells at 5½ to 6½; white and fancy white grades find sale at from 7½ to 8½. There is not so much moving, as one might be led to believe. Beeswax is dragging; however, we continue to pay 29 to 30 cts. for a choice bright yellow article.

Nov. 3.

THE FRED. W. MUTH CO.,
51 Walnut St., Cincinnati, Ohio.

ST. PAUL.—Fancy No. 1 white-clover honey, per lb., 15 to 16; No. 2 white-clover honey, per lb., 13 to 14. These prices represent those obtained by jobbers on this market in round lots. Reports from country indicate that the bulk of this year's output has been marketed, and that No. 1 white clover will be scarce.

Nov. 8.

W. H. PATTON,
Sec. Bd. of Trade, St. Paul, Minn.

KANSAS CITY.—The demand for both comb and extracted honey is good, receipts light. We quote fancy white comb, 24 sections, at \$3.25; No. 1 white comb, 24 sections, at \$3.00; No. 1 white and amber, 24 at \$2.75; extracted white, per lb., 7; extracted amber, per lb., 6 to 6½. Beeswax, 25.

Nov. 8.

C. C. CLEMONS & Co.,
Kansas City, Mo.

ATLANTA.—We are about cleaned up on honey, with very little demand for either comb or extracted. We quote as per previous issue.

Nov. 8.

JUDSON HEARD & Co.,
Atlanta, Ga.

Honey and Wax Wanted and For Sale. See Classified Ads. on pages 1465-'66.

BEESWAX WANTED

We are paying 29c. per lb. cash delivered here, for
CHOICE YELLOW BEESWAX

Send us your shipment now.

MONEY BACK THE DAY SHIPMENT ARRIVES.

THE FRED W. MUTH CO.

51 WALNUT ST.,

CINCINNATI, OHIO.

SCHENECTADY.—Stock continues to move off briskly, and, in fact, No. 1 buckwheat is rather scarce. We quote fancy white clover, 15 to 16; No. 1, 14 to 15; mixed grades, 12 to 13; buckwheat, 11 to 12½; extracted, light, 6½ to 7½; dark, 5½ to 6, in 160-lb. kegs.

C. MACCULLOCH,
Schenectady, N. Y.

Nov. 10.

CHICAGO.—The market is taking honey, both comb and extracted, in a very satisfactory way. The price of No. 1 to fancy comb is 15 to 16; off grades, 1 to 2 cts. per lb. less. White extracted, 7½ to 8; amber, 7; dark, 6 to 6½. All of this is governed by quality, condition, and package. Beeswax, 30.

R. A. BURNETT & CO.,
199 So. Water St., Chicago, Ill.

Nov. 7.

ZANESVILLE.—There is a fair supply of and demand for fancy white comb, which brings \$3.75 to \$4.00 per case of 24 sections. No other grades are offered. There is some call for extracted in glass packages for the fancy grocery trade, and demand will increase as weather grows colder. Beeswax, 27 to 30.

E. W. PIERCE,
Zanesville, Ohio.

Nov. 8.

Chas. Israel & Brothers

486-490 Canal St., New York

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments Solicited. Established 1875.

FOR SALE.—Extracted honey, strictly pure, buckwheat, 6½c; clover mixed, 7c in 60-lb. cans and 150-lb. kegs. This State production; best flavor.

H. R. WRIGHT,
Wholesale Commission, Albany, N. Y.

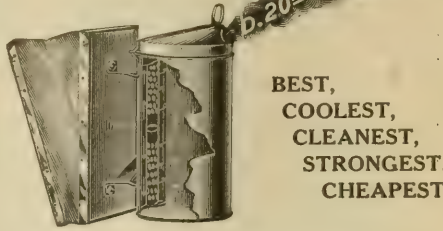
The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

A GOLD MEDAL

at the World's Fair.

St. Louis, 1904.



**BEST,
COOLEST,
CLEANEST,
STRONGEST.
CHEAPEST.**

Largest Smoker Sold for a Dollar.

We Send Direct from Factory to Buyer, when the Nearest Supply-dealer Does not Keep it.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

N. E. FRANCE, Platteville, Wis.

Price \$1.00; three for \$2.50.

By mail add 25 cents for postage.

F. DANZENBAKER, MIAMI, FLORIDA

WE WILL BUY

New crop honey, comb and extracted, in any quantity. If you have a crop to dispose of, write us fully as to quality, quantity, style of package, etc., and you will have our answer by return mail. If we should fail to come to an understanding as to price, we may arrange to handle your crop on consignment, feeling confident that we can do you justice in every respect.

WE WILL SELL

to Bee-keepers whose crop is not large enough to supply their trade, various grades of honey. Let us know your wants and we will do our best to satisfy you.

BEESWAX. We are in the market to buy beeswax at any time of the year. Write us when you have any to sell.

HILDRETH & SEGELKEN,
265-267 Greenwich St., NEW YORK, N. Y.

Established 1873
Circulation 30,000

64 pages, semi-monthly
\$1.00 per year

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager
A. L. BOYDEN, Advertising Manager

POSTAGE IS PREPAID by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

DISCONTINUANCES.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

HOW TO REMIT. Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by Registered Letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

PARIS, FRANCE. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

GOODNA, QUEENSLAND. H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 5/6.*

DUNEDIN, NEW ZEALAND. ALLIANCE Box Co., 24 Castle St. *Per year, postpaid, 6/.*

SPECIAL OFFERS.

The Whole Family Group.

Gleanings in Bee Culture
Delineator
McClure's Magazine
World's Work

Regular price, \$7.00.

Our price for all the above,
one year, - - - \$3.75

Review of Reviews Special Club.

Gleanings in Bee Culture
Review of Reviews
Woman's Home Companion
Success Magazine
Regular price for all the above, \$6.00

Our price for all, one year, - \$3.60

Country Life
Gleanings in Bee Culture
Both for - - - \$3.50

Farming
Gleanings in Bee Culture \$1.50

Gleanings in Bee Culture one
year, and one copy How to
Keep Bees, - - - \$1.50

THE A. I. ROOT CO., Medina, Ohio.

Find enclosed.....for which please send me Gleanings in Bee
Culture.....months, and.....as per offer.....

Please continue sending Gleanings until otherwise ordered.

Name.....

Postoffice.....

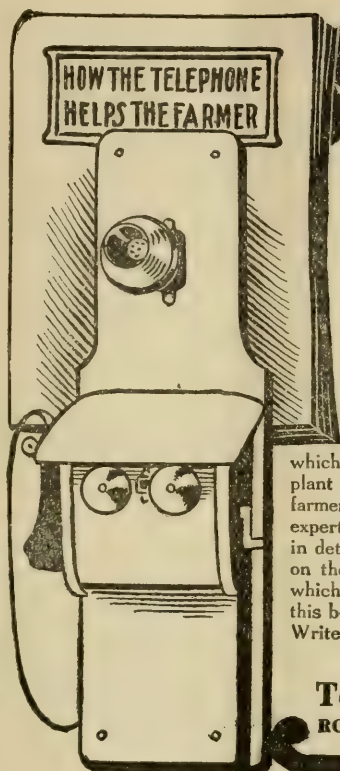
County..... State.....

Date..... If you want Gleanings discontinued at expiration, check here ()

BUCKWHEAT HONEY!

Our clover and raspberry honey is all sold—went at 8 and 8½ cts., according to quantity—but we still have 6000 lbs. of buckwheat. Right here let me say that this buckwheat honey was left on the hives until it was all sealed over, and is thick, rich, and ripe—far

superior to the thin, rank stuff often found on the market. You needn't take my word for it—send for a sample. It is put up in 60-lb. cans, two in a case, and the price is 6 cts. a pound.
W. Z. HUTCHINSON, Flint, Michigan.



You Want This Free Book

Of course you need a telephone. You need it for business, for the family, in sickness, in case of fire, or in danger of any kind. The question is—how can you get one on your farm? This little book which we send free the same day we get your request answers the question perfectly and tells you how to get the greatest convenience of the twentieth century so easily and cheaply that it becomes a positive saving and a money-maker, instead of an expense. It tells all about

Stromberg-Carlson Telephones

which are made in the largest independent telephone plant in the world. These are the best instruments for farmers' lines, because they have been constructed by experts for this particular purpose. They are described in detail in the booklet, together with full information on the organization of farmers' lines, the manner in which they are built, cost of material, etc. You want this book, F36 "How the Telephone Helps the Farmer." Write for it today.

**Stromberg-Carlson
Telephone Mfg. Company**
ROCHESTER, N. Y. CHICAGO, ILL.

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

MYERS
The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.
F. E. Myers & Bro.,
Ashland, Ohio.



STOVES

At Factory Prices
Oak Heater \$2.38

BEAUTIFUL STEEL RANGES

Our Five Flue Base Burner and many other styles straight from our factory to you at the same remarkably low scale of prices. 30 days trial on any of our stoves without sending one cent of money to us until you are satisfied you have a great bargain. Write for free special catalog.

The United Factories Co., Dept. S-38, Cleveland, O.

PATENTS

No attorney's fee until patent is allowed. Write for "Inventor's Guide."

FRANKLIN H. HOUGH, Atlantic Bldg., Washington, D. C.

Gleanings in Bee Culture

E. R. ROOT
Editor

A. I. ROOT
Editor Home Department

H. H. ROOT
Ass't Editor

Department Editors—DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE, LOUIS H. SCHOLL, G. M. DOOLITTLE, R. F. HOLTERMANN, "STENOGRAPHIC."

CONTENTS OF NOVEMBER 15, 1906

MARKETS	1406	The Mountain Meadow Apiary	1434
STRAWS	1415	The Long Idea Hive, Again	1435
EDITORIAL	1417	The Trade in Bees and Queens	1436
Losses in Bees in Early Fall	1417	Position of the Hive Entrance	1438
Effect of the National Pure-Food Law	1418	Adulterations in Wax	1440
Queens for Export	1418	Building up Weak Colonies	1441
The San Antonio Convention	1418	HEADS OF GRAIN	1442
Gleanings Contents for Next Year	1419	Hives Shallower than the Danzenbaker	1442
BEE-KEEPING AMONG THE ROCKIES	1420	Attaching Alighting-boards to Hive-entrances	1443
BEE-KEEPING IN THE SOUTHWEST	1421	Fancy Comb Honey without Separators	1443
GLEANINGS FROM THE PACIFIC COAST	1423	Honey as a Preventive of Colds	1443
CONVERSATIONS WITH DOOLITTLE	1424	What is a Pure Italian Queen	1443
GENERAL CORRESPONDENCE	1425	Raising Chickens on an Island	1444
How to Get Better Prices for Honey	1425	Uncapping-knives with Scalloped Edges	1444
Government Lease of Bee Territory	1427	Improvements on Hive-carrying Rack	1444
Bee-keeping and Horticulture	1427	The Onion Thrip	1445
Painting Hives	1428	Water Stored in Combs	1445
Caucasians in Europe	1428	Candied Honey in New Zealand	1445
Unwelcome Visitors	1429	The Side Entrance	1446
Improved Uncapping-knives	1430	A Drone-laying Queen	1446
A Long Uncapping-knife	1431	Value of the Protecting-case for sections	1446
Outdoor Wincapping	1431	Sweet Clover a Biennial	1446
An Enthusiastic Young Bee-keeper	1432	NOTES OF TRAVEL	1447
European Travels	1433	OUR HOMES	1449

INDEX TO ADVERTISEMENTS.

Banking by Mail.		ncubators.	
Savings Deposit Bank Co.	1457	Banta Bender Co.	1456
Bee-books.		Stahl, George H.	1456
Swarthmore	1463	Machinery.	
Bee-smokers.		American Harrow Co.	1467
Bingham, T. F.	1463	Barnes, W. F. & J.	1454
Danzenbaker, F.	1407	Electric Wheel Co.	1467
Bee Supplies.		Empire Mfg. Co.	1467
Blanke & Hawk	1461	Gibson Mfg. Co.	1466
Cook, J. H. M.	1464	Lyons Engine Co.	1458
Falconer Mfg. Co., back cover.		Myers & Bros., F. E.	1409
Hilton, Geo. E.	1462	Myers, C. A.	1467
Hunt & Son, M. H.	1411	Miscellaneous.	
Jepson, H. H.	1464	Bird & Son, F. W.	1413
Kretschmer Mfg. Co.	1462	Hough, F. H.	1409
Lewis Co., G. B.	1414	Oak Park Novelty Co.	1454
Mason, J. B.	1463	Prindle & Williamson	1462
Minnesota Bee Supply Co.	1462	Publishers, Agricultural-paper.	
Muth Co., F. W.	1454	Southern Fruit Grower	1457
Nysewander, J., back cover.		Poultry Supplies.	
Pouder, Walter S.	1460	Conkey, G. E. & Co.	1456
Prothero, Frank W.	1461	Humphrey	1456
Reeves, A. H.	1464	Mann Co., F. W.	1456
Root Co., Syracuse	1407	Standard Bone-cutting Co.	1456
Root Co., St. Paul	1461	Stratten Mfg. Co.	1456
Scott & Co., C. M.	1462	Publishers, Bee-Journal	
Soper, W. D.	1464	Falconer Mfg. Co. Back Cover	
Stringham, I. J.	1463	Root Co., The A. I.	1408
Weber, C. H. W.	1405	York & Co., Geo. W.	1413
York Honey & Bee Supply Co.	1464	Publishers, Poultry-paper.	
Bees and Queens.		Ohio Poultry Journal	1456
Alley, H.	1464	Poultry Gazette	1456
Atchley Co., The Jennie	1464	Poultry Item	1456
Church, C. M.	1464	Seeds and Trees.	
Laws, W. H.	1464	Storrs & Harrison Co.	1457
Moore, J. P.	1464		
Rails, W. H.	1464		
Taylor, J. W.	1464		
Classified Advertisements.			
Bee-keepers' Directory	1466		
Bees and Queens	1465		
For Sale	1465		
Honey and Wax Wanted	1466		
Honey and Wax for Sale	1466		
Help Wanted	1465		
Poultry Offers	1465		
Wants and Exchange	1465		
Comb Foundation			
Dadant & Son, back cover.			
Dittmer Gus	1461		
Fences			
American Steel and Wire Co.	1455		
Brown Fence and Wire Co.	1455		
Coiled Spring Fence Co.	1455		
Kitselman Brothers	1455		
Honey for Sale.			
Hutchinson, W. Z.	1409		
Wright, H. R.	1407		
Household Specialties.			
Best Light Co.	1457		
Fireless Cook-stove Co.	1467		
Horne Co., Joseph	1457		
Rochester Radiator Co.	1456		
Stromberg-Carlson Tel. Co.	1409		
Sun Vapor Light Co.	1457		
United Factories Co.	1409		
Youth's Companion	1468		
Honey-buyers.			
Hildreth & Segelken	1407		
Israel, Charles, & Bros.	1407		

Root's Goods in Michigan!

Discount

for November is 5 per cent. This is as good as 10 per cent interest on your money. We gladly furnish estimates on your bill of goods for 1907.

Send for catalog.

Quality

in Bee-supplies means something when it is Root Quality. Michigan's best bee-keepers use Root's Goods.

We sell the Danz. Hive, the comb-honey hive.

M. H. Hunt & Son, Bell Branch, Mich.

We are Looking Ahead

for next season, and will have on hand when all sections arrive, 1,078,000,

OVR A MILLION.

Supply dealers look ahead for their stock—why not bee-keepers? It is to your advantage to do so. Sections will keep if not used next year, but if there should be a good year the extra amount of honey secured will pay for sections for years. Besides, we give a discount of 5 per cent for November. Make out an order for next season's use and send in during this month.

The A. I. Root Co., Syracuse, New York

A Page with Our Readers and Advertisers.

CLASSIFIED ADVERTISEMENTS.

It has been said, and most truthfully, that "the classified ad. set solid is the concentrated essence of advertising." It is the hope of the small advertiser. Isn't there something that you might sell? Haven't you something of little value to yourself, which yet may be very valuable to some one else? Why not turn something useless into cash? You can do it by inserting a two or three line ad. in GLEANINGS. Remember our guarantee of money back if no results. Perhaps you are engaged in some business that you can not afford to spend a large amount of money on in advertising. Put an ad. in our classified columns. If you have something for bee-keepers, try a liner in our "Bee-keepers' Directory." You will be surprised at the results. Only \$5.00 will pay for a two-line ad. one year; \$7.50 for a three-line, and \$10.00 for a four-line ad. including a year's subscription to GLEANINGS. You will find a classified ad. the most profitable investment you can make.

There has been some discussion lately in "Stray Straws" regarding the fireless cook stove. In October 15th issue Mr. Root replies to one of Dr. Miller's items as follows:

From the number of favorable reports I have seen of fireless stoves, I should say they were an unqualified success, and a great fuel-saver. We are planning to have one put in our house.

We are referring all inquiries we receive to the Fireless Cook Stove Company, whose advertisement you will find on p. 1454. The fireless cook stove is a very valuable addition to any kitchen, and if you are at all interested we suggest you write the above company for information, mentioning GLEANINGS.

Oct. 1st we ran a four-line ad. for one of our Michigan subscribers. He writes Nov. 8 as follows:

The A. I. Root Co.—You should find enclosed 80c to pay for the classified ad. I am very much pleased with the result. The first applicant purchased the bees, and I had lots to answer that were disappointed.

T. L. WOOD BEE-HIVE CO.

Lansing, Mich., Nov. 8.

We know that our classified columns get results. The offer we made some time ago still holds good in these columns, viz., no results, money refunded.

During the winter, while other work is slack, farmers turn their attention to fence-building. Bee-keepers too should see to it that their bee-yard is securely fenced, and thus avoid trouble by stock getting among the hives and getting stung. A wire fence allows hives to be placed close to the fence, as the wire does not interrupt flight to any extent. When you are studying the fence question, do not fail to write the American Steel & Wire Company for information.

You will find their ad. on page 1455. A letter to Mr. Baaches will receive prompt reply, and the little novel key-ring they offer looks very useful.

WHAT DOES THE FARMER BUY?

Under this title, in a recent number of *Judicious Advertising*, is found an article worthy of the attention of prospective GLEANINGS advertisers. We quote in part as follows:

A glance through one of the leading agricultural journals published in the country shows column upon column of advertising, but, with very slight exceptions, these are all on technical matters.

There are many things, however, which might have been placed in such a paper with a good chance of bringing remuneration. Such things as instantaneous water-heaters, perfected furnaces and heating apparatus, new varieties of kitchenware, inexpensive watches, new styles of furniture, gas stoves, mattresses, porch-shades, correspondence schools, in fact, the variety and number of things which might be played up is legion.

All of these articles are of a nature that wouldn't interfere with the trade at the country store. The farmer, of course, has been in the habit of buying most of his necessities of life of the local general merchant, and it would take a good deal of convincing before he would break away from a long-established custom. It would be in the line of good business, particularly if the copy were placed in those magazines which he has been accustomed to consider standard.

As has been suggested already, the first move has been made along these lines. It is a movement which is bound to increase, and with the increase will come a harvest to the general advertiser.

Get the farmer interested in your goods.

Doubtless over 90 per cent of GLEANINGS readers are interested in rural pursuits. Through GLEANINGS you can reach these readers best. Give it a test, Mr. General Advertiser.

A manure-spreader is becoming a necessity on almost any modern farm. It's always advisable to spread manure on the ground as soon as possible. A manure-spreader makes this work easy. The old way of piling manure, then repiling in the fields, is extremely wasteful. On a fair-sized farm, a manure-spreader will pay for itself soon. Look over the ad. of the American Harrow Co., appearing on page 1454. Don't you think they are making a good proposition? If we weren't sure they would give you a square deal, and do just as they say, we would not let their ad. appear in GLEANINGS. If you are interested, drop them a postal for their book.

Great wads from little want ad's grow.—
Winter's Ink.

ADVERTISING - RATES

Twenty cents per agate line flat.
Classified columns—bona-fide exchange or want ads.—20c a line.

Discount for cash in advance, 5%; if paid in 10 days, 2%.

No objectionable advertising accepted.
Forms close 10th and 25th of each month.
Guaranteed circulation per issue, 30,000.

GLEANINGS IN BEE CULTURE
MEDINA, OHIO

10 WEEKS 10c COPIES FOR

We want every reader of GLEANINGS IN BEE-CULTURE to get acquainted with the

Weekly American Bee Journal

Certainly it would pay any bee-keeper to read it regularly. And in order that those who are not now getting it may do so, we want the opportunity to send it for 10 weeks for only 10 cents (stamps or silver.) That would be at least 160 pages of bee-literature for just one dime. We offer the last 10 numbers of 1906 for 10 cents as a "trial trip." You will want it for all of 1907 after the 10 weeks, we are sure.

SOME OTHER SPECIAL OFFERS TO NEW SUBSCRIBERS

The Weekly American Bee Journal from the time your new subscription is received to the end of 1907—and your choice of one of the following:

1. With Doolittle's book, "Scientific Queen-Rearing" (bound in leatherette) both for\$1.25
2. With Dr. Miller's "Forty Years Among the Bees," both for 1 80
3. With Dadant's "Langstroth on the Honey-Bee," both for 2 00
4. With Root's "A B C of Bee-Culture," both for 2 00
5. With a Standard-Bred Italian Queen, both for 1.50
(Queen mailed either before Nov. 1, 1906, or in May or June, 1907.)
6. With Gold Fountain Pen, both for 2 00
7. With Novelty Pocket Knife (your name and address on one side, and Queen, Worker and Drone on the other side) 2.00

A sample copy of the Weekly American Bee Journal free. Ask for it. Address all orders to

GEORGE W. YORK & CO., 334 Dearborn St., Chicago, Ill.

**The only roofing
sold on a money-
back guaranty.**

READ OUR TRIAL OFFER.

Paroid Roofing

IF YOU want the most *durable* and most economical roofing you can buy, please read the guaranty we give on *Paroid*.

We can and do give you this guaranty because *Paroid* is the best ready roofing ever made.

If you will compare a sample of it with others, you can *see* and *feel* the difference.

Use your own judgment.

Put your samples out in freezing weather and then try to bend them.

Paroid will be soft and pliable.

The others will all break and crack!

The difference is in the way *they* are made.

We make the felt for *Paroid* in our own mills, established in 1817. We know how and we take no chances.

Other manufacturers buy their felt, the most important part of a ready roofing, where they can get it the cheapest, and run big risks at the very start.

We saturate the felt in a compound of our own, that renders every fibre of it water proof. *Soaked*, mind you, not merely dipped.

We coat it with the *toughest, strongest, thick-*

est, smoothest, most flexible and most durable coating used in any ready roofing ever made.

You can see and feel that for yourself.

Then we give you with every roll of *Paroid* a complete roofing kit, containing our patented caps—the only rust-proof cap made. Water can't rust them and cause them to

work loose and spring a leak as *all other caps* do.

These are some of the reasons why *Paroid* has stood the test of time for the United States Government here and in Cuba and the Philippines, for railway companies, manufacturers, farmers, dairymen and poultrymen everywhere.

Send today for *free samples*. Enclose 4c in stamps and we will send you our new 48-page book of plans for practical farm and poultry buildings.

If your dealer will not supply you, send to us direct. We pay the freight.

BUY one lot of *Paroid*; open it; inspect it; apply it to your roof, and if then you are not satisfied that you have the *best* ready roofing made, send us your name and address, and we will send you a check for the full cost of the roofing including the cost of applying.

F. W. BIRD & SON,
20 Mill Street, East Walpole, Mass.
1420 Monadnock Bldg., Chicago, Ill.

HAVE YOU READ BEE PRANKS?

This is a pamphlet compiled from newspaper clippings containing many laughable and wonderful anecdotes which have actually happened in connection with bees. . . .

The book also contains, in nutshell form, what the great poets and other writers have to say about these interesting little insects. . . .

WE GIVE IT FREE FOR THE NAMES AND ADDRESSES OF FIVE BEE KEEPERS if sent direct to G. B. LEWIS COMPANY, WATERTOWN, WIS., U. S. A.

WE WANT AGENTS FOR THE NEW ENGLAND AND SOUTHERN STATES EAST OF THE MISSISSIPPI

To buy our goods outright by the carload.
Liberal inducements and exclusive territory.

G. B. Lewis Co., Watertown, Wis.
Bee-keepers' Supplies.

GLEANINGS

IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

NOV. 15, 1906.

No 22



E. W. ALEXANDER'S PLAN with very weak colonies in early spring, page 1357, is new—looks good.

WHY DOES a swarm settle before going off? R. Rhomberg, in *Bienen-Vater*, says that, when the swarm issues, some bees are overloaded with honey and some have too little. They cluster to have time to equalize their burdens before starting on their travels.

PARAFFINE-MAKERS suffer from a peculiar eruption of the skin. A writer in *Ill. Monatsblätter* raises the question whether bees may not become diseased from the paraffine in the large amount of adulterated foundation. We don't lose sleep over such a question in this country.

SO MORLEY PETTIT is going to be a Methodist preacher, p. 1353. I'd like to hear him preach. I should expect to say "amen" several times during the sermon, if I thought they wouldn't put out a Presbyterian for that sort of thing. [Mr. Pettit has the right sort of stuff in him. GLEANINGS wishes him success.—Ed.]

IT IS STATED in *L'Apiculteur*, p. 364, that workers have never been known to be reared in drone-cells. In 1872 I saw workers emerging from drone-cells in a comb sent by R. R. Murphy to the *American Bee Journal*. I think other cases have been known. [I think we have had other reports of the same thing, and I am not sure but the fact has been reported once or twice by our own men as occurring in our own yard.—Ed.]

SYLVIAC says in *L'Apiculteur* that the chief objection to the covered apiary is the larger number of queenless colonies. [I do not know why this should be so, unless colonies huddled under the shed are so close together that the bees mix in flight, with the result that some hostile bees begin the attack on the queen.—Ed.]

I DON'T THINK, Mr. Editor, your guess, p. 1347, is correct as to that brick-and-orange pollen coming from asters. Asters and goldenrod are plentiful here, but are rarely visited by bees. Besides, bees are bringing in that same pollen to-day, Nov. 5, when these flowers are all dead. I've done some looking, and don't know where else to look.

BRO. A. I. ROOT, referring to the *Record-Herald* matter, page 1380, are you not just a little bit hard to please? When I read that very full contradiction, Aug. 8, it seemed to me all that was necessary. How many of the papers that published the false report gave as full a contradiction? It's something to be thankful for that some of the public prints the truth at least part of the time nowadays, in spite of the money of the liquor power.

IN VIEW of any possible danger of getting into trouble as to labels under the pure-food law, all that is necessary is to see that the labels tell the exact truth—not a bad plan to get into, the way of telling the truth, anyhow. [Yes, that is the gist of the pure-food law. It will not in any way harm the man who produces his own honey, and labels it for exactly what it is. But an inexperienced bee-keeper might purchase an alfalfa, sell it for white clover, and get into trouble.—Ed.]

GERMAN BEE-KEEPERS have petitioned their governments to allow the word "honey," either singly or in combination with other words, to be used exclusively for the sweet product that bees gather from plants, change, and store in cells.—*Bienen-Vater*.

[We have, or shall have, about Jan. 1, the very thing in the national Hepburn pure-food law that the Germans are now seeking at the hands of their own government. From every point of view it should not be possible to label any product as "honey" unless it be that which was gathered by the bees from flowers, modified, and stored in their combs.—Ed.]

PROF. GASTON BONNIER says that, among the field bees, must be distinguished those which he calls *prospectors* (*chercheuses*). Instead of going straight to their aim they seek here and there over all sorts of objects to find the day's work for the colony. Numerous in the morning, they become less and less as the day advances, themselves taking up the role of gatherers; consequently any sweet placed at a little distance is quickly found in the morning, but very slowly late in the day.—*Les Abeilles*. [This may be true; but I do not see how it can be proved.—Ed.]

"TEN Congressional districts in Indiana are now organized by the liquor men. State Organizer Philip Heisee has issued an appeal to the liquor interests of the State to resist the temperance crusade lest the business be destroyed.—*Chicago Daily*. Must be something doing by the other sort of people to arouse a feeling like that. [You are right. The best evidence that the temperance cause is now progressing is the way the liquor people squirm, metaphorically speaking, through their papers. The time was, and that not over fifteen years ago, when they feared no efforts on the part of religious or temperance people. But, say: I doubt if ten Congressional districts in Indiana are organized for and by the liquor men.—Ed.]

REFERRING to last footnote, page 1348, the curious part was that, so long as robbing continued at that pile—and it was for three or four days—only three-banders were at it. I tried to trace them to some particular hive, but failed to do so. Perhaps I did not try hard enough. [If you simply try to trace home a robber, I think you will fail in the attempt. If you had sprinkled flour on these bees as they came forth with their stolen sweets, then gone around and inspected the entrance of *every one* of your hives, I *think* you would have found that some particular hive was receiving most if not all of the powdered bees. Then is not true that a robber as it hurries from the hive will circle about a little? and where there are so many bees flying in the air it makes it next to impossible to trace it to any particular hive. But mark them in some way, and the task is easy.—Ed.]

SOMETIMES when sealed honey is spaced wider so as to give room for it, the bees build fresh cells over the capping to fill with honey. I wonder if it is generally known that in such case the honey under the first capping is to the bees the same as so much wood. When they reach the first capping they seem to think it the septum, and will starve rather than dig through. Not only so, but if the capping be slightly depressed,

without any second building over it, as sometimes happens (for what reason I don't in the least understand), such cells will not be uncapped by the bees. I have sent you, Mr. Editor, a bit of comb with a few such cells. I have submitted it to the robbers here, and they would not uncap it. Please see what your robbers will do with it. (Incidentally, notice the foundation-splint in the comb.) [What you say in the first part of this *Straw* is, I think, true, for I see evidence of the fact in our own yard. But it is not true in our experience that sunken cappings are any more immune to the attacks of robbers than cells capped in the ordinary way. We placed the very sample comb that you mailed us in the hands of our Mr. Wardell. Our robbers dug it open without any hesitation. It is possible our bees are better "trained" in the stealing business than yours, doctor.—Ed.]

EDITOR YORK quotes this from *Printer's Ink*: "One of the most disastrous campaigns in the history of advertising, it is said, was that of corn products, with Karo corn syrup." Then he is inhuman enough—no, human enough—to gloat over the failure of an article, in advertising which such immense sums were spent, and closes by saying: "It was a deliberate attempt to displace honey as a table article, but the scheme did not work. The fact is, there is no substitute for honey; and if bee-keepers could spend as much money to advertise honey as was spent on trying to popularize the miserably tasting 'Karo-Korn Konkoktion,' we believe it would create such a demand for honey as would take every pound, every year, and at a greatly increased price over present market quotations." Which is, no doubt, true; but, alas, the history of the Honey-producers' League does not make the case look very hopeful. It was as honest an attempt as ever was made for the general good; but the many were willing to leave the work to the few, and some who should have been its friends stood off and threw stones. [This all goes to show that heavy advertising alone will not sell a poor product. It is possible and even probable that the glucose people saw the impending legislation that we now have, and wished to test out the proposition whether glucose could be sold under its real name. I do not believe the dear public objected to the name "Karo" or corn products, but that it preferred to pay a little more money and get something that had a real flavor and sweetness to it.—Ed.]

ABBE PINCOT, in a long article in *L'Apiculteur*, shows that bees build cells according to the varying sizes of the bees, the diameter of cells built by Italians having been 10 per cent greater than those built by degenerate blacks; that increasing the size of cells increases the size of bees; that the increase is not in the thorax, but in the abdomen, giving larger honey-sacs and a larger amount of honey stored. If he is correct in these things should we not have foundation of a *little* larger size? How many cells to a given sur-

face has the present foundation, Mr. Editor? [There are 5 cells to the inch; but Cheshire showed that there were over 25 cells to the square inch, or approximately 27. Our own worker foundation is based on 5 cells to the inch, or as near natural comb as we can make it. I think it will run about 27 cells to the square inch.

Referring to the question of the size of a cell, and its relation to the size of bees that hatch from it, Mr. W. K. Morrison, who is with us, states that, for the purpose of experiment, he spaced a lot of his combs $1\frac{1}{2}$ from center to center, instead of the regulation $1\frac{1}{8}$ or $1\frac{1}{4}$, as we find in nature. It had the effect of reducing the length of the bees hatched from the cell, something on the principle that a Chinese lady's feet are reduced in size by shoes too small for her. But Mr. Morrison thinks it would be unwise either to reduce or enlarge the cradles of baby bees. Too much development in too large cells might result in too many laying workers, he thinks. I do not know how that would be.—ED.]



THE glucose people are said to be "up against" 500 lawsuits in the State of New York on account of sugar sold to confectioners, grocers, and others, which did not meet with the requirements of the pure-food law.

We have a larger amount of good copy on hand, awaiting publication, than we ever had before. I make this statement so that some of our friends who may be awaiting the appearance of their communications will understand why they have not appeared before. We are enlarging our journal again, and hope to catch up soon.

THE old reliable firm of Montgomery Ward & Co., of Chicago, advertise to sell only pure cane sugar. This is a very satisfactory thing in more than one sense, and it is a tribute to the spirit of the age, which demands "no substitution." When people want a pure article they ought to be furnished that article, and not a substitute. Some of us would like to know why Montgomery Ward & Co. dropped beet sugar and glucose sugar from their list of sugars.

ALGERIE, under French rule, is a good field for bee-keeping. The number of bee-keepers, according to the census of 1902, is as follows: Europeans keeping bees, 915, with 9289 hives. There are 24,000 native bee-keepers with 163,279 hives. Algeria re-

ports about 170,000 lbs. of wax per annum. Both the native Arabs and the Jews are said to be fond of honey, which may in some measure account for the athletic build and fine physique of these people.

BEE-KEEPERS residing in Southern California where the rainfall is small should make some inquiries about the Chilian algarrobbilla, a shrub (*Casalpinia brevifolia*), the pods of which furnish a very valuable dye-stuff. The chances are it would prove a very useful bee-plant besides. This offers a splendid opportunity for utilizing much wild land in this country. It is also probable that the algarobas of the Southwest can also be utilized in the same manner. Here is a chance for the Department of Agriculture, at Washington, to do the bee-keepers a great service.

LOSSES IN BEES IN EARLY FALL.

WE had been having several dark days, raw and chilly, when one day the sun shone out and it looked as if it were going to warm up. Thousands of bees thought so too and came out; but the air was so chilly that many of them could be seen scattered all over the ground on the sidewalks, numb with cold, so chilled they would probably never take wing and get back to the hive. It was too early in our locality to put the bees into the cellar, and consequently the bees of the 450 colonies at the home yard had a chance to fly if they would.

The loss must have been somewhat heavy; and yet we have days, quite a few of them, like this, all through the season—the same kind of days that bee-keepers all over the United States, south as well as north, have. It is these days that often do more damage than several days of actual zero weather.

THE EFFECT OF THE NEW NATIONAL PURE-FOOD LAW ON THE COMB-HONEY CANARDS.

WHEN the new pure-food law as given on page 1350 of our last issue goes into effect it ought to silence for ever the stories that come up every now and then about manufactured comb honey. Any newspaper or magazine should know that, *even if it were possible* to manufacture comb honey artificially, it would be risky for the vendors to put the stuff on the market, for the reason that they would be up against heavy penalties and a possible jail sentence.

These comb-honey stories will probably continue to go on for a time, but the bee-keeper can now set up the argument that there is no such thing, because its sale would be against the law. When any "smart aleck" clerk in a grocery claims he has the two articles for sale, the real and the bogus, just tell him that you will put the United States officers on track of him or his proprietor, and you will find that he will get over his "smartness" instantan.

On the front cover page of this issue will be seen a bee-keeper and his automobile—a sort of horseless-carriage outfit *en route* to one of his out-yards. He is equipped with saw, hammer, smoker, and his trusty rifle to shoot down a jack-rabbit or a stray cayote. Mr. C. F. Kinsie, of Riverside, Cal., the driver, does not say whether his automobile ever "exceeds the speed limits," or whether it ever "balks" as autos sometimes do. It is probably sting-proof.

THE SAN ANTONIO CONVENTION.

JUST as we go to press I learn that there was a big and enthusiastic meeting of the National in San Antonio. No general report has thus far come to us; but a brief statement has been received, to the effect that a proposed amendment, prepared by myself and offered by Pres. C. P. Dadant, excluding bee-supply manufacturers, queen-breeders, etc., from being eligible to office in the National, was voted down. I am under the impression that the members present thought it would be an act of discourtesy, in the presence of Mr. Dadant and other manufacturers who might be present, to vote otherwise. I should not construe it so, and I am sure Mr. Dadant would not. No manufacturer or dealer desires to hold any office in a honey-producers' organization; and I believe that, as a general proposition, not because there have been abuses, but because there may be, some such amendment should be incorporated in the constitution. The National is now as strong as it ever was before in its history, if not stronger. It does not now need the assistance of those indirectly connected with the pursuit as it did formerly. In saying this I do not see any reason why a bee editor or publisher, if he be not connected with the supply interests, should be barred from admission to the official family.

THE EFFECT OF THE NATIONAL PURE-FOOD LAW ON THE GLUCOSE INTERESTS.

WHEN the national pure-food law was passed by Congress it was probably as severe a blow to the glucose interests of the country as those interests ever received. I have been told they are now seeking outlets for their products in Europe, and well they may, for the demand for their glucose in this country is bound to grow less and less. As there are now heavy penalties against putting it in other syrups without plainly stating the fact, it would seem as if one great outlet for the stuff as an adulterant having been cut off, the demand would necessarily be very greatly reduced. I shall be greatly surprised if there shall not, in time, be a toning-up in the honey market by reason of the greater demand that will naturally take place for honey that is known to be such.

But the public has been fed on glucose mixtures for so many years, purporting to be honey, and supposed it was honey, it will take that same public some time to learn that real honey is both delicious and sweet. Glu-

cose has done more to disgust people with our product than almost all other agencies combined. They have gone to their grocer's and bought a mixture that was labeled honey, and got something else so vile that that one purchase would generally suffice for a long time. When a customer buys a package of honey after Jan. 1st he will be almost sure to get just what he asks for. If the honey is of good flavor he will want more.

When consumers finally learn what honey is, it is *then* that prices may advance to a point they have already reached in England and Scotland, where glucose has not been allowed to masquerade under the name of honey; for be it known that the best comb honey sells in Great Britain for prices considerably in advance of those ruling here; viz., 48 cts. per lb. This honey is not one whit better than ours, either.

QUEENS FOR EXPORT; MODIFIED BENTON V. THE ORIGINAL BENTON CAGE PURE AND SIMPLE.

MR. FRANK BENTON, of the Department of Agriculture, now on a trip around the world in search of new races of bees, was the first one to make any general success of sending queens by mail across the ocean. While in the Orient, and before he entered into the employ of Uncle Sam, he sent queens repeatedly to the United States that came in excellent order. Frequently the cages would come without a single dead bee; and, what was more remarkable, the attendants would arrive as bright and lively, apparently, as when they were just picked off the comb before entering upon the long journey of two or three weeks. So phenomenal was the success of these cages that some years ago we adopted the form of the cage *but not the precise model*. For the purpose of giving inspection the Benton shape was adopted, but covered with wire cloth, and on top of this was placed a wooden cover. This was practically all the change that was made, and for domestic purposes the cages so modified seemed to give perfect results; but when this same cage in larger form was used for export to Australia the queens sometimes got through alive, and sometimes would be dead, including all the bees. In explaining this matter to Dr. Phillips, acting in charge of apiculture, he inquired why we did not adopt the original Benton without any modification. He said the Department was having uniformly good results with the old cage as first put out. He further gave it as his opinion that the wire cloth intervening between the wooden cover and the cage in the Root-Benton model, so far from being any particular advantage, was a positive detriment. After this conversation I determined to test the matter, especially with one or two cases where we had failed in getting delivery alive in good order. We accordingly went back to the exact form of the original Benton, without an iota of modification, put up a couple of queens, and sent them on. The two reports are just now in, showing

that both queens in both cages arrived in perfect condition, bees bright and lively, cages clean, and only one bee dead. Queens were sent out during our unusually hot weather in July, and went through in the condition stated.

Of course, one swallow or two of them do not make a summer: but in view of the splendid success of Mr. Benton when he was in Europe, and later of the Department of Agriculture, with the same cage, it would seem as if, for *export* work at least, the original Benton, pure and simple, would be the thing to use.

I might explain two or three conditions necessary for success. First, the candy must be made right—not too soft nor too hard. The candy-hole must be thoroughly coated with beeswax or paraffine; then when candy is pressed into place it must be covered with a sheet of thin wax or foundation. A plain wooden cover completes the equipment. This is nailed down perfectly tight, without any wire cloth between it and the cage proper. There is absolutely no ventilation save a few awl-holes piercing the end compartment of the cage, all the rest of the cage being practically air-tight. When cool or cold the bees will cluster in the center hole; when warm or hot, in the end hole—the only one ventilated. As our readers may not have seen the original Benton I will have a new illustration prepared so that they may know what it is like.

SOME OF THE GOOD THINGS THAT GLEANINGS WILL HAVE DURING THE REST OF THIS YEAR AND A PART OF NEXT.

WE are already at work on our Christmas issue of GLEANINGS, which will be fully the equal of the one we put out a year ago, and in some respects very much superior. It will be very profusely illustrated, and at the same time be filled with the usual grist of good matter.

In our previous issue I referred to the fact that we are soon to begin the publication of that valuable paper by Dr. von Buttel-Reepen, entitled "Are Bees Reflex Machines?" While not all bee-keepers will agree with the conclusions of the author, perhaps, the paper will serve the purpose of stimulating discussion and a more thorough investigation into the mysteries of a bee-hive.

We have engaged Mr. J. E. Hand to describe his non-swarming system for the production of comb honey with his divisible brood-chamber hive as he has modified it. He will not only describe the method and the hive, but tell *how* to make every section, or nearly every one, fancy. Last, but by no means least, he will explain how he is able to control swarming, and at the same time increase his crop.

Over twenty years ago the merits of the divisible-brood-chamber hive were exploited in all the bee journals. A good many were attracted to the hive, and some have during all of these years continued to use it. Others have dropped it in favor of the standard

Langstroth. Among the former is Mr. J. E. Hand, who has not only used it with satisfaction, but believes he has so far perfected it that it leaves every thing else behind in the race. So enthusiastic is he after a thorough test that he firmly believes he has a better system of controlling swarming and securing a larger percentage of fancy comb honey than has ever before been published by any journal. The outlines of the plan have been given to me, and I am convinced he has something that should merit the attention of the whole bee-keeping world.

Mr. E. W. Alexander has in preparation a continuation of his series of interesting articles. We sent our correspondent, Dr. Lyon, to his place with his camera last fall, and while there he secured a fine lot of photos which are now in the hands of Mr. Alexander. This means that the articles will be well illustrated. This series will be fully as interesting and valuable as those published during the past year, if I may be permitted to judge by the advance copy in hand.

Our funny man, the Jay, has a lot of interesting matter which we now have in hand. Don't get the idea that it will be merely funny, for the Jay is a practical bee-keeper, who, like Josh Billings, has learned that "experience teaches a gude skewl, but the tuishun comes pretty hi." A part of the Jay's writings especially will be the recounting of his mistakes when he did not know as much as he does now.

All our department editors so far as we know will continue their work as before. We also have in hand a lot of valuable articles on various topics which we hope to print later on when the season for their appearance arrives.

But this is not all. We have already secured an exceptionally fine lot of photos of interesting bee subjects. Some of them are snapshots of methods showing just how to work bees to the best advantage; others are views of bee-yards, the arrangement of which are either artistic or show some novel or helpful idea.

In this series will be some photos taken by the editor, showing some experiments made with the Aspinwall non-swarming hive. By the way, this hive has been given a severe test, but it showed no disposition to cast its swarm nor even build cells.

Dr. Miller has, during the fall, been using a camera to illustrate some of his new kinks. With the aid of this he will take the reader into his apiary, and give him a heart-to-heart talk on how he gets his crops of honey. These articles will be in addition to his regular department of Stray Straws.

It will be impossible to set forth fully the fine array of matter that will appear in GLEANINGS during the next year. Now that we have an effective national pure-food law, GLEANINGS believes that a bright future awaits the bee-keeping interests when the public can be fully assured that, when it buys honey, it is buying the real article and not something that masquerades under that name.



Count me on the side of spelling reform. I should like to see GLEANINGS, and, in fact, every other magazine and newspaper, adopt it. It is evident that our present absurd spelling must be reformed in many respects. We have already done a great deal in that direction; and the only question now is whether the reform shall continue gradually, as in the past, or whether we shall take a sensible stand and sweep away at once a lot of the worthless excrescences that disfigure our language.

My experience with the Alexander plan of putting a weak colony over a strong one in the spring has not been very encouraging, though I am not ready to condemn the plan. Generally the queen above soon disappeared, though sometimes it was the other way. The first time I tried it, it made me smile when I opened the hive, ten days after uniting them, to see how prosperous the upper nucleus looked, plenty of brood and bees, and the queen "just humping herself" laying eggs. But when I looked below I found neither eggs nor queen, and the smile vanished. Since then my experience has been varied, but on the whole unsatisfactory.

RIPENING COMB HONEY.

The way of piling up supers shown on p. 1247 is not new. Heddon told us how to ripen extracted honey that way fifteen or twenty years ago, and many bee-keepers pile their supers that way. Its disadvantages are that they are not dust-proof nor mouse-proof, and that they take up a great deal of room, which most bee-keepers do not have to spare in their honey-houses. Dr. Miller's way is better, though it takes more time.

For several years I was bee-inspector of Mesa County. I resigned this position last spring. I had not considered the matter of sufficient importance to chronicle in these columns before; but so many of my correspondents consider me still in that office that I make this announcement. During the three years that I filled the position I felt that I was not able to do full justice to it on account of lack of time, even though I employed several assistants whenever practicable. A bee-inspector, under the conditions that obtain here, should be able to give his whole time to the work if necessary. In this county, about the size of the State of Delaware, with its thousands of colonies of bees, and with localities in which foul brood has been rampant for a number of years, an inspector

should have no other occupation during the summer. Accordingly I resigned in order to be able to give my whole time to the more pleasant and profitable business of looking after my own bees and other interests. Mr. H. S. Groves, of Fruita, is my successor.

SUPER-ELEVATORS.

The use of hoisting machinery of some kind in connection with bee-hives is bound to become more general, and will prove to be a great boon to the bee-keeper, especially to the one who produces extracted honey and practices tiering up. Any one who has lifted off supers, and then lifted them on again all day on hives that are tiered up four or five stories high, especially if the supers are of the ten-frame Langstroth variety, will agree to the desirability of something of the kind. W. Z. Hutchinson, in the *Review*, mentions and illustrates a contrivance of his own for lifting supers enough to place a bee-escape under them. It is true that Doolittle has told us how to do this without actually lifting the whole weight of the supers, but it would be much better to lift them clear if it can be done without too much time. Some of the wagon-jacks in common use could be easily modified to do this work, and it is possible that something of the kind could be made so as to lift them high enough to put a super under. If this could be made to work, it would not be so cumbersome nor require so much operating room as the tripods and other hoisting devices that have been illustrated.

LONGEVITY OF BEES.

I agree with the editor on the subject of long tongues, and in the main with Mr. Crane on page 1172 on the importance of strength and endurance of the worker bees, but I do not think he puts sufficient stress on longevity. The working life of the bee is so exceedingly short that a very little addition to it counts heavily, both in the building-up of the colony for the honey harvest and in effective work during the yield. In the latter way it is important even where the flow is of short duration, but immensely more so when the honey-flow is of long duration. In selecting a breeding queen, if I could be assured that her bees would live even four or five days longer than the average, I should count that point very strongly in her favor. It is true that Mr. Crane considers longevity, for he says that greater endurance means longevity, but I think they should be more separated. If I were to place in the order of their comparative importance from a honey-producing standpoint only, the most valuable traits to be considered, they would be about as follows: 1, industry, or vigor; 2, longevity; 3, strength of constitution, or endurance; 4, prolificness of queen; 5, length of tongue. It will be noticed that I do not give prolificness as high a rating as many would be inclined to. My favorite breeding-queen for several years was not especially remarkable for prolificness, but she was al-

ways on hand with a hiveful of workers when there was honey to be gathered, and I laid it to their unusual longevity.

LENGTH OF BEE-FLIGHT.

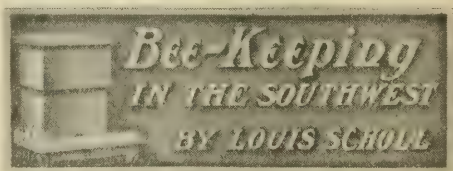
On p. 1172 J. E. Crane says that, by moving his apiary two-thirds of a mile, his yield was greatly reduced; but that by breeding for bees with stronger flight he was able to overcome largely this handicap. While he may be entirely correct in this, I believe he may be assuming a little too much in both directions. In the first place, does he really know that it was the change of location that reduced his yield temporarily? Locations vary greatly from year to year. For instance, my home apiary has usually given fair and sometimes very good crops. In the very poor season of 1905 it averaged better than any other apiary in this valley that I have any knowledge of. In 1906, with only about half as many colonies on the range as usual, it gave a very poor crop compared with some of my other apiaries. His reduced yield, followed in later years by better ones, may have been simply the variation of seasons. However, if he knows the pasturage in his old location to be better, I will venture to say that the establishment of an out-apiary in that direction would have paid him far better than to attempt to get along with a poorer location, though only a short distance away. The more I have to do with out-apiaries, the more I am convinced that the most profitable work of bees is done within a very short distance, say not over a mile and a half, probably even less than this, from their hives.

THE ONE-POUND SECTION.

Mr. G. C. Greiner, in his article on one-pound sections, on page 1238, deserves credit for at least one thing. It appears that he has actually tried, with a number of years' experimenting, to find a section that would hold a pound of honey. Let us see with what results. He tells us that his light cases weigh 22 lbs. and his heavy ones 26 lbs. There is, then, a difference of $\frac{1}{4}$ or $\frac{1}{8}$ of a pound between the average weights of sections in the light and heavy cases. But this is not all. It is fair to assume that some of the sections in the 22-lb. cases are lighter than the average of $\frac{3}{4}$ of a pound each, and that some of the sections in the 26-lb. cases are heavier than the average of $\frac{3}{4}$. It will be readily seen, then, that the difference between his lightest and heaviest sections of marketable honey (for he does not call his light-weight honey culls, nor speak of it except as honey by the case), may easily reach $\frac{1}{4}$ of a pound or more. And yet he calls them "pound sections"! He applies the name of a fixed, invariable standard to articles the heaviest of which vary more than 25 per cent from the lightest! Further comment on this point would seem unnecessary.

Mr. Greiner thinks that, because his light cases weigh 22 lbs., his medium ones 24 lbs., and his heavy ones 26 lbs., he is entitled to call his sections "pound sections." It may

appear at first glance that they average 24 lbs. to the case; but do they really do that, Mr. Greiner? Are there not some seasons a greater number of the 22-lb. cases or of the 26-lb. cases than at other seasons? Furthermore, would not some other bee-keepers, using exactly the same sections, get quite different weights? Bee-keepers who sell "pound sections" ease their consciences by the thought that they *average* all right. But they should remember that this average does not extend to the consumer, except in the long run, and does not meet each particular case. As long as no section furnishes the consumer an exact pound of honey, or can ever do so, and since 99 per cent of the sections in use, or that are likely to be used, do not come anywhere near it, I think it would be only honest, as well as to the advantage of all, to discard entirely the expression "pound section." It is unnecessary to enter into any long-winded explanations with the customer who asks for a pound of honey. I simply say that I sell it at so much a box, but that the boxes do not weigh a pound. It is very seldom that any thing further is necessary. Instead of chasing the impracticable idea of a pound section, devote your energies to the production of sections as uniform in weight as possible. The four-pound variation in cases that Mr. Greiner admits is quite inexcusable. About 75 per cent of my honey, just as it comes from the hives, will not vary over a pound to the case, and a two-pound variation will cover the extremes of the remainder.



Chilly blasts in terrific whistle
Come soaring and a roaring
Around the eaves of our hives;
And blooming flowers and thistle,
Gone and dead, for death, instead,
Has given flight to these tender lives.

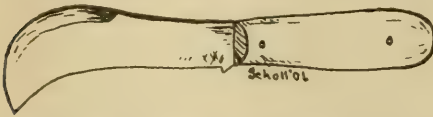
A season is ended and o'er,
And toiling and turmoiling
Give place to days of sleeping,
And waxen cups with golden store,
Gathered with care, are garnered there
For wintry days that come a creeping.

Blood will tell if you give good care to the blood. This has shown itself more plainly this past poor season than during any previous seasons of average and good honey-yields. Colonies with "those good queens" yielded from 40 to 100 pounds of comb honey, while the others gave little or no surplus. Several yards that were bought in the spring had a great majority of old worn-out queens in them. The result was, very little or no surplus honey except from a few colonies that chanced to have a young prolific queen.

My honey crop could have been doubled by simply requeening the entire outfit of some 350 colonies. This was not through the fault of the writer, however. The spring months were very unfavorable for such work, and for queen-rearing, and a serious illness prevented the requeening this fall; but the proof of the good queens has been so convincing that preparations are already begun for queen-rearing as early as this may be practical next spring, to be followed by a wholesale requeening of all my apiaries. Beginning with *all* new queens it will be easier to "keep track" of their "doing," and the improvement of stock will follow through both selection and breeding.

A HANDY HIVE-TOOL.

For several seasons I have used a stout pruning-knife with a "hawk-bill" blade as a hive-tool in my apiaries, and have found it to be the most satisfactory and handiest tool for the greatest variety of purposes of all the many tools tried.



The entire length of the pruning-knife is about 8 inches, and it is very stout in its make-up. The blade is made of good steel, and retains a sharp edge, while the back of the blade is about $\frac{1}{4}$ inch thick. These knives are advertised with other horticultural tools, and can be obtained of most of the large hardware stores. The blade of the knife above is made of one continuous piece of steel. Mr. W. H. Laws, of Beeville, Texas, used a knife similar to this while I visited him several years ago. His knife was not as heavy, and the blade was made pocket-knife style, and could be closed. This made it handier to carry in the pocket; but the objection was that prying hives and frames caused the blade to work loose in its "joints." This weak point, in addition to being more expensive also, makes the knife without the joint, and the consequent lower price, a more satisfactory hive-tool. It can be carried in the hip pocket with ease, having the handle downward; in fact, the hip-pocket is the most handy "hive-tool bag" I know of—the most convenient in reach at all times.

This knife is excellent for prying hives, frames, and any thing else apart; also for opening boxes or taking off covers or bottoms that have been nailed on. It is sharp, and can be used for cutting at any time, the same edge being used for scraping frames, etc. It is also the handiest small tool for cutting away weeds in front of the entrances of the hives. A few slashes at the same time the few puffs of smoke preparatory to opening the hive are given, leave a clean doorway—something more essential during a honey-flow than most of the craft might suppose. For cutting or hacking off limbs of trees that are in the way, this pruning-knife

works finely—just what it was originally intended for. Nailing can be done with the blade, its weight permitting of driving even large nails. The back end of the handle is rather flat, round, and smooth, and is used in emergencies for fastening foundation in frames, especially when such has accidentally torn loose in handling, or when pulled off by the weight of the bees.

"CHEAP AS DIRT" BOTTOM-BOARDS.

Preparing for another season means getting new supplies as well as having the bees in good shape. Bottom-boards of different styles have been given a fair trial in my yards; and in preparing for the establishment of several new out-yards this winter the bottom-board question is uppermost in my mind just now. I want to fix up one of the yards with dirt floors. These are used by S. T. Gilbert, near Uvalde, Texas, and please me. A rim is made of common rough three-inch stuff, just the outside dimensions of the hives in use. The end of these rims intended for the front of the hive is enough lower at the top to allow an entrance; that is, the back end and side pieces are nailed together with their top and bottom edges flush, while the front end pieces are lowered about $\frac{1}{2}$ inch, so it extends beyond the lower edge of the rest of the rim. In this way the same three-inch lumber can be used throughout, saving the dressing-down for entrances, as the rims are slightly sunk into the ground when in use. When in place where the hives are to stand the rims are leveled off and then filled nearly to the top with loose dry soil. This is packed down firmly by means of a wide board fitting inside the rim, and tamped upon with a heavy tamper until the surface of the soil is even with the front edge of the rim forming the entrance to the hive. Some more loose dirt can now be thrown in front of this stand, and tamped down to make a sloping "alighting-board" to the entrance.



This photo shows one of Mr. Gilbert's yards with dirt floors. One of the rims can

be seen in the front row. Some of these floors had been covered over by the bees with propolis, so that none of the soil was exposed to view, making them absolutely water-tight from below. Where the yards are well drained, the soil inside the rims, when the hives are in place on them, never becomes moist, especially as this soil is several inches above the surrounding earth outside. For a permanent bottom-board or floor this should be a cheap one.



BEES AND GRAPES.

A bee-keeper from Pomona writes me that his bees are complained of as a nuisance, it being asserted by the complainer that they are eating his grapes. Beekeeper wishes to know what are the equities in the case. I think it is well known to all who are conversant with bee literature that there have been several lawsuits, some of which have been carried to the higher courts, in which the litigants have been bee-men versus fruit-men. In every case, so far as I know, the cause of the bees has triumphed.

This is as it should be. I am very sure that the bees never puncture any fruit if the skin is unbroken. Let bird or wasp break the peel, and the bees are quick to discover the wound and save the leaking juice. I feel quite certain that, in case of over-ripe grapes, the fruit itself may rupture, after which, of course, the bees will do their part toward saving the loss. I have tried many experiments along this line. When bees have been working on grapes or other fruit I have taken clusters of fruit not yet attacked, pierced certain grapes with a needle or pin, marking the same, and leaving others sound. The bees would swarm on this fruit, but never molest that which I had not pierced. I have shut bees in the hive till they were ravenous with hunger, placed grapes in the hive, some of which were pierced, or punctured, and some not. Of course, the bees would at once suck the wounded grapes dry, but would never do any injury to others. It has seemed to me from these experiments that the bees must have the odor of escaping juice to lead them to attack, and, as in the case of sound fruit, they have not the peculiar odor.

A SIMILITUDE.

There are two products which have much to do in our daily life that have a close resemblance in more than one respect. I refer to butter and honey. Both of these substances belong to the hydrocarbons. That

is to say, they are composed of the following chemical atoms: Oxygen, hydrogen, and carbon, and are different from the proteids in that they never contain nitrogen. There is another peculiarity which both these substances have in common. They can be produced and sold with no impoverishment to the soil. The reason for this is obvious. The plant which gives the material from which they are derived procures this material entirely from the air and water. Thus none of the soil elements are used in this production. These substances also differ from the proteids in that they have a definite chemical composition, and also differ from the inorganic elements in that they owe their existence to previous organisms. There is another point of similarity: both of these substances are exceedingly valuable as food elements. We must have fats or we can not preserve life, and there is no better fat in all our food than the butter fat. In like manner we must have sugar or we can not live. I believe that, of all the sugars that enter into our food, none are so entirely safe and wholesome as honey. I think it behooves every householder to procure for his family the very best of butter and the very best of honey, as a very valuable if not necessary part of his food regimen.

UNRIPE HONEY.

I wish to thank the editor of GLEANINGS for his correct representation of my position regarding the extracting of unripe honey. For many years, while I had charge of the Michigan Agricultural College, we were in the habit of extracting our honey before it was completely ripened. The advantage in this was that it was so much more easily extracted, and it saved the necessity of uncapping. We were fortunate in having a honey-house without garret and with only one layer of boards for sheeting. As we kept this closed it became very hot for days together all summer through. As we kept this honey in closed receptacles with only thin cloth above it, it became very thick and I never heard any complaint regarding its excellence. One day, however, I happened to be in Chicago, and was taken by Mr. Newman into his wareroom where I beheld a most interesting sight. A barrel of unripe honey had fermented, the barrel burst, and the honey was scattered all about the room, even smearing the ceiling. Since that I have always advised a delay in extracting honey until the bees had it well capped over. This is wise for two reasons: We all know that thin honey is liable to ferment, and this, of course, means ruin. No one can afford to run any risk that may result in such catastrophe. Again, I believe that honey never reaches the very acme of excellence until the bees cap it over. While we certainly may, if we are always sure to take sufficient pains, procure good honey though we ripen it by artificial means, yet I greatly question if we can ever secure the very best by this method. It should be the aim of every bee-keeper to produce only the best. And thus I would

not only practice, but urge any whom I might influence, never to extract until the bees have capped nearly or quite all the honey.

HIVES OPENING AT THE ENDS INSTEAD OF AT THE TOPS.

One of the most delightful days that I spent in Germany was at the apiary of our old friend Schultz, of sugar-candy fame. I found a man of rare intelligence, and quite wonderful for his ingenuity.

I was interested to notice that, like most of the German people, he used hives which opened only at the ends. It is so awkward to take the combs from such hives that I could not but wonder that any bee-keeper who had ever read a description of the Langstroth hive could think for a moment of using these awkward German hives. Mr. Schultz lived in one of the most beautiful parts of Germany, and the vegetation about his place adds materially to the charm of the landscape. He values very highly the honey-locust and *Phacelia tanacetifolia*. This last is introduced, and of great value.



THE PLAN IN THE SOUTH.

"Is this Mr. Doolittle?"

"Yes."

"My name is George W. Weingart, and I have come from Mississippi (by letter) to ask you a few questions about your plan of working bees as given in your serial, 'A Year's Work in an Out-apiary.' How do you think the plan would work in the South—especially in my State?"

"How about your source of nectar? Does it come in a few weeks, or is it a slow continuous yield for months?"

"About all the honey we get comes from wild flowers in 'Honey Island Swamp,' and the yield begins about March 15 and ends about May 1; but while the yield is on, it is often immense, in good seasons, nectar coming in with a rush during that period."

"Under such conditions the plan should work as well in your State as it does here in the North, providing you have favorable weather for colonies building up for six weeks previous to the time the honey harvest commences."

"I think there will be no trouble along this line, as I judge our weather is as favorable in February as is yours in April."

"This being the case you should succeed as well. But you will need to begin your work in laying the foundation for success as

early as the first of February, timing your work from then on in about the way I have given for this locality, though you may be able to have the bees become strong in numbers in less time than we, because I judge you are not subject to as many cold north and northwest winds during your early spring as we are. These cold, searching, blasting winds are the great drawback to a rapid building-up of our colonies here in the central part of New York."

"I think I shall have no trouble with this part of the matter unless you think of some modifications I should use, different from what you gave in the plan as you went along."

"If I were in your section of country for a year I might see that some change or changes would be necessary; but from this distant standpoint I do not think of any now. You can tell after a little if some improvement can be made that will be more suitable for your section; and if you think there can, try the matter with a part of your colonies, working the rest as I have given, and the results will tell you whether your supposed improvements are really improvements or not. I always feel at liberty to vary a little in using any plan with a part of my colonies where I think a gain can be made by so doing; and after a trial, if a gain has been made, then I stick to this gain. If no gain is the result, then I adhere to the plan as given. And I always advise others to work in the same way, as you may hit on something I or others may not, and thus our pursuit will be advancing instead of standing still. If no one 'branched out' for improvements the cause of bee-keeping would not be further advanced fifty years from now than it is at this moment."

"Thank you for the suggestion. I will 'keep an eye out,' as you suggest. But will your plan work with eight-frame hives?"

"Yes, it will work with such hives; but the prospect for success is not quite as good with such hives."

"Why not?"

"For the reason that such hives do not usually contain honey enough in early spring so that the bees feel rich toward large brood-rearing; and where they do, they do not have a sufficient number of cells in the eight frames, outside of those filled with honey, to give the room for brood that they have in a ten-frame hive. Then, again, after the queen-excluder is put on, so that the honey is in the upper hive, there will be only eight frames below for the queen to keep full of brood; and, surely, these eight frames will not give the brood that ten frames will."

"I think I can see that."

"Yes, and the whole success of the plan lies (the same as does all successful honey-production) in having a multitude (a *great army* if you please) of bees on the stage of action just when your harvest is at its best; and you can not have as large an army of bees from an eight-frame hive as from a ten-frame. So far as I can find out, those who

have had only indifferent success with the plan have been those who have failed to bring their colonies up, with numbers to overflowing, at the time of the honey harvest. Failing here is to fail with any plan, and especially with this one. The *multitude* of bees coming with 'millions of honey at our house,' at just the right time, and the honey at *our house*, and that coming from the fields when the shook swarming is done, is the secret of the rush of honey into the sections during the rest of the season following. With a much poorer season than last year, and, added to that, sickness just when I should have been with the bees, my average yield of section honey from each colony worked by the plan this year has been 105½ pounds. Do not forget that a colony of 60,000 bees, with no desire to swarm, will store for you a whole lot of surplus honey, while a colony of only 20,000 to 30,000, and those with a desire to split up through swarming, will yield their owner little or nothing; and the ten-frame hive looks more nearly toward the 60,000 than does the eight-frame."

"I think I see the point. But how will the plan work for extracted honey?"

"The plan is all right for extracted honey up to the time for the shook swarming. There is no need of that where working for extracted honey."

"How is that? Please explain."

"There should be little if any trouble from swarming when working for extracted honey."

"But bees do swarm where so worked."

"Where they do, it is generally through failure to work them as they should be."

"How should they be worked?"

"Just as I have told, up to the time of shook swarming. Then, instead of shaking them, raise half of the brood to the upper hive, putting frames of empty combs in the place of those raised, and over all put the third hive filled with empty combs; and, later on, if more room is needed, put on the fourth hive containing frames of empty comb, putting this on top of all. My experience tells me that not one colony in twenty-five will offer to swarm if treated in this way."

"When would you do your extracting?"

"At the end of the season, where the season gave only one grade of honey. If more than one grade, then I would extract at the end of the white grade and at the end of the dark grade. Mixed honeys do not sell very well."

"Just one more question."

"All right. Go ahead."

"Is the plan as likely to prevent swarming in a good flow as it is in a good season, as you report the past two have been with you?"

"Yes, and more likely."

"How is that?"

"Nearly all bee-keepers have had the experience of a season of prolific swarming being stopped almost immediately by the commencement of a very heavy flow of nectar.

With a honey-flow which is good enough to give a yield only a little greater than what is consumed by brood-rearing day by day, bees take on the swarming fever as never else, as soon as the hive is full of brood; but with an immense flow of nectar the whole trend of bee life is turned toward securing stores to such an extent that they seemingly think of little else, and especially where they have enough empty comb to store such a yield. They have this space in the upper story, with the plan I have given; and at the time this is filled, or previous to this, they are shaken from their brood, so they find themselves on their frames of honey, or in their own home without brood to speak of, with plenty of storage room in the sections, and thus all desire for swarming is given up, if such desire has reached them, which, usually, it has not."



HOW TO GET BETTER PRICES FOR EXTRACTED HONEY.

A Method for Producers of Every Class.

BY E. D. TOWNSEND.

The editorial, page 1233, 1905, where I am compared with Dan White as to my success as a salesman in retailing 20,000 lbs. of extracted honey at 7½ cts. per pound, prompts me to say a few words. In the first place, 7½ cts. is altogether too low a price to retail honey at, even if one could buy at the extremely low price of 6 to 6½ cts. for the best white, as some have sold for this year. In this case one would have to get at least 10 cts. at retail, and perhaps 12 in some cases. No, we did not peddle any honey around home. Although some went to consumers, I presume 95 per cent went direct to bottlers and honey-peddlers. My 1905 crop went as far east as Maine, west to Kansas, and south to the Virginias. There is no doubt in my mind that Dan White has worked out the best system of retailing honey at home where one has the ability, and a territory that is suitable to work up such a trade; but with me, for several reasons, the territory is not suitable. My time is worth more otherwise, and I have neither desire nor ability to retail honey; in fact, fully 75 per cent of the honey-producers have no ability as peddlers. It is for this last large class I am going to give a few figures, then describe the best plan in existence (my estimation), where one desires to dispose of his crop in a wholesale way. Now for some

figures, and I do not think I can do better than give the amount I produced, and price I received for my 1905 crop. It is as follows: 8520 lbs. No. 1 clover extracted, at 8 cts., \$681.60; 4920 lbs. No. 1 raspberry extracted at 7 $\frac{1}{2}$, \$369; 2880 lbs. No. 2 clover and raspberry at 7, \$201.60; 2000 lbs. buckwheat extracted, at 6, \$120; 2317 lbs. No. 1 and fancy comb honey, at 15, \$374.55; making a total of \$1746.75 from 300 colonies, spring count, and an increase of 150 colonies.

You will notice this crop is not large for so many bees; but by the system of selling I am about to describe, in connection with a superior article of honey to sell, the results are fairly satisfactory. By cutting out commission men, and middlemen to a certain extent, I figure I have saved about 25 per cent on this crop. This system of selling was first published in the *Review* for Oct., 1904. It is as follows:

THE "EASY" OR COMMISSION METHOD OF SELLING HONEY.

Let us first consider the commission method of disposing of our honey. This might be termed the *easy* method. All we have to do is to can or crate, if comb honey; nail on the tags (the commission man furnishes them), deliver to the depot, and *our* part of the work is done; then, some time, we will receive a check. Easy, isn't it? Let us figure a little. It is estimated, and I have never seen it contradicted, that if comb honey sold through the commission man brings 14 cents a pound, the freight, cartage, and commission will bring the net price down to about 10 cents for the bee-keeper. Now, we have some customers who will give us a cent a pound more than the regular quotations for our honey *on board the cars here*. We do not suppose our No. 1 comb honey is very much better than the commission house, No. 1, but these people say they know what ours is, and are willing to pay the difference. Now, it is not a very difficult matter, with these figures before us, to figure a nice profit by selling it ourselves. The difference between 10 and 15 cts., or 50 per cent on the deal, is worth looking after. There is, however, a class of bee-keepers who will always patronize the commission man. They do not care to go to the trouble of looking up customers. They would rather take less, and have some one else do the work; so the commission man is here to stay, and fills a niche we can ill afford to dispense with. The above might be termed the *low-price easy* method.

THE METHOD WHEREBY BEE-KEEPERS GET THE BEST PRICE.

The second method of disposing of one's honey, direct to the consumer, is available with only the few that are located near the large cities, or otherwise favorably located, where honey brings a good price. They must have a little tact, and ability as salesmen, then put up their honey in small packages for home or grocery trade.

These bee-keepers realize the top of the market for their honey. They may be called the favored few who get the *best* price for their honey.

CUTTING OUT ONE MIDDLEMAN AND IMPROVING THE GENERAL MARKET.

The great majority come on the last list. They are, perhaps, a long way from market. After they have taken pains to produce a crop of fine honey, and if it is the best grade of extracted honey for table use, it is put in 60-pound cans; if dark in color, or "off" in flavor, so it must go to the baker, perhaps barrels are best. If it is comb honey, case it up early, and be honest in grading. If there is any question in your mind about a section grading No. 1, put it in No. 2. Make each grade a little better than your competitor's. Don't think for a minute that you will not get paid for it. You see, we are going to try to tell you how you can get a good price for your honey, and, at the same time, build up a reputation that will never leave you. "Once a customer always a customer" should be your motto in all your honey deals. Produce a good article, put it up in good shape for the market, then last, but not least, *ask a good price for it*. Of course, if you get your price too high it may sell slow—

perhaps so slow that you will have to lower the price before it will move; but before you lower the price do a little hustling. We will suppose you have been letting some one else sell your honey for you in the past, but have decided to change for the better-price method. You are not acquainted with the honey trade, and you will need the addresses of the manufacturing druggists, the honey-bottlers, and then there is the baker. Your local druggist can likely furnish you the addresses of the druggists, and your grocer those of the bakers, and the bee journals reach probably all of the bottlers, and most of the bakers and druggists, so a little notice there will likely bring you orders.

DON'T CHARGE FOR SAMPLES.

You will need some sample mailing-blocks, as most of them buy extracted honey by sample. A sample block and postage will cost you about 10 cts., each sample you send out, and there will be a temptation to charge for this sample. Don't do it. You want to place a sample in every dealer's hands who is interested enough to ask for it. The few that order samples out of curiosity will not amount to over 5 per cent, so this element is not worth considering.

Instead of charging for our samples we figure to get our pay out of the advance price we receive for our honey. We have been making a little mental calculation, and have come to the conclusion that we received about \$15 each for the samples sent out last year, above what would have been received had we sold our honey through a commission house at the market quotations.

CAUTIONS TO BE OBSERVED IN SHIPPING.

We will suppose the orders are beginning to come in. A few of the small orders will be accompanied by money to pay for the honey. Then there are others that you know by reputation, that you will ship to without money in advance. The probabilities are these known dealers will simply say ship so and so, depending on their good name as sufficient security. Thus far every thing has worked lovely, but you will probably receive orders from parties that are perfect strangers; some of them will furnish references.

Just a word now in looking up these references. Do not fail to enclose a self-addressed stamped envelope, and leave margin enough below your inquiry for their reply. If, after looking them up, you conclude they are all right financially, you can ship them. But if you have any doubt of their integrity, or if they do not furnish reference, the better way will be to ship C. O. D. Then there are others who prefer to pay on delivery; so it will be well to describe this method of shipping goods. It might be added that this plan is used very extensively in the commercial world. Generally it is as follows: The railroad company that we ship over furnishes us blank bills of lading. Under the head of "marks, consignee, etc.," we write "to order of E. D. Townsend, St. Paul, Minn., notify Paul Jones, 304 Short Street." Now, after the railroad agent signs it we make out our bill for the honey, pin this shipping receipt to it, then take it to our banker, and have him draw on Paul Jones for the amount. As the honey is shipped to ourselves, Jones can not get it without this shipping receipt; and as he has to pay the bill for the honey before he can get the receipt, we are perfectly safe. All the risk we run is the possibility of his not taking the honey, and causing loss in freight unless we can find a customer for it there. If there is no bank at one or the other end of the route, there is always an express agent where there is a railroad depot, and he will do your collecting the same as the bank. Whichever way we ship when sending our bill to Mr. Jones, we tell him through which bank or express company of his city we have drawn on him. I might add that, in all the honey we ever shipped in this way, there never was a lot refused. You see, there is no object in anybody ordering honey unless he wants it; and, if we always sell by sample, we have no trouble about the quality of honey. The fact is, we have had such good luck shipping this way that we never hesitate whenever requested to do so, without *any* money in advance, as some require.

In conclusion let us repeat, produce a good article; have your white honey ready for the market not later than August 15; be honest in your grading and weights; don't try to deceive your best friend, your customer, by trying to work in a few sections of No. 2 with No. 1. It might be tolerated once, if it were a small shipment; but next time, when you offer him more, he will quite likely offer you a No. 2 price for what you call No. 1.

Remus, Mich.

GOVERNMENT LEASE OF BEE TERRITORY.

Is this Possible? Some of the Difficulties that Such a Plan Would Lead to.

BY R. F. HOLTERMANN.

On page 991 J. A. Green hopes that governments will take possession of all bee territory as something separate from the land and lease, or sell it by itself. I have a large number of colonies, and keep them in fairly good shape, and could probably pay as much for the right as any one. Personally, it suits me exactly. When we look at it from a broader standpoint, however, would this be right? If it is true, and we know it is, that bees are so valuable for the fruit garden and orchard, the vegetable-grower, the clover-seed and buckwheat grower, are they who produce the nectar to have no recognized rights? For them, the more bees the better. Is this not a proposition to curtail the work of the bee to the advantage of one who does nothing to produce the nectar, and the disadvantage of the one who should primarily be consulted? If I have ten colonies of bees, other things being equal I can pay more than the man who has one, and yet these ten colonies may not be any thing like the number of bees that could give the best results to the producer of the nectar.

When it comes to saying what number of colonies shall be kept upon a square mile, and restricting their flight, who shall decide this number? and what a difference in square miles! and I wish to warn friend Green not to bring any of his colonies near the international boundary line unless he pays for three to nine miles of territory in Canada, and not then unless he pays Uncle Sam for the importation of the goods. We all feel we should like to do something; but the subject is so complicated, there are so many rights to consider, that in all probability until the millennial period it will not be solved.

There are, as has often been pointed out, many somewhat parallel cases. A man goes into a section of country. There is room for one store, and he buys, builds, and invests. Then another man comes in, and one must go to the wall. We have very clear proof of many such cases. The number of colonies a given territory can support is a much more uncertain question; and then, as before stated, in discussing this question we have heretofore either done it from a bee-keeper's standpoint, and his interests alone, ignoring the primary right of the agriculturists who own the source of the nectar, or we have stultified ourselves by denying in principle the value of bees in the fertilization of blossoms. It is useless to do either one or the other, even were we disposed to "blow hot and blow cold," for the facts and line of reasoning are only too patent to any one to attempt to show otherwise.

I might add, how unfair it would be to say so many colonies for each square mile. Some could support hundreds of colonies, others none at all. If the territory were valued,

who would be the government official or otherwise who would have the nerve to presume to know enough to do the job? If no one in the United States or Canada had the necessary quantity, what use for other countries to attempt it? If they did, a few years often change the agricultural conditions to such an extent that the value is changed. If the privilege is auctioned off, then the man with 100 colonies can put ten men with 75 colonies out of business. That will not do, surely. What, then, will do?

Brantford, Ont., Can.

[There is a great deal of truth in what our correspondent says on this point. However much we may desire it, it is a will-o'-the-wisp that we shall probably never attain.—Ed.]

BEE-KEEPING AND HORTICULTURE.

Extracts from a Horticultural Meeting at Moberly, Mo., which go to Show that it does Not Pay to Spray the Blossoms.

BY J. W. ROUSE.

(Pres. of the Missouri State Bee-keepers' Association.)

We attended this meeting and made our address on the subject assigned us, "Bee-keeping in Relation to Horticulture." In our address we referred to the many tests made by many of the relation of bees to the successful growing of fruit, besides giving some experiences and observations of our own. Our main thought in attending this meeting was to speak on spraying during fruit-bloom. Before making our address we had the pleasure of listening to Mr. W. M. Scott, of the U. S. Department of Agriculture, who made an address on spraying fruit-trees. He made a very comprehensive talk, using a chart to explain his experience. We noticed that he advised to spray just before the blooming time, and then not until after the bloom had fallen. We felt sure he had a reason for not spraying when bloom was out, so we asked him why not spray then. He then knew nothing of us at all. While we thought we anticipated his reason, we must say we did not dream of such an answer as we got, which was, spraying when in bloom could be done fully as well and with all the same results either before or after the bloom had fallen; but to cap it off he stated that in many experiments made, to spray while in bloom often did great damage to the bloom itself, and in some cases destroyed the prospects for a crop of fruit entirely, the poison so damaging the fertilizing element in the bloom as to ruin it for fruit.

After him Mr. J. C. Evans, a life member of the society, and who has been its honored president for twenty years or more in its early history, and who is, so far as the writer knows, the largest fruit-grower in the world, stated he had tried spraying while in bloom thoroughly, and was fully satisfied it is an injury to do so at that time. There were many others who corroborated these state-

ments, giving their experiences, and all, so far as heard from, said that they were convinced it is better not to spray during fruit-bloom. We brought out some of this in our address, with many other things, and we were congratulated by many after the meeting was over, which showed us we had an interesting subject.

Mr. E. J. Baxter, of Nauvoo, Ill., made a little speech after we had got through, endorsing our address in full. Mr. Baxter has a large number of bees, and is considerably interested in the growing of fruit, he also being a life member of this society. Several others spoke and gave their endorsement of what we had to say. We feel as if this will do considerable good to the bee-keeping interests everywhere. Our subject appearing in the printed program with our address, we had several requests to send what we had to say for publication. We trust that no one will think us egotistical; but we have made this subject some study for quite a while, but are sure there are many others who could handle the subject much better than we if they would try; yet we feel that we had just the subject that was of interest, and it came in at just the right time. I would say to others, go and do likewise, thus not only helping yourself in bee-keeping but also, by thus doing, help others.

Mexico, Mo.

PAINTING HIVES.

How to Mix the Paint and Apply it so that it Will not Crack and Peel off; the Advantage of Three Colors.

BY WM. LOSSING.

I see by GLEANINGS that there is quite a controversy in regard to painting hives different colors. I wish to add a little of my experience. I have adopted the red, white, and blue, since 1880, and am so well pleased with the result that I am painting all my new hives this spring the same colors. It avoids the bees making mistakes and going into the wrong hive. If you remove a white hive, many of the bees will pass the blue one on the one side and the red on the other, and go into a white hive. This shows conclusively that bees mark their location by color as well as by location. I admit that, where a few colonies are kept in one place, there is very little danger of the bees mixing; but where you have long rows of hives in sheds, as we have in Salt River Valley, the three colors will avoid a great deal of confusion and the lives of many bees and some young queens. It cost only a trifle more to use the three colors, and you are more than paid by the appearance, if not otherwise. My method of painting hives is as follows:

First have all hives perfectly dry and clean; prime with yellow ochre and raw linseed oil. Be sure to fill all nail-marks and cracks; let this priming dry, say, 3 or 4 weeks before

putting on second coat, which should be strictly pure white lead and raw linseed oil. Be sure to let this coat dry thoroughly, at least 15 or 20 days, when it will in good weather be ready for the third coat; add a little zinc to the lead and use boiled oil, rub out thin. The other two coats should be rubbed out thin also. If you follow the above your paint will not peel off in a short time, as lots of bee-hives now do. They will have a nice gloss, and be thoroughly cemented to the wood. You can add the coloring as desired.

Phoenix, Arizona, Feb. 27.

[We have a good deal of other proof of the same nature; and I am now beginning to feel that it would be good policy for queen-breeders, at least, to have their hives painted different colors, especially where many of them are located on a plot of ground without distinguishing bushes or trees.—ED.]

CAUCASIANS IN EUROPE.

A Translation from an Old Russian Bee-book.

BY E. L. PRATT.

The bees of the yellow Caucasian race (*Apis mellifera Caucasica aurea*) in their size are considerably smaller than the common blacks or northern bees, and they differ from the latter in their color. The first three rings from the breast are of a light golden color; and there is on the breast (thorax) between the wings a little half-ring of the same yellow color. The queens are yellow-banded, with little black marks on the end of their bodies. Some of the drones have yellow bands, and some of them are quite black.

The Caucasians are the most gentle bees among all known races. The gentle character of the Caucasians, and the ease with which one may work with them, gives the right to recommend them to the new student as well as the bee-keeper of experience. The industry and prolificness of Caucasians stand above the other European bee races. The yellow Caucasian bees can be kept with success in southern as well as in northern parts—where they stand well the long severe winters.

THE GRAY CAUCASIAN HONEY-BEE.

The gray Caucasian bees (*Apis mellifera Caucasica nigra argentea*) differ from the yellow ones in their dark coloring. They much resemble the common (blacks) or northern bees; also, like the yellow Caucasian bees, they differ from the northern bee in their smaller size, sharpness of the end of their abdomen, and the quantity of the breast hairs. The gray Caucasian bees, like the yellow ones above mentioned, are very gentle and industrious, and can well stand cold climates, but are not so much inclined to swarm.

Swarthmore, Pa.

UNWELCOME VISITORS.

A New Bee Enemy.

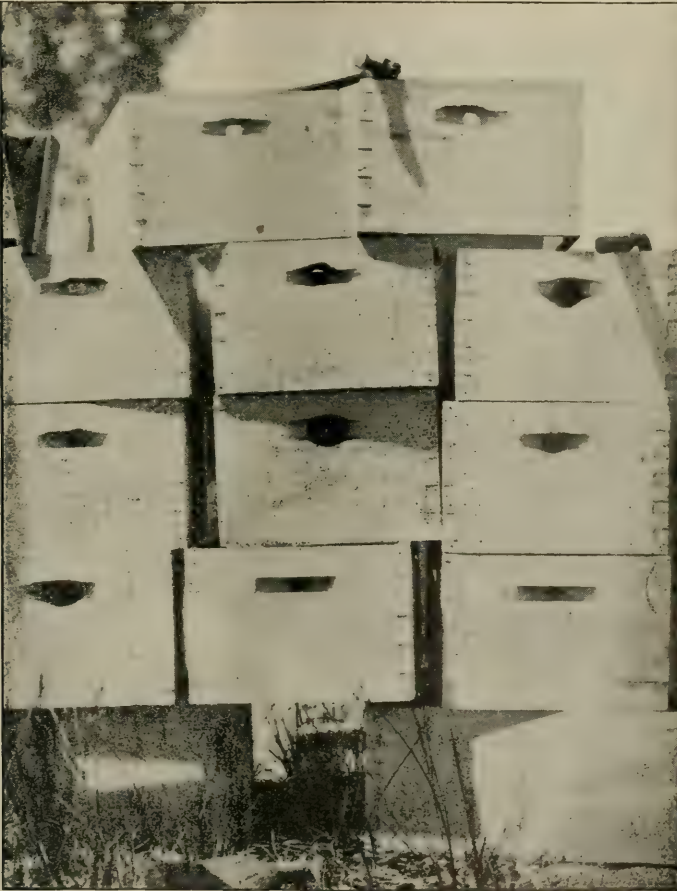
BY SOJOURNER.

The great earthquake and fire, April 18, 1906, called the writer from his apiary in the Big Meadows to his home over the Sierras, in California. It was during this brief visit to his home (some ten days) that his apiary was taken possession of by the unwelcome visitors whose work is shown in the accompanying photograph. These visitors, two in number, first made an entrance to his cabin abode. They had no modern tools—a jimmy, a chisel, or a hammer, so they used nature's weapons and got there just the same. Instead of the door as a vulnerable point they worked their way in at three points, boring their way through inch boards. Having established a headquarters, and finding the cracker-box, they were ready for a stay. Next they visited the apiary, a few rods away, where, finding the supers to each hive just placed in position, and yet empty, they

proceeded to investigate, and went at it rather systematically, for nearly all of the upper stories were tapped. Those which contained pure Italians were actually entered, and the warmth from the swarm below was enjoyed for a season. When they knocked at the homes of the poor and much-despised black bee their sojourn was short, for the holes made there were only large enough for a bee to enter or come out. It was, perhaps, too warm inside, or they thought so, and departed for other residences to enter.

Upon our return we found some robbing going on, and at once found the cause; for these ugly holes were clouded with bees intent on offense and defense. It was a new trouble to the bee-man, and he was at first bothered to know who had bored these holes. When he entered his humble cabin, and found therein Mr. Robber, he first learned of this new bee enemy with which he must contend. Shotgun in hand he soon dispatched one of these maulauders, when, lo and behold! it was a female. Soon her nest was found, and near it her companion in theft. It was a week or so before his scalp was taken. Then

the trouble of reaching the nest in the body of a large solid tree was undertaken at a height of some twenty feet. Having disposed of nest and both owners, no trouble has been given the apiarist since. What the necessity was for so many places for homes or resting-places the apiarist can not comprehend, for there were in all about twenty holes made, large enough to admit their body, and some fifty smaller ones where, evidently, their attempts at entrance had been stopped by the guards. Perhaps they were intending to swarm later, and had sought homes for the increase. These visitors, perhaps a new bee enemy, being dead and buried, we can not get a photograph of them or we should be glad to do so, and thus put our fraternity on the guard, for there are others in the land; but so far they have not proved to be real bee or honey thieves; in fact, we do not see that a single bee or drop of honey is missing. Perhaps it was all through idle curiosity that this work was



HOLES MADE THROUGH THE WALLS OF A HIVE BY A BIRD.

done. Any way, it caused the apiarist some worry, much labor, and about 75 pieces of tin to undo the mischief done.

THE IMPROVED UNCAPPING-KNIVES.

Why They Should Be Made Narrower:
Some Pertinent as well as Practical
Suggestions.

BY C. W. DAYTON.

In respect to those long uncapping-knives described on page 937 I would say that they are going to fill a "long-felt want," at least in my case. Unless you make some two or three inches longer we shall have to get them made to order. Most of the knives in use are too thick and too wide. This makes them too heavy. If you notice grass-scythes you will notice some short heavy-bladed ones and others long, slim, and light. One kind is for dodging about among fruit-trees, berry-bushes, and fence-corners, while the other is for cutting a wide clean swath in the open field. A grain-cradle scythe is still heavier and wider because it carries the grain. This idea of a honey-knife carrying the cappings was gotten up before present capping-boxes were devised—when the cappings were to be bestowed in any convenient small dish that happened to be at hand. A good barber shaves with what is termed the "heel" of the razor. An uncapping-knife partakes of the manner of manipulation of both the razor and the scythe. The narrower the comb the better the long knife will work; or, to be more exact, the better the worker can work it. Some razors are wide of blade. It is for the same purpose—to "catch the cappings."

To gather cappings of honey on a knife takes strength, and also strength and time to get them off the knife. Even when the cappings slide across the blade and drop off it wastes strength, so it wants a knife with a narrow blade. The narrower and lighter the blade the less it gets in the way of the capping.

My extracting-combs are only 4½ inches in depth, and still I want the long knife—not because a long knife is more necessary on wide combs than narrower, but because the narrower the combs are, the better the knife will work, or can be manipulated.

Now, we start with the heel of the knife to cutting the cappings at the lower edge of the comb as it is held upon end over the capping-box, holding the knife at an angle of 45 degrees, the point dipping downward. Bring it upward by a drawing, saw motion. The strength required in this comes mainly from the muscles of the arm, and is restful to the wrist. When the knife has progressed upward halfway of the comb, drop the heel downward and push the blade upward in the opposite 45-degrees angle until it reaches the upper edge of the comb.

Our present knives are two inches wide, but you can see that a blade 1½ or 1¼ inches wide held on this 45-degrees angle presents

a wider surface than the two-inch blade held straight across.

There is another point here that should be understood. The comb should be held by the left hand, on end, resting on the frame of the capping-box. As the knife cuts and progresses, and varies its speed of movement, the comb is leaned to the right, and back again, and repeated, about as much in motion as the handles of a bicycle over a rough road. If this movement is well gauged, barely the edge of the capping will adhere to the side of the knife, and will go down into the capping-box about as continuously and unbroken as a sod furrow leaves the mold-board of a plow. It needs this capping to adhere to the side of the knife, a small amount to hold the knife steady, and it also indicates how deep the edge of the knife is running; but there is no weight of capping to be supported by the wrist or thumb. When there begins to be some weight felt, lean the comb slightly to the right; then when the weight is nearly all off, lean the comb to the left. After uncapping a few tons by trying to adhere to these directions, one strangeness after another will disappear until it requires no thought whatever, and then the speed can be increased almost beyond belief. The thinner the blade the lighter, and the more delicate the touch, and, consequently, the thinner the cappings can be gauged, unless one chooses to uncapping as thick as Mr. Townsend does, where it leaves the cells only ¼ inch deep. I leave the combs in the hives until they are entirely sealed over, but not until after the harvest is over and the honey is exceedingly thick and waxy; but then the heated knife works as well as ever. The heated knife necessitates rapid movements. But uncapping as thick as Mr. Townsend does would soon cool a knife. I see no use for two cutting edges, and would prefer the back edge to be like that of a putty-knife, for divesting the frames of brace and burr combs. The sharp edge of a knife often dips in and slivers the wood.

The shanks should go clear through the handle, and have a threaded nut on the end. In dry climates like the arid regions of the West the shanks soon become loose in the wood; a little honey gets in, and makes constant trouble.

I have used the light and heavy bladed knives side by side for years, and always preferred the lightest, or thinnest and narrowest. As for the two cutting edges, one always goes without grinding, because it is never used. But we keep a wide-edged putty-knife near with which to remove the burr-combs and wax from the frames. But it makes an extra movement to lay down one knife and pick up another. But suppose the other has been mislaid, then what? A waste of time enough to scrape two frames.

But the worst mistake is to get into the habit of snipping with the point of the knife. Start in with the heel and end with the heel. It is as good as if the knife were two inches longer, because it is doing work by a preliminary motion while the main cutting part of

the blade is held in reserve for future use, or we will use all the length of the knife's edge and still lack, and need to put in an extra point-cut or give a heavy square cut against the edge.

Chatsworth, Cal.

[If you will send a wooden model of your ideal knife we will have an illustration of it made to submit to our readers for discussion. In the mean time you have given us some good suggestions that bear all the earmarks of being fresh from the field. This is a good field for discussion, and we hope others of our practical men will be able to help us clear up this problem. Perhaps it would be well to have two or three styles of uncapping-knives, each knife adapted to the kind of frame used, as well as the individual notions of the users of the implement.—ED.]

A LONG UNCAPPING-KNIFE.

Uncapping-knives Cold vs. Hot: Two Tons of Honey Uncapped in One Day by One Person.

BY J. C. BALCH.

In GLEANINGS for July 15 I was impressed with E. D. Townsend's description, p. 936, of your longer honey-knife. While I have been partial to the Bingham honey-knife for a cold knife, I do not know whether it will be any better to have it longer or not; but where a person has from 100 to 500 colonies or upward, and a heavy honey-flow, as they had in California in 1897, the Bingham is not long enough nor heavy enough. I do not think there is any one man who could uncapp two tons of all sealed honey in a day with a Bingham, either long or short, either as a cold or a hot knife; but I knew a lady in Ventura Co. (and you know her through Rambler), Mrs. W. T. Richardson, of Moore Park, who often uncapped two tons of honey in from eight to ten hours with a hot knife. It was made just like a bowie-knife—sharp on both edges, twelve or thirteen inch blade beveled on both sides, and very thick metal, to hold the heat. She used two knives. While she used one the other was in a boiler of hot water, directly in front of her. Just across was the uncapping-tank, which was 8 ft. long, 14 in. wide, and 3 ft. deep, with a 2×2-inch cleat across the center of the uncapping-tank, with a spike driven through the center of the cleat from the bottom, so that it stood at least two inches above the cleat, and was sharp enough so that, when you set a frame of honey on the spike in the center of the end of the frame, the weight of the honey would hold it so it would not slip off; and with one downward stroke of the knife the cappings were all taken off smooth; then a simple turn of the wrist, another downward stroke of the knife, and it was set aside and another frame taken from easy reach on the left, and treated the same way. She uncapped deep, but not always clear down to the frame, but deep enough to re-

move all the cappings and unevenness of the comb. There were two helpers with her in the honey-house—one to handle the combs and one to turn a four-frame reversible Cowan extractor, and two in the apiary. The writer took all the honey from the hives, and the other wheeled it to the honey-house and returned with the empty combs. Ferndale, Wash., July 25, 1906.

[I notice that you speak of Mrs. Richardson applying the stroke of the knife *downward* in uncapping. A majority of the producers of extracted honey work the knife upward.]

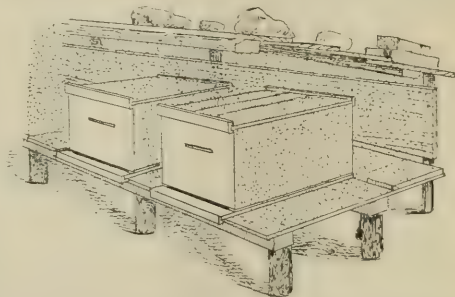
After visiting extracting-yards where the hot knife was used for uncapping and others where the cold knife was used, I have come to the conclusion that in a great majority of cases, at least, the application of heat is a great advantage; and I am not sure but it would pay well in every case. Especially is it an advantage where the honey is thick. The hot water washes the knife, and at the same time heats it enough so that it does not take nearly the muscular strength to force the keen edge through the cappings or comb.—ED.]

OUTDOOR WINTERING.

A Modification of the Plan Described in the Feb. 15th Issue.

BY W. T. DAVISON.

Last fall, when I began packing my bees for winter, I found that my shed was not long enough to pack them all in, so I began to plan some easy way to pack seven colonies that I had out in front of my shed. These hives are standing on what I call trestles, made by driving some large stakes in the ground and nailing some 2×6 pieces to each row of stakes running east and west, the hives facing the south, so I placed the hives just the right distance apart, then took some three-foot boards I had and laid a board



down between each hive flat on the trestles. The south ends of the boards are just even with the front ends of the hives, and the north end extends out one foot further north than the hives do. Then I drove some stakes in a row at the north end of these boards. These stakes can be six or eight feet apart. I nailed a broad plank to the south side of these stakes. The lower edge of this plank

was just one inch higher than the boards that I laid on the trestle. This plank serves for a back wall to hold the straw.

Now remember that there is about one foot of space between this plank and the back end of the hives, and that there is an open space between these boards just back of each hive, so to make a floor without any holes big enough to leak straw. I lay boards across of the hives across the ends of the boards that are laid between the hives; the rest of the work is done just like packing them in a shed (see GLEANINGS, page 212), except, of course, the roof. The straw is about one foot deep on top of the hives. Then I laid a large rail on top of the straw at the front end, and a small rail on the back part of the straw. I then covered it by laying long boards across the top of the straw so the water would run north; then I put heavy weights on the boards to hold them to their place. The roof must have plenty of slope. I notice quite a number of bee-keepers have their hives resting on trestles or scaffolds, and I must say that they are handy.

When working with your bees, instead of setting frames down on the ground one can set them on the trestle and lean them up against the hive; and when winter comes I can pack my bees in straw without moving them very much. This way of wintering is a cheap one, and it has proven to be safe. When spring comes you can take the boards and stack them up, carry the straw away, then your hives are out where you can get at them. My experience in wintering is, three winters without losing a colony.

Velpen, Ind.

[The plan you describe is all right; but some expense might be saved by using a top covering of straw, laying it in such a way as to shed water. Perhaps it would be well to remark that the artist did not get the 2×6 pieces shown correctly. As I understand it, they are nailed flat against the sides of the

stakes, with edge reaching up to the top of said stakes.—ED.]

AN ENTHUSIASTIC YOUNG BEE-KEEPER.

Since my little son Henry attended the bee-keepers' convention at Jenkintown he has been an enthusiastic bee-man. He knows his bees, and they seem to know him; and as soon as he has saved enough money he is going to subscribe for GLEANINGS. In the mean time he is studying all the bee-books he can get hold of in the public libraries. I send you a picture of him which I took a few days ago. Henry gets our whole family interested in bees.

H. C. SCHNEIDER,
German Lutheran Pastor.

Roxboro, Philadelphia, Pa., Sept. 24.

[GLEANINGS is always glad to encourage a young bee-keeper like the one here shown. We are, therefore, sending him GLEANINGS one year, as a present. We will do this by



HENRY SCHNEIDER, A YOUNG BEE ENTHUSIAST.

any boy of the same age who will make the same progress and send as good a picture of his actual bee-handling as the one here shown.—ED.]

EUROPEAN TRAVELS.

A Visit to an Apiary in Italy; the Berlepsch Hives Used by the Trappist Monks.

BY RALPH BENTON, B. S.

Assistant in Entomology, University of California.

[Perhaps we ought to explain that the writer, Mr. Ralph Benton, is a son of Frank Benton, and, it would appear, accompanied his father on his recent trip through Europe, in quest of new races of bees. The junior Mr. B. has furnished us additional sketches which we hope to give later on. His style is natural and easy, and we believe our readers will enjoy reading them.—ED.]

Out along the highway from Rome, past the modern church of St. Paul without the Gates, half hid in a eucalyptus grove, is the old monastery of Tre Fontane. It was a hot day in July, near noon, when we reached the cool of the shade and drank from the spring by the driveway.

We sent in a card by the gardener whom we found on the grounds and strolled toward the chapel containing some old mosaics and housing the three fountains which give the name to the monastery. There is an old legend told that St. Paul struck the ground here and immediately the three fountains gushed forth, all of different temperatures; and in proof of this you may, with the aid of a long-handled dipper, drink from each of these successively and determine the relative temperatures if you like.

These Trappist monks are jovial fellows, and those we met were Germans. They were just at dinner, and so we busied ourselves by inspecting the old chapel and the ground about it. We had not long to wait before the gardener reappeared with Fra Giuseppe, clad in his rough wool robe and cowl of dark brown, and with belt of white cord and dangling tassels.

"Benton"—yes, he knew that name—he had read of "Frank Benton." "But the lady will have to remain outside," and he drew from beneath his robes the big clumsy key that unlocked the sacred cloisters, and we, taking leave of our fairer companion, squeezed through the half-open door which clashed noisily behind us and was carefully locked again by Fra Giuseppe. We passed through the still and silent whitewashed cloisters to another door, and found ourselves

in the inner court with its well-cultivated vineyard. Fra Giuseppe, having caught up his broad-brimmed straw hat which he now donned, led the way to the bee-house, where the hum of bees became distinctly audible. In proof of his previous statement of being familiar with the name Benton he now produced from a box a well-made Benton mailing-cage. In the absence of an awl the old monk had burned the ventilation holes in the grooves at the sides, thus insuring plenty of air, as the bees could not, through moisture, close the openings by swelling, as might have been the case had he been content to punch them. But we had our own cages with us, all provisioned, ready for the reception of the queens and their attendants, and Fra Giuseppe now busied himself about lighting his smoker.

The house was built in an L, with the entrances of the colonies opening on the partly enclosed portion. The hives used were of the Berlepsch style. These open at the rear, and take two, three, and even four sets of combs, one above the other. The frames are



A GLIMPSE INTO AN APIARY IN ITALY.

perhaps one-third to one-half the size of a Langstroth frame, and of about the same relative depth and length. They rest on rabbets, and are parallel to the entrance—being removed from the rear with the aid of a pair of plyers. These hives may have two or three advantages: The brood-chamber is at once easily inspected without having to lift off one or two heavy top stories; the honey stored in the rear of the brood-chamber can be removed; and the whole operation of opening a hive can be accomplished from within the house without coming in contact with the flight bees or the bees of other colonies. Manipulation is necessarily slow, and extracted honey is almost exclusively produced. It is extremely difficult to find a queen in a strong colony, because only one comb is accessible at a time, and with the re-

moval of each successive comb the queen has a chance, if at all disturbed, as is likely to be the case, to run forward, often necessitating the removal of fifteen or twenty of these combs in quest of her. It is fortunate that the Italian bees do not gather the propolis that hybrid or black bees do.

Fra Giuseppe had a number of nuclei, and seemed to know about the age and probable condition of all his queens. He showed us a complete home-made artificial queen-cell-dipping outfit, and the way he made his cells displayed a good practical knowledge of queen-rearing.



FIG. 1.—A SIMPLE AND QUICKLY ADJUSTED HIVE-CARRIER.

Having looked over the nuclei in the house, we now repaired to the end of the building where, ranged along beneath the peach-trees, were a number of colonies in Dadant hives, of the monks' own manufacture, as, indeed, all of his hives and appliances were. It was here that Fra Giuseppe consented to have himself snapped among his bees and carried away in the ever present American camera,

on condition that he should have a picture for himself.

The old monk spoke well of the Dadant hives; but, still true to the Fatherland, he clung to the old Berlepsch hives he had learned to use as a boy in Germany. The bees he kept were of a dark leathery color, the true type of the bees of Italy—quite gentle, and easy of manipulation. Having the number of queens we desired, we paid the monk and awaited our change. He turned the gold over in his hand and exclaimed, "Ah! but we are poor Trappist monks! we have not so much money!" But he disap-

peared along the cloister, and soon returned, bearing the right change in glittering gold; and, joining our companion without, we took our way down the dusty road to Porta San Paula and back to Rome.

THE MOUNTAIN MEADOW APIARY.

A Strap Hive-carrier: Reversible Closed-end Frames.

BY ANSON S. WHITE.

I am sending you some pictures of the Mountain Meadow apiary. Fig. 1 is my hive-carrier. It is composed of two hooks and a strap. The hooks have an eye in one end, and the strap is run through both eyes, and buckled. That makes the strap doubled. Now put a hook under each side of the bottom-board and lift on the strap. You will see that it will squeeze the whole thing tight together.

Fig. 2 is of myself in the apiary.

No. 3 is my new frame, closed end and reversible, and end spaced top and bottom; no killing of bees, no deep rabbets in the hive. Please give this frame a little of your time, as I believe it is worthy of a trial, and also give me your opinion as to its worth. Why not hang section-holders with it in place of setting them on tin, so the finished ones can be easily taken out when finished, without trouble?

Cowiche, Wash.

[Your hive-carrier is a simple contrivance, and has the merit that it will grip the hive solidly, without letting it get loose. The arrangement as a whole is excellent—particularly so as it may be used on any hive with cleats or not. A mere shortening of the strap will permit its use on hives of different widths and depths. I believe the arrangement is good enough to illustrate in the ABC of Bee Culture.

Your reversing double bent wire was illus-

trated in these columns somewhere in the late 80's—about 1886 or 1887, I think. At that time it was shown in connection with loose unspaced frames. The objection to a wire bent in this shape is that the frames will not be all adjusted to an equal height—that is to say, the right angle at each end of the

entrances, $3\frac{1}{2}$ inches long and $\frac{1}{2}$ inch deep, one in the center, the others 4 inches from the ends of the hive. The hive should have two division-boards to fit the inside.

In the spring of the year, about the time apple-trees are in bloom, I select a good strong colony of bees with young queen if possible; remove them from their stand and place the large hive in its place; then lift out all the combs and bees and put them in the center of the large hive in the same order that they were when in the small hive. Place a division-board on each side of them and cover up good and warm. As soon as there are bees enough to cover all the combs, move back one of the division-boards and slip the frames apart until you find the center of the brood-nest, and put in one frame of good worker comb and cover it up warm. In about a week (a little sooner or later according to the weather) open again, slide



FIG. 2.—ANSON S. WHITE IN HIS APIARY.

wire will sometimes be a little more and sometimes a little less than a right angle. Some wires will spring more than others. A tin strip nailed to the bottom inside edge, projecting inwardly, as ordinarily used, would be simpler, and a better arrangement, in my opinion, and at the same time cheaper.—ED.]

THE LONG-IDEA HIVE, AGAIN.

How to Prevent Swarming, and Secure the Largest Amount of White Comb Honey.

BY S. H. MITCHELL.

I here give a description of my hive, simply because in small hives it would be impossible to carry out my system of management. I have no hives or bee-supplies to sell, so I have no ax to grind. I am writing this for the sole benefit of my fellow bee-keepers. My hive is made as simple and as cheap as possible.

The dimensions of my hives are as follows: Length, 4 ft.; lumber, plump $\frac{1}{2}$ thick; width, 20 inches, outside measurement; depth, 10 inches; holds 30 L. frames. I rabbet out $\frac{1}{2}$ inch at each end to receive the supers. In the upper stories, or supers, the end pieces are 8 inches wide, 20 inches long, $\frac{1}{2}$ in. rabbeted out on inside to fit on ends of hive; two side pieces, $\frac{1}{2}$ inch thick, 8 inches wide, 4 ft. long. This story will overlap the hive $\frac{1}{2}$ inch all around, and will give room to lift frames without removing it.

The front of the hive should have three

apart the frames on both sides, but leave the frame you put in the last time and one each side of it; in their place put in an empty comb on each side of the three; put all together, and cover up well. A week later you can put in four or five empty combs, distributing them one in a place wherever the brood is thickest. A few days later fill in more combs until the hive is full. If combs are not available, fill with comb foundation; but the process will be much slower, and usually a day or two more time will be needed before spreading the brood.

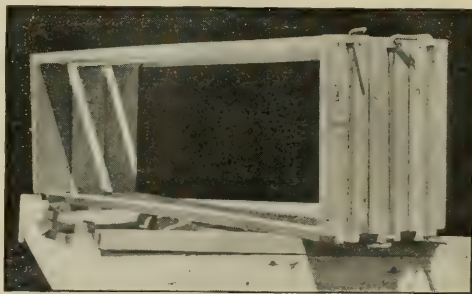


FIG. 3.—ANSON S. WHITE'S REVERSIBLE CLOSED-END FRAMES.

To the beginner I would say, "Do not be too fast. Use common sense and good judgment. If the weather is unfavorable, move slowly; if very good, move faster. The object is to keep them breeding so fast that they will be able to store but little if any

honey. The effect on the bees is marvelous. They have to work, or starve their brood. It has the same effect that it has on a mother cat that has to hunt for half a dozen kittens. Strangers who visit my apiary in July call to me and say, "Mitchell, hurry up; every one of your big hives is swarming." I laugh, and say, "Those hives are swarming all the time." By the time white clover is well in bloom (about the last week in June with us) the thirty frames should be full of brood and have about two bushels of bees. The queen having worked so hard will, of necessity, lay but few eggs for three or four weeks, so that the energy of the bees is devoted mostly to honey-gathering during the cream of the harvest, and there will be no poor watery honey, either in the body of the hive or in the sections. Now cover all the surface at the top with sections, leaving $\frac{1}{2}$ space between the frames and the bottom of the sections. It will hold 100 or more. Never put on queen-excluders, as, under the conditions described, queens never go up among the sections, neither do the bees store pollen in them. The queen will now be resting to a great extent, and also will have plenty of room below.

Mark the place where the bees commence in the sections, then you will know just where to find finished sections, and can remove them and put empty ones on as often as necessary. By the above management I have secured, the past three seasons, an average of 125 pounds of pure white comb honey from each colony; and the thirty frames in the body of the hive will contain 120 to 150 lbs. more.

St. Mary's, Ont.

[The plan here described is simply the old "Long-idea" hive that was exploited something over thirty years ago. At that time great enthusiasm was evinced, but of late years it has been pretty generally abandoned, even by those who were once sponsors for it. *Horizontal* expansion, for several reasons, is not as satisfactory as the perpendicular. But the worst objection to a hive embodying the principle was its great size, its unwieldiness, and the weight of the supers. This was overcome in part by making the supers in pairs, placing the pairs side by side. But even this has its objections. Just as powerful colonies can be obtained by tiering one colony on top of another, thus enabling the owner of the bees to handle his hives in comparatively small units. There may, however, be some localities where the Long-idea principle may give better results than those now in vogue. Our correspondent may have the very best outfit for his locality.

The only bee-keeper I know of now, who uses the hive, is O. O. Poppleton, of Stuart, Florida, and he is a good bee-keeper—one of the best we have in the country. But his locality is different from most others. We should also recognize there are "many men of many minds;" and if any bee-keeper thinks he would prefer to handle bees that way instead of lifting off top stories, let him try a hive or two "spaced out."—Ed.]

THE TRADE IN BEES AND QUEENS.

Unprecedented Demand for Both; Making Increase by Feeding Sugar.

BY E. R. ROOT.

While there are plenty of queen-breeders in the country, men of known reputation for supplying first-class stock, there are comparatively few bee-keepers who make it a business to supply, in addition to queens, nuclei and full colonies. So great has been the call for the last two items that the publishers of this journal have located several apiaries in the East, besides one in the West and one in the extreme South. The one shown in the subjoined illustration, of the Root Co.'s Salem yard, is a fair example.

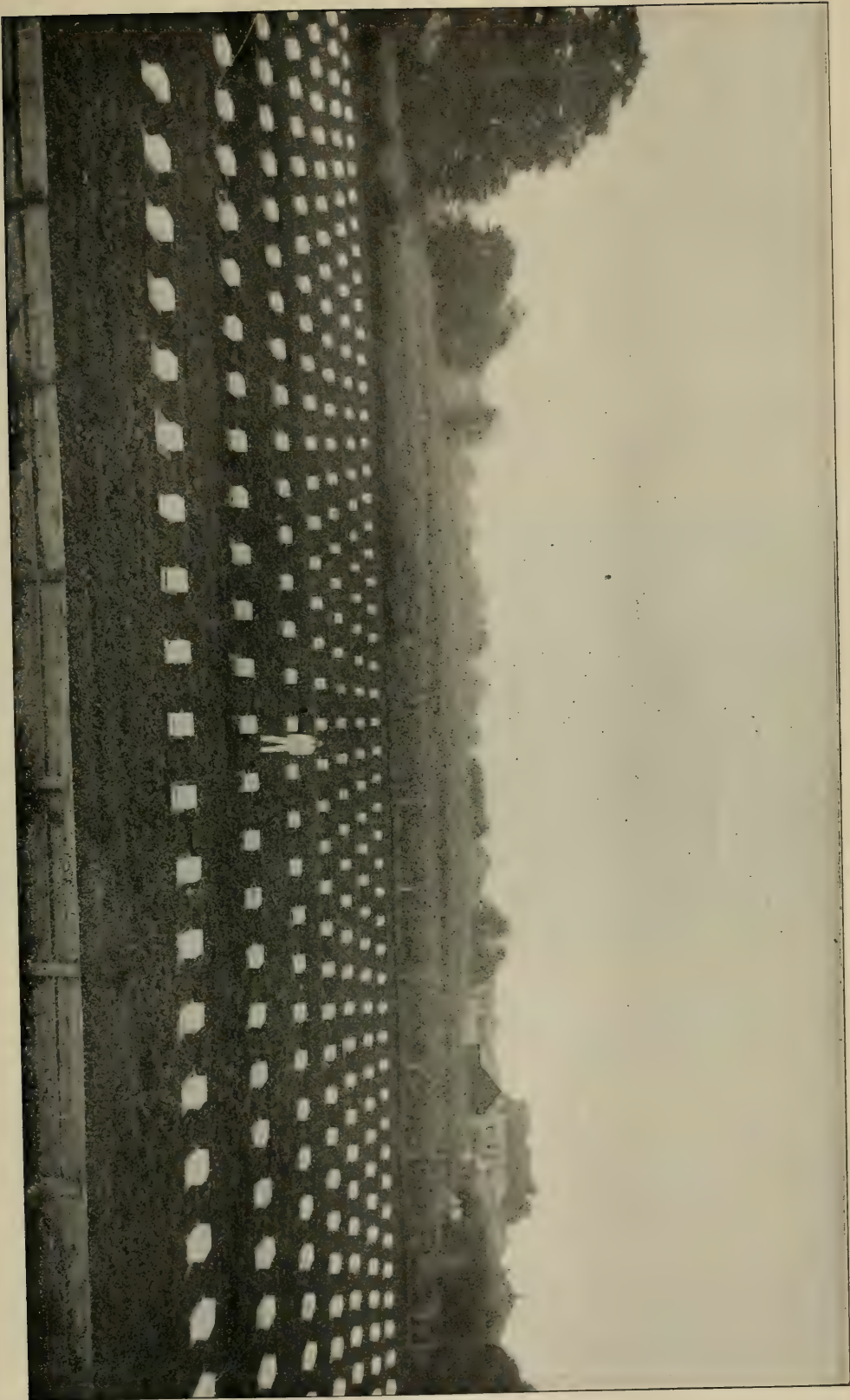
This apiary is located in Salem, N. J., on the east side, near the Delaware River, and along Salem Creek. The water tempers the west and north winds, so that early spring brood-rearing is favored. The soil is sandy, very dry, and the temperature of all this country is very mild. It is a great agricultural and fruit country, with a great abundance of clover and other honey-bearing flora.

This yard was made up by starting in July, dividing single colonies up into three and four frame nuclei, introducing an Italian queen to each, and feeding sugar syrup till each nucleus became a fair-sized colony at the time this picture was taken. The Alexander method and bottom-board feeder was adopted, giving most excellent results.

We find it is cheaper and certainly more satisfactory to make bees out of sugar syrup than to buy a mixed lot in all kinds of crooked combs in poor or odd-shaped hives of the so-called farmer bee-keeper. I speak of this in this connection because I do not believe it ordinarily pays one to invest four or five dollars apiece for ten or twenty colonies, in all kinds of hives and frames, because the same money invested in sugar, with the right kind of management, will insure a larger force of bees uniformly marked, of the desired strain, on combs built from foundation that will be as straight as a board, with the further advantage that every thing will be new, uniform, and first-class.

We have often wondered why there were not more who would be willing to furnish bees. A good many have tried it and given up in disgust. Why? When a customer sends off a distance for a colony of bees or a nucleus, he expects, first of all, well-marked bees, perfect combs, new frames, and a clean new modern hive or a nucleus-box. Too many who have essayed to go into this business have sent out colonies in the hives in which they were—frames old, combs imperfect, and bees poorly marked. The result is a confab between the purchaser and seller. The remedy is obvious.

But, more than all else, *it is very important* that any one who attempts to sell bees be familiar with bee-diseases—enough so, so that he can detect any infectious trouble at



THE A. I. ROOT CO.'S APIARY, LOCATED AT SALEM, N. J.

the start. It is also necessary for him to recomb these bees about every two years, even though the old comb, three or four years old, be perfect in every way. Why important? To get rid of any possible germs of disease that may be lurking in the old combs.

There is sure to be a demand for bees in colony and nucleus form; and I think the time is fast coming when the government will be called on to inspect the bees, hives, and combs of every one in the country who sells bees. The same thing is required from those who furnish trees; and if we would keep down the spread of disease, the apiary or apiaries from which bees are sold should have a clean bill of health, tested by inspections made from time to time.

I also believe the government should require the recombining of the yards every so often. In our own practice the bees are recombined automatically; for in the process of dividing, putting in frames of foundation, and feeding, in order to recoup the losses due to sales, the recombining process necessarily takes place.

POSITION OF THE HIVE-ENTRANCE.

Ventilation, and the Relation of Cluster to Entrance; Consequence of Shifting the Entrance from One Side of the Hive to the Other after the Cluster has Formed.

BY ALLEN LATHAM.

Some time last spring the editor suggested that I write an article this fall about the position of the hive-entrance, especially its relative position with that of the brood-nest center and the winter cluster. I was also asked to express my views on the effect of the position of the entrance upon successful wintering.

In undertaking a study of this sort one must go to the bees themselves and see what their wishes are. If they are indifferent to the position of the entrance, then we can be indifferent; but if they are particular, then it behooves us to be particular.

After a colony is well established in a hive it almost invariably draws its brood-nest toward the entrance, pushing the stores upward and back. Exceptions to this rule can almost always be accounted for by some peculiarity which the exception offers, in the way of hive-form, character of comb, or size of entrance. A large entrance with abundant air supply will tend to keep the brood-nest further back, while a small and insufficient entrance will cause the near approach of the brood-nest.

If I am right in my conclusions, this movement of the brood-nest comes about from the necessity of controlling the temperature of the air within the brood-nest itself. If the entrance is small, the bees are forced to cut down the distance to the entrance in order to regulate the condition of the air in the brood-nest. If entrance is large, there is ease of ventilation, but difficulty in protect-

ing the brood from the chill of a cold spell, hence the remoter position of the brood-nest.

Character of combs will have material effect upon the position of the brood-center. The brood-center is generally in or about a good straight worker comb, and is generally far removed from drone combs and crooked, irregular combs. Thus we see two controlling factors which govern the position of the brood-nest as respects the entrance; namely, ventilation and good comb.

The importance of this subject is as yet scarcely apparent; and lest the reader begin to wonder what I am aiming at I must hasten to speak of the mutual effect upon wintering which the brood-center and the entrance have. When a colony ceases its brood-rearing in the fall, it draws together about the comb from which its youngest bees are emerging, about those combs which, by means of their empty cells, offer the possibility for the most compact clustering. There, surrounded on most sides with honey, the cluster of bees will stay, to survive the winter or to perish. Move slightly for food it must, but no distant move will be made unless a forced one.

If the apiarist practices contracting the entrance in late summer, then the cluster will be found centered opposite that contracted entrance. If the entrance be in the middle, then the central combs will be occupied; if the entrance be to the right, then will the cluster be at the right; if the entrance at the left, then the bees are at the left. Not only this, but the bees will have stored their winter stores within easy range of this center, having filled in the adjacent cells as the bees emerged from the lessening brood-nest.

Suppose the apiarist does not contract the entrance till late fall, after the bees have ceased to breed. Then the brood-nest will be well back, and chance alone will determine whether it will be at the right, in the middle, or at the left. If the contracted entrance be in the middle, no harm may follow; but if the entrance be at the left while the cluster happens to be at the right, or *vice versa*, then disaster is almost sure to follow.

Another factor enters into the determination of the position of the brood-nest center. If the hive faces east, then the cluster will be on the right; if to the west, then the cluster will be on the left; that is, the cluster will be on the sunny side of the hive if combs and entrance make that possible.

As winter comes on, the clustered bees next to the warm side of the hive, with the hive-entrance just handily opposite, are in the best possible position to winter. They are in that part of the hive which keeps dry and well aired. Such is usually the case when bees are left to themselves. But it so happens that few colonies are left to themselves. Suppose the indifferent apiarist blocks up the right of the entrance while the winter-cluster has been established at the right. This act of the apiarist shuts the bees off from fresh air by several sheets of comb, and, more than that, greatly lengthens their path to a safe

winter flight. The bees, since the air is sluggish, suffer soon from moisture, and require frequent flights to keep in health. Seeking flight when the conditions for flight are bad, and along a cold path between the cluster and the entrance, causes the death of not a few bees. Unrest prevails, and conditions get worse and worse. A severe winter kills a colony thus situated; a mild winter leaves it in a condition difficult to build up to satisfactory strength in time for the harvest.

Thus we see the need of using great care in contracting the hive-entrance for winter to see that the entrance is left *opposite* the cluster. Some apiarists avoid the difficulty by using full-width entrances of less depth. Theoretically, surely, a wide shallow entrance is far safer than a narrow deep one. In my own apiary I have found success in a wide and also deep entrance. Whatever the entrance, it must be in part or wholly opposite the clustering bees, if one desires the best results.

warm and dry. Parts far removed from the entrance are damp, and, if unwarmed by the sun, coated with frost.

This is how it comes about: The air in the hive is constantly circulating, though it may be only slowly. The air next to the sunny side warms and takes up moisture; and, reaching the colder portions, is chilled and gives up its moisture. This moisture is deposited as dew or frost. This process goes on every day, converting the south side of the hive into a place of a pleasantly dry and mild climate; but the remote, shaded wall of the hive acquires a frigid and alpine climate. If in any way the apiarist forces the bees to try existence in this alpine climate he is dooming them to almost certain destruction should the winter prove at all severe. If, on the other hand, the cluster be so fortunate as to be situated in the mild climate of the hive, and has easy access to outdoors, then the winter must be severe indeed to bring about its destruction. If the kind apiarist also sees



EXHIBIT MADE BY M. H. HUNT & SON AT THE DETROIT STATE FAIR. SEE EDITORIAL.

Some apiarists practice shifting the hives as winter draws near, so that all face south, having in summer faced in various directions. There is danger here; for in this shift the natural instinct of the bee will in many cases be set at naught, thus putting the bees at a great disadvantage for coping with the long cold spells of winter.

It may not be clear to all my readers why one part of the hive can be any better than another part for the bees to be quartered in, and a few explanatory words right here may help.

The inside of a bee-hive in winter has a range of climate equal to that offered by many degrees of latitude or many feet of altitude. Some parts are dry, while others are reeking with moisture. Some are of mild average temperature, while others are frigid. That side upon which the sun shines and that part of it adjoining the entrance is

that the front of the hive be of a color and character to absorb a large percentage of the heat of the sunshine which strikes it, so that the moderating of the climate within is accentuated, then will the bees have a winter paradise.

Norwich, Conn.

[Our correspondent has doubtless stated the correct philosophy of ventilation and its relation to the cluster and entrance. The conditions he points out, however, may and probably do vary in different localities.

In our locality the winter cluster will be found well forward at the beginning of the season. This may be due to the entrance ($\frac{3}{8}$ inch by 8 inches) being too small; but if larger we have had bad winter losses. As the stores are consumed in front of the hive, with this contracted entrance the cluster gradually works its way backward, following

the stores until it reaches the back end. While I state this as a general condition, there are exceptions. Sometimes the cluster with the same-sized entrance will be at the back of the hive in the beginning of winter, and move forward; but of hundreds of colonies that I have looked over in our own apiaries I find the cluster almost invariably clear up against the front of the hive, and directly over the entrance. As we make it a rule to make an entrance $\frac{3}{8} \times 8$ inches wide in the case of an average colony, the cluster as a rule is on the center set of frames.

ADULTERATIONS IN WAX.

A Curious Adulterant.

BY E. R. ROOT.

As I have before explained in these columns, our foundation department has to be constantly on the alert to detect adulterations in wax, especially a promiscuous lot gathered from many different sources, and sold by one party. Some little time ago I showed how a stone had been neatly imbedded in a cake of wax.



A CAKE OF "ADULTERATED" WAX SENT TO MEDINA.

These facts, together with those related by Mr. Latham, go to show that a cluster of bees seeks the point of greatest ventilation. Temperature does not seem to play as important a part as fresh air in this matter of selection.

We lost only a few colonies, comparatively, last winter, and nearly all of *those* had an entrance clear over to one side. The trouble was we shifted the entrance to one side *after* the cluster had formed for the winter nap, with the result as stated. Mr. Latham's point, not to shift the entrance away from the cluster after it has once formed, is well taken.

In the first paragraph I stated that the bees, in locating their cluster, seemed to seek ventilation. Perhaps some will raise the question, "Why would it not be a good practice to enlarge the entrance an inch or an inch and a half by the full width of the hive?" We have tried it several winters, and always to our sorrow, and find that most colonies will die before the coming of spring. Even a small entrance placed in such a position that the piercing winds of winter will enter it is quite liable to result in the loss of the bees. Outdoor-wintered hives should have the entrances protected by a barn or other out-building, fences, thick shrubbery, any thing and every thing that will break the force of the piercing blasts of air from any direction.—ED.]

This time I present a very curious form of adulteration, the adulterant being five wire nails driven down into the center of the cake. The cake weighed only one pound. Apparently the person who prepared it scooped out from the center of the cake a depression. Into this he drove five nails, then covered it with a nice soft ball of wax which he molded to fit the cavity. But the "filler" was of different color, and naturally attracted the attention of our men when it came up for inspection. A knife was inserted under what seemed to be a scab, with the result that the nails showed beneath.

This illustrates the old truth that some people actually work harder to practice deception and methods of dishonesty, and get less for it, than they would if they attempted to deal on the square. This person must have spent a good deal more time in fixing up this small cake of wax in order to make it weigh heavier in the extra weight secured, than the wax was worth, five times over. Actual computation shows he gained $1\frac{1}{2}$ cents in added weight to the cake of wax, but probably wasted ten cents' worth of time in making a bungling deception. The man who would sell himself so cheaply as this must be a very poor specimen of manhood, to say the least. It is just such fellows as this who would sell their vote for a drink of beer.

THE ALEXANDER METHOD OF BUILDING UP WEAK COLONIES IN THE SPRING ENDORSED.

Wintering Without Bottom-boards in a Dry Cellar.

BY CHAS. G. MACKLIN.

Early in March I took my bees out of winter quarters and found a good many very light in stores; in fact, all but about six were too light to last until fruit-bloom. They had been out of the cellar only a few days when the weather turned very cold, and I had to hustle them back; but before I did so I gave each colony ten pounds of partly capped sections. They remained in the cellar until settled weather came in April; but the moving was a detriment to them, and I lost half as many during the five weeks they were in the cellar the second time as I did all winter. I gave them a careful examination when set out the second time, and found quite a large percentage with only a handful of bees, and with some brood and nice-looking queens. These were placed over my strongest colonies, with a queen-excluding board between, and left in this condition possibly four weeks. The treated colony was then left on the stand of the strong colony while the latter was moved to a new location. In every instance

I met with success, barring one exception, and that was where the colony had contracted the swarming fever. This colony swarmed out a few days after being treated, and the queen in the upper colony was killed, no doubt by the rush of bees past her in making their exit. Several colonies were queenless, the reason for which I will explain further on, and these were treated by the method recommended by Mr. Alexander. In each case I built them up into strong colonies before June 15. Several parties have reported that the Alexander plan did not prove a success with them; but at the present writing I do not know of a better plan to use, nor one with which I have been more successful.

When my bees were placed in the cellar last winter I decided to try both plans advocated as to bottom-boards. Half of them were left with an inch space below, and the other half were piled up without any bottom-board. I found no queenless colonies in the spring among those left with a bottom-board, while those from which the boards were taken away had two queenless colonies. It is possible that the queen fell down upon the cellar bottom during the winter, and was lost; while if there had been a bottom-board on she could have crawled up among her flock again.

Morrison, Ill.



UNCLE SAM: "GET OUT O' THERE, Y' FOOL!"

[The cartoon above appeared in the *Plain Dealer*, of Cleveland, illustrative of an international complication that arose. The Japanese as a race are not unlike a colony of bees, which, when their rights, fancied or real, are molested, are quite quick to resent it. The cartoon, at the time of its appearance, therefore, was not inappropriate as illustrative of the condition as it then existed. Uncle Sam's expression of disapproval of the boy's expected fun is very apparent. The rest of the story is easily imagined.—ED.]



HIVES SHALLOWER THAN THE DANZENBAKER.

I have been using the Danzenbaker hive for about seven seasons, and like it all right except that it takes too much work to keep it clear of pollen in this part of beedom. I do not use excluders on it. But for perfected products, such as I get in the 4x5 sections, it is equal to any hive I have ever used. I have never tried a hive any shallower than the Danzenbaker; but could I dispose of my Langstroth size I would embark in a new venture. I think the shallow hive you have cataloged would be my next choice. I think the shallow hive embodies new and heretofore untried principles here in the South.

I believe that, with the shallow hives with an excluder, we shall lessen the amount of pollen in the sections and minimize propolis also, if we keep the hives well protected from the rays of the sun, and warm in the fall of the year.

Our opportunities are great for forcing the bees to go above; and by the use of the excluder we can keep the queen below. We

can fill the lower story full of brood, and add another made up from other hives that we do not expect to get any surplus from. When this added super of brood has hatched, the combs may be set on the hive that we originally took them from, to be filled for extracting. Now our hive is full of bees, and they will chuck the honey in the sections—all of it, too, because there is no place below for it. If the season shows to be one of longer duration it would be a good idea to give the queen another super full of brood—perhaps better set under the excluder this time. I believe that superfluous swarming could be reduced to a minimum, even if comb honey in sections were the main crop sought for.

If the size of the improved extractor could be reduced so as to cost less, but take from four to eight of these shallow frames (we have a plenty of extracting-frames already of the shallow makes to demand an extractor to take them) it would be a greater inducement to sell off the old-style deep frames and get down to things more modern.

Levita, Texas.

J. W. GUYTON.

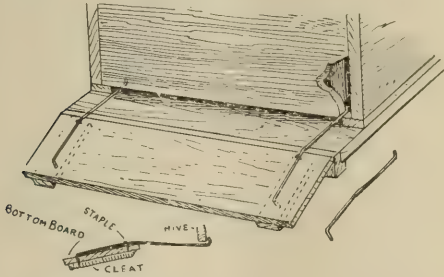
[You will see elsewhere in this issue that we propose to have a series of articles on the subject of divisible-brood-chamber hives, their uses and abuses, by one who has made a success of them. This writer will tell how, by their use, to produce the finest of comb honey, and at the same time control swarming. This series of articles will begin somewhere about the first of the year.—Ed.]



A FEW CONSUMERS OF EXTRACTED HONEY; THEY TESTIFY TO THE VALUE OF HONEY AS A PREVENTIVE OF COLDS.—SEE NEXT PAGE.

AN EFFECTIVE WAY FOR ATTACHING ALIGHTING-BOARDS TO HIVE-ENTRANCES.

In order to attach alighting-boards to the entrances, take a stiff wire, about No. 9 or 10 size, and cut two pieces about 8 inches in length; bend them as shown, thus:



Take any kind of board as wide as you wish your alighting-board. Put two little cleats on the under side, with nails; then drive the $\frac{3}{4}$ end of wire through the board and cleat, leaving out the stout end hook; hook the stout end into the entrance so as to catch inside of the hive. Your alighting-board is as wide as you want it, and will not get out of place either on a hive on the ground or on one on a high bench.

Bend the wire at such a length as to leave no space for bees to jump over from board to hive. I have to use it on the old-style Danz. board. An old barrel will furnish stuff to make them, some staves being plenty wide on a biscuit or cracker box, when one has no lumber to cut up. Wires should be near the end to be out of the way.

Lindsays, Va.

D. L. MORRIS.

[The doorstep here shown is certainly very excellent, simple, and effective. Such doorsteps will easily pay for themselves in the early fall or spring of the year. Many bees will be lost in coming out on the first bright day, and, being chilled, on returning they will be unable to get into their hive unless an easy runway is provided.—ED.]

EXTRA-FANCY COMB HONEY WITHOUT SEPARATORS.

I use the 4x5 beeway sections, and always have to pay extra for them, but they are the best, in my estimation. You state in GLEANINGS that there is no first-class honey produced without separators. Now, I can send you some of the very finest of section honey that was produced without either fence or separators. My crop for this year, 1906, is 1000 lbs. of section and 545 of extracted, taken from 24 hives of weak colonies, spring count. Now my sections will grade extra fancy, all but 100 lbs. produced in sections of last year, which is a little darker in capping, but it is all straight, and would crate either side to—in fact, I produce it so nice that I exhibited 400 lbs. at the county fair three years ago, and so perfect was it that they nearly all called it manufactured—said it was impossible

to get bees to do such straight nice work. I always find a ready sale at 18 cts. for 10 lbs. or more, and 20 cts. for any thing less. Other bee-men using separators get 14 to 16 for their best.

A. KOONTZ.

Crestline, O.

[We have no doubt that *you* can produce beautiful comb honey of the finest kind without separators; but the average bee-keeper, judging from samples of honey that have been sent here, not separated, makes a bungling mess of it. I have some on my desk now which, if it had been separated, would bring a good price. As it is, the honey will have to be cut out of the sections and sold on wooden butter-dishes. But say, friend Koontz, you must have some scheme or plan by which you can produce such fine honey without separators. Granting that there is something in the man and management, there must be something in the device itself. If you have no objections we should be glad to illustrate it in these columns. We will pay all expense of photos or drawings; or send your section-super here and we will prepare an illustration of it.—ED.]

HONEY AS A PREVENTIVE OF COLDS; A FAMILY THAT KEEPS WELL BY EATING HONEY.

I am sending you a photo of our family—myself, wife, and eight children. We do not eat much comb honey, but large quantities of extracted. In years of scarcity of honey we would get out before the winter was over, and I always noticed that almost all of the family would have had colds. Honey, I think, is a great preventive of colds. We live in a beautiful valley, four miles from the village of Greene, N. Y., on the Chenango River. Here basswood is abundant all along the river-banks and on the hills. As much as 120 lbs. of comb honey has been gathered by a single colony here. We noticed your offer in your issue for June 1, so we send a family photo, hoping it will be acceptable.

B. H. BRADLEY.

Greene, N. Y., Aug. 17.

WHAT IS A PURE ITALIAN QUEEN?

Will you kindly give me an exact definition of a pure Italian queen? I have expected them to produce bees, *every one* of which would show three bands, but have been disappointed every time. I have procured new queens. In every case I have found some bees that did not show a single band. In some of the instances the dark bees *may* have come from other colonies; but in the present case (a \$5.00 queen from a reliable breeder) the hive is situated over 30 yards from any other colony, in a window; so where have the black bees come from? The majority of the bees are plainly marked (the young bees quite handsome), but quite a number of bees can be picked out showing no yellow markings. How can I distinguish between a pure Italian and a hybrid? I have read up the subject in the A B C. Can you shed any further light on this case? I feel sure that I

have had mismated queens as pure, many times, but could not prove it; yet in this case I am disposed to believe the queen-breeder honest. This queen, I might add, has a clipped wing.

L. W. DARBY.

Hahndorf, Australia, June 1.

[A pure Italian queen may vary all the way from a solid yellow to a solid black. Her purity must depend on the markings of her bees.

Our A B C of Bee Culture goes into this question of the markings of three-banded Italians more fully than we can possibly do it here. As you have read this it will not be necessary to go over it again. Your confusion arises from the fact that a few bees will scatter from one colony to another a great deal more than you suppose. If you had one or two good colonies of Italians, and ten to twenty of hybrids and blacks within a hundred feet, you would probably find among those Italians quite a sprinkling of blacks as well as one or two banded ones. These would be simply interlopers from other hives.

Some of our readers have doubtless noticed, when they have purchased a Caucasian queen, and placed her in a colony of Italians, in an exclusively Italian apiary, that, even after months had elapsed, there would continue to be a sprinkling of yellow bees in her hive that ought to have only black ones. This would not prove that the Caucasian was not pure, but, rather, that a few yellow bees had probably made a mistake in their home.

The question might arise in this connection, "How can one *know* whether he has a pure Caucasian queen where there is a great preponderance of Italians in the yard?" By simply noting the markings of the very young bees as they emerge from the cells. If one is seen to crawl out of its baby quarters with one or two yellow bands, the presumption will be that the Caucasian was not quite pure.—Ed.]

RAISING CHICKENS ON AN ISLAND: A SUGGESTION.

Mr. A. I. Root:—I have noted with interest your experience with chickens on the Florida island, and believe that it will probably cause some young men to try the scheme. Now, I am a chicken-man, and, with others, know that most of the trouble with chickens is mites, lice, and contagious diseases. Now, why not note the idea in GLEANINGS, that, if there were no chickens taken on to such an island, only eggs and an incubator, getting only eggs to hatch for change of cockerels, there would be no lice, mites, or diseases on the island, and the greatest trouble with chicken-raising would be done away with?

J. R. MOONEY.

Butler, Mo., May 20.

[Friend M., your suggestion is certainly a good one. Prevention is better than cure—in this case at all events. I think, however, starting with fowls that are entirely free from the pests you mention amounts to the same thing—that is, if you can find such fowls; and Mr. Shumard's seemed to be remarkably

free from every thing of the kind. I feel so sure that there is a wonderful opportunity along this line I am just now planning some experiments of my own for the coming winter—I mean experiments in a locality where there is no need of any coops or buildings whatever for the protection of either the little chicks or grown-up fowls.

Now, here is another important point for our friends in Florida, or anybody else who contemplates going there or anywhere else where there is no freezing. If you have no buildings or coops to make, your capital may be all invested in stock—something that has a marketable value; and when for any reason you want to quit and go home you can turn your whole stock of fowls into cash any day in the year. Last winter friend Shumard thought he had more than he wanted to look after, so he packed up something like a hundred fowls, young and old, pullets and roosters, and sent them by boat to Sarasota, and I think he got 50 cents a bird for the lot right through; and those chickens were never inside a building of any kind, size, or shape in their lives. They had not even a place of shelter to go under when it rained; and they were the healthiest and liveliest lot of chickens, and the *handsomest*, too, I ever saw in my life.—A. I. R.]

SOME IMPROVEMENTS ON THE HIVE-CARRYING RACK.

May I suggest two or three alterations in the hand-barrow or rack used for carrying bees in and out of the cellar? I have one that has been used 16 years, and is in good order yet.

First, I put the legs about three inches further apart at the bottom than at the top. It makes it more secure while loading.

Second, in shaping the end of the handles I have it a little wider at the end. One can get a firmer grip, especially if he has to go up hill.

Third, in carrying a heavy load (we have put seven hives on) we use a rope tied to the handles, passed over the shoulders. It relieves the strain on the arms. These are little things, but they help a good deal.

State Mills, Wis.

GUSTAVE GROSS.

[These suggestions all seem to be good. The device was illustrated on page 440 of GLEANINGS for April 1st. With this before the reader he can incorporate the changes suggested.—Ed.]

UNCAPPING-KNIVES WITH SCALLOPED EDGES.

I would suggest making those uncapping-knives, page 937, with scalloped edges, like those scalloped bread-knives. I have been using one of the latter for several years, and think they work well, using the same with either a drawing or sawing motion.

HERMAN BETKE.

St. Louis, Mo., July 30, 1906.

[I should like to hear from some of our extensive extracted-honey producers on this point;—Ed.]

A THOUSAND ACRES OF CLOVER AND NO HONEY CROP; BEES UNABLE TO REACH THE NECTAR IN THE BLOSSOMS; THE ONION-THRIP.

In this valley there are about 500 colonies of bees, some 2000 or 3000 acres of alfalfa and white clover. Beginning on the first of July with alfalfa, and ending about the first of September, there is a continual honey-flow. Up to this date there is no honey, and I am compelled to feed my bees. There is easily a thousand acres of clover in full bloom within five miles of my apiary (some 290 colonies), and not a pound of surplus honey. Upon examining the bulbs of some of the flowers I find a small winged insect about $\frac{1}{8}$ inch in length, with a body about as large around as a small needle. I counted 474 on one stalk of clover. What I want to know is, can it be that these are taking the honey? RALPH I. HALE.

La Plata, N. Mex.

[The above letter was sent to Prof. C. P. Gillette, of the State Agricultural College, Fort Collins, Colorado, who replies as follows:]

I have been waiting, thinking that I might receive samples of the insect that Mr. Hale obtained from heads of clover near his home. It would be impossible for me to state with certainty what the insect is; but there is almost no doubt that the clover-heads were loaded with what is commonly called, in this section, the onion-thrip. This is a very minute insect which can be shaken into the hand from the heads of clover, alfalfa, and other plants. This insect is frequently numerous enough in portions of Colorado to prevent almost completely the seeding of the alfalfa, and I presume it is this insect that was present in the clover-heads.

I can hardly think it possible that these thrips could be numerous enough to prevent the secretion of nectar, but I am inclined to think honey-bees are unable to reach the nectar in the blossoms. C. P. GILLETTE.

Fort Collins, Colorado.

WATER STORED IN COMBS; THE LESSER WAX-MOTH.

I just went through my colonies, and found some badly infested with the lesser wax-moth, a thing not known here before at this time of year. This is the height of swarming here. Most hives seem to be building up nicely now, and storing some honey in the strong colonies. I can't get any drones in my Italians. Can I get them by placing drawn drone comb in the brood-nest? Italians are doing the worst of any—moths worse in them. The Carniolans are the most prosperous, and gentlest of any.

I wish to give some facts on the question of whether bees store water. I kept thinking I would make a reply to the statement in GLEANINGS last year, by Prof. Cook, p. 229. Dr. Phil. Max Boelte makes it pretty plain, page 589 of the present volume.

In April, 1905, I bought four colonies of black bees in box hives, and after bringing

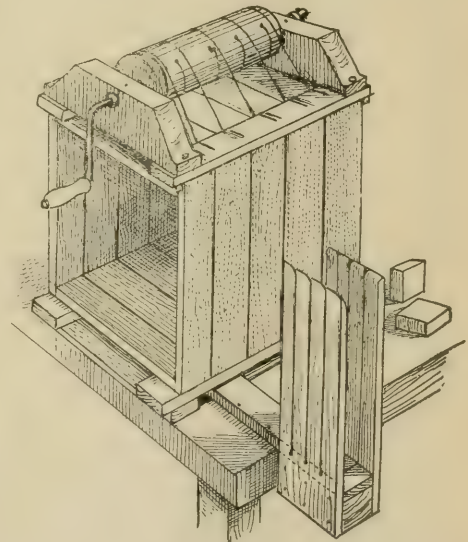
them home I waited a few days before transferring them. One colony was weak, but went to raising brood in a hurry, considering their strength. When I went to transfer them, in taking out the comb, right in the brood-nest was a spot the size of my hand that was filled with the clearest honey, I thought, but not sealed. Now, in laying the combs in a large pan it ran out on my hand, and I put it to my mouth; but it had no honey taste. Then I examined it when fixing combs in frames, and found it to be pure water, the combs filled on both sides on a place about the size of my hand. How they kept it there I can not tell, but it was there all the same. J. L. BARKLEY.

Bargain, Miss., May 7.

[There has never been any question that bees *gather* water; but that they *store* it in combs has been somewhat of a question. The reports already in give us proof, I think, that they do under certain conditions put it in the cells.—ED.]

CANDIED HONEY IN NEW ZEALAND; A NEW MACHINE FOR CUTTING THE CAKES INTO SMALL BRICKS.

This illustration shows a honey-cutter that does its work well. The box of the cutter is made of wood, and large enough to hold a block of honey that has candied in a 60-lb. can. The tin has first to be cut off (we in-



tend to experiment with wooden boxes that will take to pieces by unscrewing; but at present, as we lose the can when we sell it, we look upon it as no loss when we cut the can; then strong piano wires are led round the block 3 inches apart, through slits left in the inside box. These are fastened to the drum of the windlass on top, and, after a few turns of the crank, the wires have done their work straight and neat. These large blocks

are then put in the little wooden apparatus to the right, and cut into slices 1.8 inches square. This gives you a block of honey $3 \times 1.8 \times 1.8$, exactly $\frac{1}{4}$ lb. The blocks are then covered with two papers, the outside one printed with the name and address of the producer. These small honey blocks have taken immensely here, the grocers preferring to sell it all ready in paper, and the housewife also preferring it in paper to digging it out of a bottle.

One great feature of honey cut into blocks is that it looks clean and attractive, and the wrapper costs next to nothing—hence a greater demand for honey. The inventor of the honey-cutter is Mr. James Allan, of Wyndham, Otago, New Zealand, president of the most southern bee-keepers' association in the world.

ROBERT GIBB,

Sec. Southland Bee-keepers' Ass'n.
Tuturan, New Zealand.

[I do not know of any reason why this machine would not work as stated by our correspondent. We should be glad to have some of our readers try it and report.—Ed.]

THE SIDE ENTRANCE; ITS EFFECT ON OUT-DOOR-WINTERED COLONIES.

I noticed in May 1st issue of GLEANINGS that you had some trouble with some of your bees that you wintered outdoors. You seem to think the trouble was due to having the entrance opening at one side. That might be so at Medina, but here in Bairdstown and Bloomdale the side entrance has no bad effect, as I always use one piece for closing the entrance, leaving the opening at one side; but I also reduce the entrance to $\frac{1}{8}$ inch depth. I note you had yours $\frac{1}{4}$ inch deep. Another thing I do is, I always have the front of my hives face the east, and leave the opening on the south side, which is 2 inches wide; and, by the way, there is another thing I have noticed in the way I have the entrance closed; and that is, the bees nearly always start brood-rearing in the north side of the hive.

A. J. OBERLITNER.

Bairdstown, Ohio, May 17.

A DRONE-LAYING QUEEN; CAN SUCH A QUEEN, BY FEEDING EXTRACTED HONEY, BE MADE OVER INTO A GOOD QUEEN?

I have just noticed, on p. 1129, the criticism by Dr. Brunnich, of Zurich, Switzerland, of a statement made by me on page 1239 of the year 1905, in regard to the queen purchased from The A. I. Root Co. in 1903. For the benefit of the doctor—or any one else who may be interested—I wish to say that that statement was *literally true in every particular*. If I had not known it to be true I might have *guessed* at it, and asked for information; but I didn't. Soon after she was introduced and had commenced laying one wing was clipped, and I was so greatly interested in her and the results that she was watched during her whole life. The

hive was filled with frames of worker comb built on full sheets of foundation. The center of the inside frames was occupied with hatching brood, more than two-thirds of which were drones. These frames were shown to a couple of my lady-friend bee-keepers, and their expression was, "*Isn't that too bad?*" She looked thin—in fact, "spring poor," and of a rusty color; but after carefully feeding the bees with good honey for a few days she commenced to fatten, look plump, and assume her rich golden color again; the drone eggs disappeared, and in midsummer I made four nuclei from her colony. Late in the season she commenced laying drone eggs again in worker-cells, and I reluctantly superseded her. This singular instance tends to explain to me a principle in parthenogenesis which has puzzled even scientific investigators, and, if I'm not mistaken, is not yet fully settled; namely, the cause or manner of fecundation of the egg as it passes along the oviduct. This is a very interesting subject to me, and it would give me great pleasure to read the opinions of close observers on the subject. If the matter is under the control of the queen, why drone eggs in worker-cell and afterward to worker eggs only?

THE VALUE OF THE PROTECTING CASE FOR SECTIONS.

I note with interest what Mr. C. D. Farrer has to say on page 1118, and your comments thereon regarding the necessity of protection of outside sections, and the use of cushions over cases, etc. This matter of protection in our northern localities I have considered very important, and have practiced it always. It is one of the considerations which make the kind of hive I use so valuable. There is a dead-air space under the cover of this hive, even with the cushion on. They are kept on my hives except in the very hottest weather, and, some seasons, all summer.

Lake Geneva, Wis. WM. M. WHITNEY.

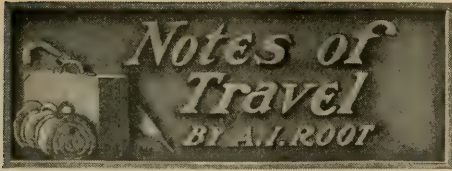
[Dr. E. F. Phillips, of the United States Department of Agriculture, has probably given this subject of parthenogenesis, so far as it relates to bees and queens, more thought and study than any other late investigator. We should be glad to hear from him on these points.—Ed.]

SWEET CLOVER A BIENNIAL.

Referring to the first Straw, p. 1167, please look into this matter further and see if sweet clover (*Melilotus alba*) is not a biennial, the nature of which is to die after seeding. This may help to account for Dr. Miller's observation. However, the constant cutting may still be true for young plants, while old ones will die of themselves. E. J. WICKSON.

Berkeley, Cal., Oct. 1.

[Prof. Wickson, dean and acting director of the California Agricultural Experiment Station, is correct, entirely so, and we hasten to offer our apologies for the implied statement to the contrary on 1107.—Ed.]



MORE ABOUT THE WIND CAVE OF THE
BLACK HILLS, SOUTH DAKOTA.

I forgot to say in my last that Minnekatah is the name given by the tribe of Sioux Indians, meaning hot water—*minne*, water, and *katah*, hot; and the Indians had the same opinion that the white people have now, that these hot springs possess rare medical qualities right from the hand of the great Father direct. A great battle was fought between the Sioux and the Cheyennes for these same hot springs; and Battle Mountain, the highest peak in the Black Hills, was where this battle took place. This mountain is plainly visible all along the route from Hot Springs to the cave. Of the 100 miles that have been explored already, less than a dozen miles have been mapped out by the guides and fitted so that visitors can get through comfortably. Of the 3000 chambers, the largest one, called the Fairgrounds, is said to cover three acres. I confess that, when I looked over the Fairgrounds, even with the help of the magnesium lights, it did not seem to me as if there was more than one acre; but, of course, there have to be supports for the rocky roof at intervals, not far apart, or the whole of it might come down. The largest room in Mammoth Cave is said to be only two acres.* The reason why visitors are not conducted over more of the 100 miles is the expense of fitting up paths and passageways so one can get through comfortably. The cave seems to have been formed by paralleling crevices or fissures side by side, running up and down, with but little regularity. Now, besides up-and-down crevices there are eight tiers of chambers, one above the other; and the water rushing through these crevices, and eight stories, through ages, has worn off the sharp corners, forming the strange figures that now impress the traveler. It seems to be much like the galleries in an ant-hill; or, if you have never seen a torn-down or partially torn-down ant-hill you might liken it to an enormous sponge. Wind Cave is unlike Mammoth Cave in its decorations, in several respects. First is the curious box work seen almost all through the cave. It resembles a good deal the box work in a postoffice or secretary. This queer formation is supposed to have been brought

about something like this: This rock or mineral, by the action of water or something else, cracked to pieces so as to form cubes. These cracks separated enough to let in water with highly charged minerals. These minerals were deposited, and finally became petrifications, hard and shiny like agate. Well, some different kind of water must at some later time have dissolved and washed out the rock, leaving this agate petrification sticking out like the cells of a honey-comb, except that the cells are square instead of being six-sided. This box formation is found almost all through the cave. Some of the boxes are just about as large as those in a common secretary for filing away letters. Others are large enough to make a good-sized book-case. Some of them stand horizontally, so they might hold books or letters, while others look straight down on you from the ceiling overhead. Then there is another formation all through the cave, which looks like popcorn. I forgot to say this box work is many times almost transparent, and at other times it is shaded or decorated with different colors or shining crystals. The nucleus of the box work is said to be dolomite. As you go down into the ground, as in Mammoth Cave the air becomes warmer; but here we have to go down 500 feet to find a change of temperature of only one degree. I am told that people afflicted with asthma recover instantly on going down into the cave. The air is said to be more highly charged with oxygen, like that in Mammoth Cave, than that outdoors. I know this: That, although I was not feeling at all well at the time, I made the trip (lasting about three hours) without the least bit of fatigue. I think we sat down and rested only once. Everybody who goes into the cave is required to give his name and residence, on a book. This is done in order to make sure nobody is lost by accident. So far every one who has ever gone down into the cave has come out all right. The government does not allow any intoxicating liquor to be sold within twelve miles of the entrance. Hurrah for Uncle Sam! We hope he will keep that up, and keep going a little further. There is no necessity whatever for any artificial stimulant in making the longest trip through the cave.

There are about a hundred different and named curiosities there, connected with some fact in history. I can mention only a few of them. The Bride's Chamber is one of the first, 155 feet from the mouth. A young couple wanted to get married, but the girl's parents objected; but she finally promised her mother that she would not marry any man *on the face of the earth*, without the mother's permission. You see this did not include the underground cavern.

When I gave a description of Mammoth Cave in GLEANINGS for May, 1885, I mentioned there a Bride's Chamber story almost exactly like the above. Our guides, however, were so positive that a couple did get married in Wind Cave, as I narrated, that I think both stories are likely true. This young couple who were married in Wind

*This great chamber was discovered by George Stabler, in 1892. One stormy day, when no visitors were expected, this guide, with a little exploring party, started out with a large ball of twine, fastening the end where it had already been explored. Before they reached the end of the ball they came to this great underground cavern. At one point an elephant's foot sticks down through the ceiling as if the great beast had broken through.

Cave probably had heard of the story of the marriage in Mammoth Cave. Like Mammoth Cave, Wind Cave has a "Bottomless Pit." The one in Mammoth Cave is only 70 feet in depth, while the one in Wind Cave is 90 feet deep; so you see the pit in the latter cave is 20 feet *nearer* being "bottomless" than the pit in Mammoth Cave.

Lincoln's Fireplace was the next. The kindling is all placed ready to light—even the pine knot to light him in his studies—all rocky petrifications. It is well the guide is along to give you the name of things or else you would not guess them yourself or see the point. The Prairie Dog and Mound is one of these. When he says, "There is the dog and there is the mound," you see it very plainly.

In the Chamber of Petrified Clouds the burning magnesium ribbon makes the clouds very plain on the ceiling overhead; and it takes no great stretch of the imagination to believe you are looking at fleecy clouds in reality. A little further on, the ceiling is spattered over with snowballs thrown up against it by the boys. There they are, sure enough, when the guide tells you what it is. There are so many postoffice boxes all through the cave where people have left their cards containing their names and address that I do not know but I got them mixed up a little. It would take a long time to read them all over, especially where you have to brush off the dust that has been accumulating for years past, and you might not find the name of anybody you knew there, even then.

The Liberty Bell, with the crack in the side, is found in Independence Hall Chamber.

The G. A. R. Hall contains a dome that is said to be 110 feet above the floor. This hall was dedicated at a soldiers' reunion in 1899, when there were 96 old soldiers present. Their names are to be seen there, with their respective regiments, etc.

The Cliff-climber's Delight is 60 feet high. Think of a room under ground being large enough to give place to a cliff of those dimensions!

Now, I am a little mixed up about the Garden of Eden, the Mermaid's Resort, and the Pearly Gates. I can not tell from memory just which one; but in one of them we are told to bow our heads so that we do not brush off any thing overhead. Then we are bidden to sit down and look overhead while the guide burns a magnesium ribbon. Well, the ceiling overhead was studded with a sparkling sort of frostwork like little pine-trees with their tops growing downward. Each little tree was of shiny glistering whiteness. It had branches and foliage. I should think some of the plants extended out 6 inches from the ceiling and the sides of the walls. They were so frail, however, that even your breath, let alone touching them with your hands or clothing, would probably throw them down. I declared they *were* growing plants; but the guide assured me that careful measurements seem to indicate there has

been no growth since the cavern was discovered. The government absolutely forbids carrying away any of these curiosities, even so much as a grain of sand; and the two guides, one in front and one behind, keep pretty careful watch to see that there is no violation of this rule. If there were any water in the cave, or any dampness, I could understand how this crystallization might be growing; but, if I am correct, there has never been found any trace of water, even in the lowest chamber.

After the Garden of Eden we take the Corkscrew Path and come to the Glacier. A little further on we come to the Sportsman's Delight, where a goose hangs suspended from the ceiling. "The goose hangs high," and has continued to hang high, no man knows how long. Besides the sparkling scintillations from gems that coat the walls and ceilings, innumerable colored geological specimens confront one at every turn; and you will find every conceivable geometrical figure as well as every color.

There are many stories about people getting lost in the cave. It is said that one of the guides once failed to carry enough candles; and when his magnesium light had given out, his candles were gone or mislaid, and not even a match was to be had in the crowd. By getting down on his hands and feet he managed, by crawling and feeling his way, to get out by daylight next day. It seems to me that, where so many people have been treading for years, they ought to be able to follow the beaten path; but there are so many cross-routes, and crooks and turnings, he might be like one lost in the woods, going around in a circle and getting further and further away from the entrance. With extra guides outside, however, to assist in hunting up the lost, there ought not to be very much trouble. At the present time an extra supply of candles is always taken along, I am told.

Just a word in closing about the wonderful blast of wind that is constantly going out of or into the cave. Some years ago the United States government sent out a commission to explore breathing caves and breathing wells. Somewhere in the Eastern States there is a well that breathes or blows out quite a blast of air at certain periods, and at other times a strong current of wind goes down into the well. Another strange thing about this particular well is that it contains icicles, even in the summer time—at least report says so. Well, this government committee found the story true or partly so. During severe winter weather, when the thermometer was down a good deal below zero, a current of zero air would go down into that well for several days, freezing the water in the well and in the caverns that opened up from the bottom of the well. In this way the quantity of ice was so great in and around the well that a good many times it would not thaw out before summer, resulting in not only a freezing atmosphere coming from the well in summer, but *bona-fide* icicles on the wall of the well. It seems to

me such a place should be explored and opened up, and these air-currents utilized for some purpose. Perhaps some of our readers can tell us more about the breathing wells and caves found in different places throughout this wonderful earth which the kind and gracious Father has given us to live in, to study, and to explore.

O Lord, how manifold are thy works! in wisdom hast thou made them all: the earth is full of thy riches.
—PSALM 104: 24.



Think not that I am come to send peace on earth: I came not to send peace, but a sword.—MATT. 10: 34.

Woe unto them which justify the wicked for reward, . . . and listen to bloody men whose right hand is full of bribes.—ISA. 5: 23; PSALM 26: 10.

Behold the Lamb of God, which taketh away the sin of the world!—JOHN 1: 29.

I clip the following from a recent number of that excellent home paper the *Rural New-Yorker*:

Hen-roosts are so systematically raided in Pike Co., Illinois, that the supervisors of that "district" want the State legislature to enact a law making chicken-stealing a penitentiary offense. The supervisors explained that the hen crop of the State was greater than its wheat crop, and that fully one-fourth of the chicks were stolen annually. So earnest was the plea that the Society of Supervisors, Clerks, and Commissioners of Illinois, which closed its convention in Waukegan, October 11, adopted the resolution.

If any thing moves my indignation, it is to hear about thieves stealing the chickens reared with great care and pains by farmers' wives and children scattered throughout our land. It is indeed commendable to see not only the good wife but the boys and girls engage in poultry-raising on their own farms or around their own homes. This outdoor work takes them out under God's clear sky, and puts them in touch with nature—yes, just as bee-keeping puts folks, little and big, in touch with God and his works. Some of you may remember that I mentioned stopping for a few days at a farmer's home in the southern part of this State. With much pains the good wife had got a fine lot of chickens of some choice breed. Her last work at night was to shut them up where rats and other vermin could not get them; and her first work in the morning was to let them out and see them enjoy their liberty and their food. Just a few days before my arrival she went out with her dishes of feed, opened the door, and called, but not a chicken came forth. A thief had come in the night and taken the fruit of all her hard labor. She sat down and cried. Now, friends, let me explain to you that this woman was under the doctor's care for consumption. Some of the time

she could hardly speak a loud word. She had been raising the chickens so that she might be as much as possible in the open air. They were on a rented farm, and were obliged to use a degree of economy that many of us know little about. All the members of the family were working early and late, striving hard to make both ends meet; and yet some wretch in human form came and robbed her of the result of all her hard work from early spring to the middle of summer. But that is not all. Poultry-thieving was so common in that locality that it was almost an every-day (or every-night) affair. On one occasion the farmer got out, saw the thieves, and ordered them to stop. When he threatened to make them trouble they picked up a gun and ordered him off. Now, I can not remember the full circumstances; but either this same thief or another one like him was caught as he was going into the city of Dayton. He laughed at his pursuers; and when they tried to take the law on him, through some technicality he got off scott free. Do you wonder the farmers in that region are becoming discouraged, and that their wives are becoming discouraged, and begin to say it is no use to try to raise chickens or any thing else? When I heard this story I wondered that circumstances were so different there from what they are here in our own county. We let our bees stand out in the open fields the year round. Our chickens roost in open sheds, without a door or padlock. Fruit and other property are all around, and as a rule it is safe from one year's end to the other. Do you want to know how this comes about? Medina has no saloons, and has not had one for more than twenty years. The thieving done in the southern part of the State, which I have just been telling you about, was close to the great city of Dayton. That city has a population of 86,000; and by the aid of Dun and Bradstreet I have been able to count up two hundred and fifty-six saloons! I do not know much about Pike Co., Ill. Will some of our readers who live there or in that vicinity tell us whether this statement in the *Rural* can really be true? and will they also tell us about the saloons of Pike Co.? I find there are two large cities close to Pike Co. Hannibal, Mo., has about 12,000 people; and that city has 38 saloons, or about 3 for every 1000 inhabitants. Quincy, Ill., with 36,000 people, has 89 saloons, to say nothing of the wholesale liquor-stores—pretty nearly 3 saloons to each 1000 inhabitants. My impression is that the saloons in Hannibal are shut up nights and Sundays. If they were not, Gov. Folk would be after them. In Quincy, I am afraid they run all the time.

Do you wish to know what saloons have to do with stealing chickens? Well, the man who will steal chickens, especially from the farmers' wives and children, is usually a man who will do any thing to get the where-with for drink. He will steal the shoes off from his baby's feet in zero weather, prompted by the hellish appetite. The saloons are

places that harbor thieves of all sorts. They are known at the saloons, they are all patrons of saloons, and the saloon-keepers have facilities for getting them out of a scrape and eluding justice.

Our second text tells us something about the way in which the police are sometimes linked in with saloon-keepers and the whiskey business. They laugh at the farmer and his hard work. If a man who steals chickens will divide his spoil with the saloon-keeper and with the policemen who hang around saloons they will get him off, no matter how plain the evidence is. I earnestly hope Pike Co., Ill., will succeed in making chicken-stealing a penitentiary offense; but if they do not get rid of their saloons I am afraid they will never get the culprit in the penitentiary, no matter how plain the evidence is. Pike Co. should start a big wave of protest and indignation. The people should rise up in a body, and declare that this iniquitous business shall stop. The officers of the Anti-saloon League will gladly assist them in working up a sentiment that will make their county a *dry* one; then the whole State will set to work to start a reform such as they are having in Indiana—yes, and here in Ohio. Let me digress a little.

Some years ago, with a friend I happened to visit a very nice residence, recently planned and built by a man of considerable wealth. We stopped to see his greenhouse and his exotic crops; and as we were looking over the premises, among other things he invited us into the kitchen. Said he, in substance:

"Gentlemen, do you see any flies here? Now, although this is the kitchen, and here is the kitchen back yard, there is not a fly. Do you know why? It is because we starve them out. There is not a thing to bait them anywhere on the premises, and so there is nothing for them to live on. There are no slops pitched out into the back yard; no dirty dishes are left one minute uncovered; during all our cooking, dish-washing, etc., our help understands there is not one scrap of any thing to be left to bait and encourage flies. The slops all go off from the building in a sanitary slop-drain. The dishes from the table are closed up fly-tight, as you see, in the sink where they are washed. Then they are washed so quickly no fly gets a chance to take a sip. It is some trouble; but don't you think it is worth all it costs?"

I should mention, also, that his stables were quite a distance from his house, and the manure-piles were so handled that there was no breeding-place for flies there. Now, friends, it is the same thing with rats. Every little while when I come home from my trips I find rats had gotten to be rampant again, and the folks say they are so bad that they can not do any thing with them. They will not go into traps, they will not eat rat biscuits, etc.; but when I get around they do *both* and get cleaned out. Rats and chicken-thieves and flies and all other like nuisances need *energy* and push

and determination. You want to get right down mad. Yes, it is *right* to get "mad" at rats and mice and flies and chicken-thieves. I was going to add that it is right to give the whole crew a dose of rat poison, but I should have to take it back when I come to the last one of my three texts. That man who kept the flies away from his kitchen and back yard had an easier problem than we have here at our factory. The greater part of our hands bring their dinner in pails. They not only scatter the crumbs where they are eating, but if the good wife puts up more than they need they will persist, in spite of all my pleading, in throwing good and wholesome food around on the ground. While this is going on it is next to impossible to be entirely free from rats. Do you want to know how I manage? Well, we tried different kinds of traps, and smoked the traps. Then we have a dog that makes it his special business to make it "hot" for every rat that comes "out in the open." At times we have had a weasel to chase the rats out of their holes. When the boys said the rats would not eat our biscuit I told them to send to the grocery for a tumbler of soft cheese—the kind that comes in tumbblers; but the grocer was sold out of the cheese. Then they *forgot* to get it. Finally, when they did get it they were "too busy to hunt rats."

Perhaps I might as well acknowledge the rats got into my winter apples where they were placed in the woodshed before they were put into the cellar. But I took some rat biscuit and buttered it on both sides with the soft cheese, then crumbled it up fine (so children could not well pick it up), and pretty soon there was a smell of dead rats around the premises. That is one bad thing about poisoning; but a dead rat is a far better rat, in my opinion, than a live one, even if it does make a bad odor when you can not find it. *Mrs. Root* keeps mice and rats off the premises by having wire-cloth screens at every window (especially those in the cellar), and also screen doors. If a rat or mouse should get inside we trap it or poison it. The screens not only keep out rats and mice, but they keep out flies. It is some trouble; but "there is no excellence without great labor." The modern way of building houses and cellars with cement floors should effectually enable one, without very much labor, to keep out rats and mice. It is a disgrace to any home or neighborhood to have the filthy creatures around. You ought to be ashamed of it. In the same way it is a disgrace to any neighborhood or community or county to have *chicken-thieves around*. You ought to be ashamed of that too. Form a protective association; offer a reward for the depredators, and hustle them into the jails and State prisons. But even after you get them there, there is another trouble. Satan is wily. That same number of the *Rural New-Yorker* contains something more I wish to copy. Just read it:

The Central Protective Association, which recently held its thirty-first annual meeting at Atchison, Kan.,

discussed the matter of trying to secure a member of either the Central Protective Association or of the Anti-Horse-thief Association, on the State Board of Pardons. It is claimed that, after the organizations go to the trouble and expense of hunting down and convicting a criminal, he is pardoned after he has served a year or two, and is given an opportunity to resume his crimes. When Governor Hoch was making over his pardon board, W. H. Smith, of Atchison, secretary of the association, was a candidate for a position on the board, but was shelved for W. I. Bidle, of Leavenworth, who had a stronger political pull. Smith was indorsed by the Anti-Horse-thief Association, and the two organizations believe that, since they can boast of a membership of 50,000 members in territory in and adjacent to Kansas, the application of Smith should have been given more consideration. Finally a resolution was adopted authorizing the two associations to keep posted, and demand that a member of one of them be given the position whenever there is a vacancy on the board.

You see, friends, that, after the horse-thieves are convicted, probably at great expense and pains, and sent to the penitentiary, they have a scheme for pardoning them out. About a year ago, in a town near Cleveland the Anti-saloon League, after much pains and expense, convicted two saloon-keepers. They were old offenders, and slippery fellows, and it was a hard matter to secure conviction. But they finally got the culprits sentenced to pay a heavy fine, and to serve a long time in the workhouse. What happened? Why, a member of the "pardoning board," of Cleveland, pardoned these two rascals out almost immediately. The only excuse he gave was that, in his judgment, the fine and the term in the workhouse were *excessive*. I do not believe he ever inquired into the matter particularly. They told a pitiful story, and he set both rascals loose to go back to their old trade. I felt so indignant over the matter that I wrote a letter to the superintendent of the Anti-saloon League, and told them this pardoning official should be deprived of his power to grant pardons to such chaps. I said I would myself subscribe fifty dollars to have that man shorn of his power and these two saloon-keepers put back in the workhouse where they belonged. *And the thing was done*. Now, I do not like to boast of what I have done, and I do not bring that thing up here for that purpose; but I do it to let you know that one single person, when he gets real mad in "righteous indignation," can do quite a little to block the schemes of the wicked. If I remember correctly, some very fervent prayers went along with that fifty dollars.

Now for the last part of our text. While we are doing all we can in the way of law enforcement, there is another thing to be done. After you get the saloons out of the way, build up Sunday-schools. Take these thieves, before the saloon-keepers get hold of them, and expound to them the gospel of Jesus Christ. I wish to give you a little illustration of what I mean. Those of you who have taken GLEANINGS a good many years have read this story; but I think it will bear repeating, especially to our newer readers.

Shortly after I enlisted under the banner of "the Lamb of God that taketh away the sin of the world," I found a young man in our

county jail who was there for stealing chickens. He came out into the country with a horse and wagon from Cleveland, and loaded up from hen-roosts. He was caught, and was awaiting his trial, with the prospect of going to the penitentiary. He had served one year there already for this very offense of stealing chickens, and he was on his way there again. He was an ugly fellow. He not only swore and drank, but he cursed, and used tobacco; but he declared he would never go to the penitentiary again alive. He said they could carry his dead body there if they chose, but *not* while he had a breath to draw. He was kept in jail awaiting his trial a month or two. I thus had a chance to get well acquainted with him. Before his trial came off he was reading his Bible, and was a changed man. He knelt with me on the floor of that stone cell, and promised God that he would go to the penitentiary or *anywhere else* if it was the Lord's will. When the time of trial came, his lawyer advised him to plead not guilty. I told him the great Father above was ahead of all lawyers in the universe. Fred told an honest story, not screening himself a particle, with the full expectation of going to the penitentiary. The judge was astounded. It was a new revelation to him in criminal work. I was not present at the trial, but Fred came into my store with a smiling face, and greeted me, saying:

"Mr. Root, it turned out just as you said. I told the truth just as you advised, owned up the whole of it, and the judge said the penitentiary was made for boys who could not be made good in any other way. He said he himself would guarantee that I would behave myself *without* going to the penitentiary. Now I want to go to work. Can you give me a job?"

Dear friends, it has been my lappy privilege to give jobs to hundreds of people in the years that have passed since then; but I do not know that I ever felt happier in giving any one a job than I did in setting Fred at work. In a little while he was helping me in a mission Sunday-school. The boy who, a few months before, had been stealing chickens from poor hard-working women was now in the Sunday-school work—yes, and teaching as best he could, some of his old cronies, about the Lamb of God that taketh away the sin of the world. A little later Fred became superintendent of a mission school back in the country, away from any town. Ever since the time he came out out of jail he had been in mortal fear that somebody would throw it up to him about his old life, and call him a chicken-thief. He feared his old temper if he did. He said in substance:

"Mr. Root, if they will let me alone I will do the best I know how. I will spend my life in trying to make up for the wrong I did when I was against God and against humanity and every thing. But if somebody should throw it up to me, and call me a chicken-thief, I am afraid I could not resist the temptation to knock him down."

I assured him the Lord would give him grace and strength; but he worried about it. I have seen him sit down and cry when contemplating his old temper and his own weakness. I told him that, in spite of all that I or any of his old friends could do, sooner or later he would have to meet persecution just like other Christians, and that, very likely, sooner or later he *would* be called a chicken-thief. One Monday morning he came up where I was at work, and with one of his peculiar smiles said:

"Well, Mr. Root, it has come."

I did not understand him at the time, and said:

"Why, Fred, *what* has come?"

"Well, Mr. Root, you said that, sooner or later, somebody would call me a chicken-thief, and it has come to pass. I was called a chicken-thief yesterday in Sunday-school."

Then he smiled again. It was now my turn to smile. Said I:

"Well, Fred, did you knock him down?"

"Why, Mr. Root, I could not very well, because *it was a woman*."

Then we both laughed. He explained that, when he got over to the Sunday-school the day before, the teachers and pupils were all over in one corner of the room discussing something. He knew there was trouble by their looks. He went up and stood by his table, and waited. Pretty soon a woman came from the group, and said something as follows:

"Mr. Cashner, it has been noised around this neighborhood that the superintendent of this Sunday-school is a chicken-thief. Now, I come to you frankly and ask you to tell me the truth about it."

He replied:

"My dear madam, it *is* true I was *once* a chicken-thief; but by God's grace I am not one now."

She went back to the crowd in the corner, and they discussed the matter and finally decided he should go on with the school. Perhaps I was a little to blame in the matter. I had so many mission schools started at that time, that, as the days grew shorter, I was unable to attend to them all. Fred had been going with me for several Sundays as a teacher; and without explaining who he was or where he came from I told the school that he would take my place as superintendent.

Now, friends, the above illustrates how God in his great providence permitted me to take a chicken-thief from jail, and from the penitentiary that stood open just before him, and place him at the head of a country Sunday-school as its superintendent. When Christmas time came they made their superintendent a present of the handsomest Bible that could be bought anywhere in this region; in fact, it was so large that it was a pretty good load for any one to carry.

Now, then, if your neighborhood is infested with chicken-thieves, don't you believe it is somewhat your own fault? At the same time that Jesus came into the world to bring a sword, he also brought the gospel, and he expected them to work together. But the final hope of redemption from the sin or sins

that afflict humanity is "the Lamb of God that taketh away the sin of the world."



GRAINS, FRUITS, AND NUTS — ESPECIALLY CHESTNUTS.

A year ago I had something to say about chestnuts. I have now five nice little chestnut-trees on my place in Michigan. Two of them I expect to bear nuts next year. At my home place here in Medina we have a Spanish chestnut-tree as large as a fair-sized apple-tree. It has had burrs on for the past three years, but not a burr contained a nut until this year, when just one burr contained one great beauty of a nut; and this one nut, when roasted, was just as sweet and delicious as any of the small native chestnuts, although it was all of four times as large. As to why this tree bore burrs and not nuts for two or three years, I can not answer, only that our experiment stations suggested it needed fertilizing from blossoms from other trees, and there was no other chestnut-tree of any kind within perhaps several miles of this one. We hope that, since it has begun bearing genuine nuts, it will continue.

While I write I am greatly enjoying chestnuts that we buy now at a moderate price at our groceries. After my trip through the West I was for some time out of sorts. I had no appetite, and nothing tasted natural. When chestnuts were in the market, however, I felt instinctively they would hit the right spot, and they did. I roasted them on the stove or in the oven, and at the close of each meal I ate a pretty good-sized handful; and these, with half a cup of milk, are to me the most delicious food I ever found in this whole wide earth. They should be roasted just right, and put on the table hot. It is a little slow work getting the shells off, it is true; but this gives you an excellent opportunity to have each nut thoroughly masticated. Now, you just try some roasted chestnuts and milk, and see if you do not agree with me that these nuts are one of God's greatest and most precious gifts. Just as soon as I got hold of them my appetite began to come back, and my strength began to come up. They are exceedingly nutritious, and I have always found them easy of digestion when thoroughly chewed, and not swallowed until the nuts are a smooth creamy mixture. Try it, ye friends who have a poor appetite and impaired digestion.

CHESTNUTS.

The above was dictated for our issue for Oct. 15, but did not get in. Since then I

have been having a good-sized handful of roasted chestnuts after each meal (three times a day), and it has just built me up strong and well. Instead of getting tired of them, as Mrs. Root thought I would, I enjoy them more and more, and just now I feel like saying, "Doubtless God *might* have given us a more luscious food than the chestnut, but doubtless he never did." The rest of the family eat them occasionally, but they do not share my enthusiasm and keen enjoyment for them. I might be tempted to think I am peculiar in this respect. But look here, friends. You go into any of the large cities in this country at this season of the year and you will find Italian venders of roasted chestnuts everywhere. They would not carry on the business to such an extent if there were not a universal demand for the nuts.

A few days ago, in order to catch a car I had to go without my supper. I had only two minutes; but I looked up a vender of roasted chestnuts and told him to pour ten cents' worth into my pocket, and they made a very good meal. Do not chide me for making so much ado over something to eat. Chestnuts are my *medicine*; and I greatly prefer medicine, when I *have* to take it, in the shape of something good to eat—say grains, fruits, and nuts; and I am sure it is largely if not entirely due to chestnuts three times a day that I am now strong and well, and fleshing up every day. With chestnuts I always want a cup of cold milk. Without the chestnuts I would not crave the milk; and without the milk I would not crave the chestnuts so much. One seems to supplement the other, and they both digest perfectly.

I now wish to give you another illustration of the value of nuts; and please do not make fun of me nor stick up your nose, any of you, at my illustration. When my father first moved into the woods of Medina Co. he chopped down the trees and cleared a piece of land and built a log cabin for his young wife and the children that came stringing along. I was the fourth one, and my early recollections are all about that log house and the forest trees around it. There were great hickories with their wealth of shellbark nuts; and there were beech-trees that gave such crops of beechnuts that it was a common thing to raise pigs to be fattened on these same nuts. If I am not mistaken, everybody used to call the pork produced by fattening the pigs on nuts or "shack" the very best quality of pork—even better than that where they were fattened on grain. Now, do not protest when I tell you that I am fattening up on the nut diet, just as the domestic animals got fat on the nuts that they rooted out of the leaves in the woods.

I think we can call chestnuts and other nuts God's medicines. He caused them to ripen at just the time we need them, to make a "balanced ration" with the fruits and grains that ripen in autumn; and if you are inclined toward a vegetarian diet the nuts will take the place of animal food better than any thing else I know of.

Do you say that not everybody can afford chestnuts when they are 20 cents a quart? My good friend, it costs me about two cents a meal for my chestnuts, and I use more than most people care to. May be the price is a little greater than for some other kinds of food, but not much if any more than eggs; and if you can manage to have the nuts take the place of the medicine you have been using, I am sure you will find them cheaper than medicine; and, oh how much nicer than any medicine ever invented! The nuts are not only God's medicine, but *God's gift*. If you should get a fit of enthusiasm to plant some chestnut-trees, and grow your own "medicine," then that would be better still. A few days ago a nice young lady came into our neighborhood with some chestnuts that she had picked up under the trees on her father's farm, only a few miles from Medina. It gave me the "fever" to go chestnutting just as soon as I found out that there is a sandy ridge where chestnuts were growing and in *bearing* in our own county.

THE MUSHROOM BUSINESS.

I have inquiries every little while about the profits and particulars in regard to the above industry, and think best to submit the following from our old friend T. Greiner, clipped from the *Farm and Fireside*:

During a trip through New Jersey I came within sight of the Shrewsbury catsup-factory, and there saw what remained of three large greenhouses. I was told that these greenhouses were put up by the proprietors of this canning or preserving establishment for the very purpose of growing mushrooms needed for canning, for flavoring some of the canned goods and catsups, etc., and that thousands of dollars had been expended in making the equipment of these houses complete and best suited for the purpose of producing mushrooms. Notwithstanding these facts, and the other that skilled help was employed in the undertaking, and that no expense was spared in the purchase and careful preparation of the manure, the results were so meager and uncertain that the undertaking was entirely abandoned.

Even the best "new-culture" spawn would give only an occasional crop, never a full one, and at times nothing worth mentioning.

This, together with the recent experience of some neighbors of mine who also engaged in mushroom-growing on a somewhat more extensive scale, under apparently very favorable conditions, and with a complete equipment, but failed to produce even a single basketful of mushrooms, again proves to me that there is hardly a crop that has more chances of disappointing the grower than mushrooms. The wise reader of *Farm and Fireside* will not go wild over the brilliant prospects of the immense profits to be found in the mushroom-growing industry so often exploited in the columns of some of the rural periodicals.

I confess the above is rather discouraging, and it seems to me some of our experts ought to learn how to make a success with mushrooms every time; but my experience has been just about like the above. When I took the most pains to have every thing just right, there was scarcely a mushroom; but after I had given it up, and put on another crop, they came stringing along for a year or two, sometimes so as to pay very well. If any of our friends can tell us of a successful mushroom cellar or cave, and one that continues to succeed year after year, we should be glad to know about it.

PROF. HOLDEN'S CORN TALK, ETC.

On page 1078, Aug. 15, I made a guess that Prof. Holden had, at some time, been a pupil under Prof. Cook. See what Prof. Holden has to say in regard to it:

Mr. A. I. Root:—I am greatly pleased with your article in GLEANINGS describing the corn-day at Chippewa Lake Chautauqua. I fear that you have given me too much credit; but you have discovered my real motive back of the entire work, better than anybody else. It is true that I had four years' work under Prof. Cook, and was also associated with him for three years and a half at Michigan Agricultural College. Your kind words were greatly appreciated, and I wish I might be able to carry out in some degree the splendid spirit of your article. If it is convenient I should like to have a dozen copies of the journal.

Ames, Iowa, Nov. 5.

P. G. HOLDEN.

And this reminds me that we ought to have a corn-book if there is not one already, that gives not only Prof. Holden's corn-talk but ever so much other matter that has lately been brought to light in regard to this great national cereal. Who can tell us about a corn-book? If there is not one, who will get out one that covers the whole subject? And, by the way, our different States have probably sent out bulletins on corn-growing. If any of the friends can mail me copies of such bulletins I shall be exceedingly grateful.

SABBATH-BREAKING AMONG THE HUNGARIANS.

Mr. A. I. Root:—Some time ago you wrote about that boy coming one Sunday morning from the lake with a log-chain, etc. No doubt you felt very badly about it. Now, what about that Hungarian who went fishing on Sunday in Chicago? Were you not a little hard on that Hungarian and that boy too, Mr. Root? I am one of those Hungarians. I came to this country when I was 18. I am now 55 years old, but I would say that nobody goes fishing on Sunday in the old country; but some of them, when they come here, leave their religion behind. Mr. Root, about 25 years ago I saw one of your advertisements, so I sent for a sample copy and catalog. Well, that gave me the bee fever, and I am not over it yet. Don't feel hard toward me for writing this letter.

Howard Lake, Minn., August 23.

P. A. SCHLAGAL.

All right, friend S. Your point is a good one; but I did not intend to blame the boy who went fishing on Sunday, much if any. If the father asked him to go it would hardly be expected the boy would refuse. I am exceedingly glad to know that people *do not* go fishing on Sunday over there in the fatherland, where you came from; and so far as thinking hard of you for writing this little criticism, it is just the other way. I am exceedingly glad and thankful to get such letters as this, and all the more so where they take me to task in the very kind way you have done. It is through such letters as this that my knowledge of things is gained of this great wide world so full of people, and, I think I may honestly add, so full of people whom I love.

THE WRIGHT BROTHERS AND THEIR FLYING-MACHINE AT THE PRESENT DATE.

In answer to a lot of inquiries in regard to the progress the Wright Brothers are making, I am permitted to give the following:

Dear Mr. Root:—If your readers are really anxious to know what we have been working at this year we have no objection to your telling them. We have been engaged in designing and building machines suitable for actual service rather than mere experimenting, and have given special attention to perfecting motors not only light but sufficiently strong and reliable to run for hours without attention.

WRIGHT BROTHERS.

Dayton, Ohio.

It would seem from the above that they believe their experiments of last season have sufficiently demonstrated the practicability of their machine, for they made several flights, staying up in the air until the gasoline was exhausted. Their next work will probably be with a machine for "actual service," as they state it. You may rest assured, friends, that I am always anxious to report progress from the Wright Brothers or anybody else as soon as I know the statements that appear in the papers are fully reliable.

RATS—MORE ABOUT THEM.

After what I said in regard to the rats eating our winter apples, on another page, we had more trouble. They would not eat rat biscuit, even when it was soaked in toasted cheese. A rat in some way got into our apple-cellar; and when every thing else failed I closed the room up tight and then "dosed" it with brimstone fumes until I thought every thing *must* be dead. But, even after that, every day we would find a little bit gnawed out of a good many of our finest winter apples. Mrs. Root said if I would get her a good steel trap *she* would catch that rat. After smoking the trap in the kitchen stove in order to remove any scent that might remain on it from former use, she baited it with a piece of beefsteak securely tied on. Then a piece of cloth with a small hole in it was spread over the trap so that just the meat was visible through the hole in the cloth. Within 24 hours we had two of the "varmints."

Souvenir - Postal - Cards

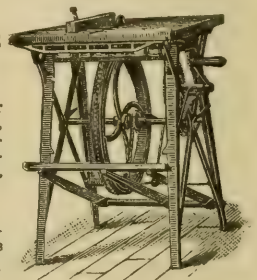
VIEWS OF CHICAGO. Big buildings, stores, hotels, parks, stockyards; any special view you wish. Five views, 10 cts.; 13 for 25 cts, postpaid. Oak Park Novelty Company, Oak Park, Ills.

BARNES' HAND and FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

MACHINES ON TRIAL

Send for illustrated catalog and prices. Address W. F. & JNO. BARNES CO. 545 Ruby Street,





Better Fence and Still Better

It takes 50,000 miles of fence every month to keep up with the American farmers' orders for AMERICAN Fence. That's enough every month to go twice around the world—and it's over 80 per cent of all the wire fence made.

There's only one reason why four out of five American farmers buy AMERICAN Fence—it's better fence.

We keep the best Fence brains in the country always at work, seeking constantly to improve

AMERICAN FENCE

And on account of making more fence than is made by all other fence makers combined, it costs us less per rod of fence to work out and make fence improvements than it would cost any other fence manufacturer.

And because we can distribute the cost of improvements over so many million rods of fence in the year, we work out improvement after improvement every year without increasing the cost of AMERICAN Fence to you.

Better galvanizing now makes AMERICAN Fence—without increase in price—cost much less—figured on a per-rod per-year basis, because it lasts much longer.

NOTE—I want to send you the combination key-ring, shown in the corner, with our compliments, as a continual reminder of AMERICAN Fence. We register your name and number on our books, and return keys without cost, if found and sent us.

FRANK BAACKES, Vice-Pres. & Gen. Sales Agent
American Steel & Wire Co., CHICAGO, U.S.A.

Drop me a postal—tell me how much fence you need this year. I'll write you personally about AMERICAN Fence and send you this registered combination key-ring, screw-driver and bottle-opener.



HEAVIEST FENCE MADE
15c to 35c Per Rod
BROWN FENCE
No. 9 Steel Wire. Weighs $\frac{1}{2}$ more than most fences. A fence that will not rust.
Send for Fence Book showing 133 styles. Brown Fence & Wire Co., Cleveland, O.
WE PAY FREIGHT



LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Farmers and Churches. Address:
COILED SPRING FENCE CO.
Box 448 Winchester, Ind.

COILED SPRING FENCE



Closely Woven. Can not Sag. Every wire and every twist is a brace to all other wires and twists full height of the fence. Horse-high, Bull-strong, Pig-tight. Every rod guaranteed.

30 DAYS FREE TRIAL
and sold direct to farmer. Freight prepaid, at lowest factory price. Our Catalogue tells how Wire is made—how it is galvanized—why some is good and some is bad. Its brimful of fence facts. You should have this information. Write for it today. Its Free.
KITSELMAN BROS.,
Box 21 MUNCIE, INDIANA



SAVE HALF YOUR FUEL

BY USING THE

Rochester Radiator

Fits any Stove or Furnace.
Guaranteed to do all we claim
or money refunded.
Write for booklet on heating homes.

Rochester Radiator Co.,
50 Furnace St., Rochester, N. Y.

Price from
\$2.00 to
\$12.00

For hard or
soft coal,
wood or gas.

POULTRY DISEASES

25c Book Free

Conkey's book on poultry diseases contains just the information you need to keep your flock strong and healthy—and that means to **Get Paying Results**. The regular price of this valuable book is 25c, but we are offering it free for a limited time to those who will send 4 cents for postage and give us the names and addresses of two other poultry raisers. Write for it today.

THE G. E. CONKEY CO., 315 Ottawa Bldg., Cleveland, Ohio.

You Need It.

If you have only a few chickens;
If you are at all interested in poultry;
If you are breeding for fancy points;
If you cater to the market trade;
If you are in the business on large scale, you need

Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts.

AT HALF PRICE

a year, but we offer it for a short time to introduce it to readers of Gleanings. Send 25 cts. and get it a year; or if you send us \$1 for a year's subscription to Gleanings in Bee Culture we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal Dept. 14, Dayton, Ohio.

\$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size 8x 11 1/2 inches) of valuable poultry, pigeon, and pet-stock reading, costing us thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

Poultry Item, Sellersville, Bucks Co., Pennsylvania

DO YOU RAISE CHICKENS?

If so, you will find the Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cents a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb

You Can Get More Eggs

And Save Feed Bills.

GREEN BONE fed raw gives fowls the food they need to take the place of bugs and worms. It has more than four times the egg making

value of grain: is rich in protein and other elements that make **more eggs**, fertile eggs, livelier chicks, earlier broilers, heavier fowls. Cut it with

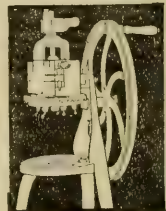
MANN'S Latest Model Bone Cutter

Turns easily; cuts rapidly; never clogs; automatically adjusts itself to any one's strength. Cuts all bone with all adhering meat and gristle.

Ten Days Free Trial

We ask no money until you try the machine. If not satisfied, return at our expense. Write for catalogue.

F. W. MANN CO., Box 37, Millford, Mass.



EARLY CHICKS PAY BIG



Our
Guarantee
Protects you

Hatched in January, February and March, they make big profits. Hatch them in a

BANTA INCUBATOR

Heat uniform, case tight, ventilation gives strong chicks, regulator reliable. Ten minutes work daily. New catalogue free. Banta-Sender Mfg. Co. Dept. 23, Ligonier, Ind.

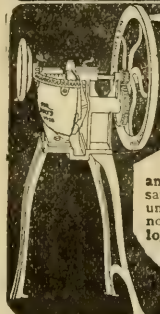


Send for free
Catalogue.

Hatch Chickens by Steam with the EXCELSIOR INCUBATOR Or WOODEN HEN

Simple, perfect, self-regulating. Hatch every fertile egg. Lowest priced first-class hatchers made.
GEO. H. STAHL, Quincy, Ill.

WINTER EGGS



Feed cut green bone; save half your grain and double your egg yield. The

Humphrey

Green Bone & Vegetable Cutter,

the only open hopper machine, is guaranteed to cut more bone, with less labor and in less time than any other. Money back if you are not satisfied. It's the one hand cutter; feed under operator's control at all times; no complicated parts. Send for catalogue and special Trial Offer.

HUMPHREY,
Mine St. Factory,
Joliet, Ill.

\$5 NO MONEY IN ADVANCE

The "Dandy" is the easiest operated, best built, fastest cutting green bone cutter made. Sold on 15 days free trial with a abroad guarantee. If it suits keep it, if not, send it back. Free catalog. Stratton Mfg. Co. Box 54, Erie, Pa.



HOW TO GET MORE EGGS

Help your hens. Feed them fresh cut green bone and you'll get more eggs—you'll get eggs in winter when eggs are worth while.

The Standard Green Bone Cutter prepares bone right for feeding, quickly—easily. Prices \$8.80 and up; sold on guarantee—sent on trial. Write for catalog. Standard Bone Cutter Co. Milford, Mass.



A Four-Per-Cent Investment

WITH the money absolutely safe and always available is an ideal disposition of individual savings.

This bank accepts deposits in any amount, and pays four per cent interest—compounded every six months.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system. Write for the booklet to-day.

Assets over One-half Million

THE SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it six months on trial. Sample free.

The Southern Fruit Grower, Box 1, Chattanooga, Tenn.



PEACH

Fine lot of trees grown on the banks of Lake Erie, more stocky and hardier than trees grown in the interior. Are two miles from any peach orchards, so free from borers as well as all other diseases. Large stock of Fruit Trees and Small Fruits, Grape Vines, Etc. Headquarters for Ornamental Trees, Shrubs, Plants, Bulbs, Etc. 40 acres of Hardy Roses; none better grown. 44 Greenhouses of Palms, Ferns, Roses, Geraniums, Arancarias, Cannas, Etc. Get the BEST direct from the grower and save all commissions. Free catalogues, No. 1 descriptive of Fruit and Ornamental Trees, No. 3 of Holland and other bulbs, Everblooming Roses and Greenhouse plants of every description. Correspondence solicited. 63 years; 1200 acres.

THE STORRS & HARRISON CO., Box 276, Painesville, Ohio

THE HOE RAZOR

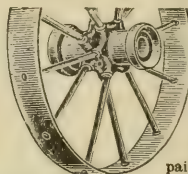
A Christmas Suggestion for Men.

We know of any number of men who have laid aside other safety razors after having once used the "Hoe." Why? Because it is the simplest razor to put together; because the blades can be stropped like the old-fashioned razor; because it costs less than any other reliable safety razor.

Unlike all other safety razors the Hoe requires no adjusting of blades. There are no troublesome springs, hinges, or screws to arrange. You couldn't put a blade in the Hoe wrong if you tried to. The handle of the Hoe has the length necessary to be easily grasped and enable one to hold it at the proper angle in all positions. In the Christy comb-guard the teeth of the guard point toward the blade. It is so designed as to leave the edge of the blade free, with a clear space for lather to pass through upon the top of the blade, just like (and with all the advantages of) an ordinary razor, without its disadvantages.

The Christy Hoe, including six blades, \$1.50.

JOSEPH HORNE CO.,
PITTSBURG, PA.



STEEL WHEELS

with wide tires double the usefulness of the farm wagon. We furnish them any size to fit any axle. Cheaper than repairing old wheels. Catalogue free.

EMPIRE MFG. CO., Box 91A Quincy, Ill.



THE "BEST" LIGHT

Makes and burns its own gas. Produces a safe, powerful, white, steady light, at a cost of 2c a week. Brighter than electricity or acetylene, cheaper than kerosene. Over 100 styles—every one warranted. Agents wanted everywhere. The Best Light Company, 906 E. 5th St., Canton, O.

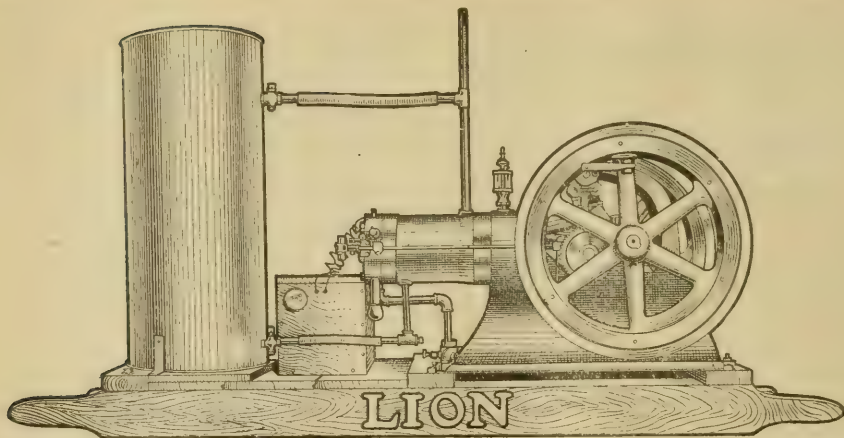
The "SUN" OUTSHINES THEM ALL!

9TH YEAR OF SUCCESS SUN Incandescent Gasoline LAMP

Makes and burns its own gas without odor, grease, boiler, or unsightly decorative fixtures. Conforms to insurance underwriters' rules.

We Want Agents

Get up Club and receive special discount. Get Catalog.
SUN VAPOR LIGHT CO., Box 111, Canton, O.
Licensees of the Campbell patent.



IT'S READY TO OPERATE

There's no firing-up—no waiting for steam with a **Lion** Gasoline Engine. It is **always ready to operate**. Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

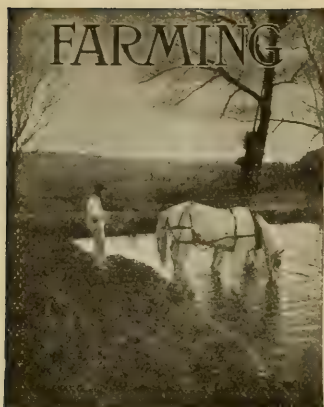
The Lion Engine

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

We sell direct from factory to buyer, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion** engine and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion** engine. It is free if you mention this paper when you write.

Lyons Engine Company
LYONS, MICHIGAN





A Delightful Combination

GLEANINGS IN BEE CULTURE, \$1.00 per year.
FARMING MAGAZINE, \$1.00 per year.

PRICE FOR THE TWO, \$1.50.

*Nothing need be said about GLEANINGS. It is the best publication of its class in the world; semi-monthly, 72 to 80 pages, fully illustrated.

†FARMING is a new publication—a beautiful journal for the man who produces from the soil. It is edited and published by the Doubleday-Page Co., the people who edit *Country Life*, *World's Work*, and the *Garden Magazine*, a sufficient guarantee of its merit. Larger than GLEANINGS—fully illustrated. Published monthly.

THIS OFFER IS GOOD, EITHER FOR NEW GLEANINGS SUBSCRIPTIONS OR RENEWALS, BUT MUST BE TAKEN ADVANTAGE OF WITHOUT DELAY.

WE CAN ACCEPT SUBSCRIPTIONS FOR THIS COMBINATION AT THIS SPECIAL RATE ONLY WHEN SENT DIRECT TO THE PUBLISHERS OF GLEANINGS.

The A. I. Root Company, Medina, Ohio.

*Sample copies of either publication will be sent upon request.

†Publications will be sent to two different addresses if desired.

The Whole Family Group

THIS is the greatest magazine offer ever made. The four magazines, each at the head of its class, cover the reading-matter for the whole family. These sixty numbers cover about 6000 pages of the best literature and art by famous writers and artists, including nearly 500 pages of newest things in fashion and tasteful color printing. No such chance has occurred for years, and it is not likely to be repeated at this price. **HERE IS THE OFFER**

GLEANINGS IN BEE CULTURE.

24 issues (semi-monthly) one year.. **\$1.00**

The DELINEATOR.

Twelve numbers at 15 cents each would cost.. **\$1.80**

The recognized international fashion and literary magazine. *Yearly subscriptions must not be taken by any agent or added to any club at less than \$1.00 net.*

McCLURE'S MAGAZINE

Twelve numbers at 10 cents each would cost.. **\$1.20**

A subscriber writes: "We have taken McClure's since it began, and the articles are always interesting, always timely, and always dependable; the fiction is always good literature, always good morals, and always in good taste, and my family would be lost without McClure's Magazine. *Yearly subscriptions must not be taken by any agent or added to any club at less than \$1.00 net.*

The WORLD'S WORK.

Twelve numbers at 25 cents each would cost.. **\$3.00**

This magazine, edited by Walter H. Page, is for the men who do things. It tells with cheerful optimism of the inspiring things which are going on in this work-a-day world. It is profusely illustrated from photographs of actual people and places. *Yearly subscriptions must not be taken by any agent or added to any club at less than \$3.00 net.*

OUR PRICE IS \$3.75

The A. I. Root Co., Medina, Ohio:

For the enclosed \$3.75 send me The Whole Family Group for one year.

NAME..... CITY.....

ADDRESS..... STATE

"If Goods are wanted quick, send to Pouder."

Established 1889

Bee-Keepers' Supplies

Distributor of Root's Goods from the best shipping-point in the Country. My prices are at all times identical with those of The A. I. Root Company, and I can save you money by way of transportation charges.

Special Notice!

During this month (November) I am offering a special discount of five (5) per cent for cash orders for Bee-supplies for next season's use. After December 1st the discount will be 4 per cent.

**New Metal-spaced
Hoffman Frames
are Here in Stock**



**Headquarters for the
Danzenbaker
Hive**

**Dovetailed Hives, Section Honey-boxes,
Weed-process Comb Foundation,
Honey and Wax Extractors, Bee-smokers,
Bee-veils, Pouder Honey-jars, and,
in fact, Every Thing used by Bee-keepers.**

BEESWAX WANTED!

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight. Always be sure to attach name to package.

If you wish to secure finest grades of Honey with which to supply your neighbors, write for my market Quotations of the Indianapolis honey market, free.

Catalog Free

Walter S. Pouder
513-5 Massachusetts Av., Indianapolis, Ind.

At St. Louis

On a  Line

to all points in the South and
Middle West.

Send for our free illustrated catalog of

Root's Bee-supplies

We sell at factory prices, and are allowing a five per cent cash discount during November. Send us a trial order.

Beeswax Wanted.

Blanke & Hauk Supply Co.

DEPT. B.

202-204 Market St., St. Louis, Mo.

Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

9 per cent Discount During November!

In order to liven up business during the dull months we will give nine per cent off all supplies, in the catalog, wholesale or retail, during November for goods for next year.

**Jobbers for
Central : Pennsylvania**
— for —

ROOT'S GOODS

Now's the time to save money on goods for next season. Send for catalog. Best shipping facilities in the State.

Frank W. Prothero
Dubois, : : : Pennsylvania

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company

H. G. ACKLIN, MANAGER

1024 Mississippi Street, St. Paul, Minn.

Dittmer's Foundation

is the best foundation for you to use because it is tough, transparent, will not sag, and has the odor of pure beeswax.

**Working Wax for
Cash a Specialty**

This is the cheapest way for you to secure your foundation

Beeswax Always Wanted!

Our warehouse is well filled with all kinds of bee-keepers' supplies. Five per cent discount during November.

Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at LOWEST PRICES, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. SPECIAL DISCOUNTS now. Write to-day. Address

Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trester Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.

Established 1881

YES!

Same Place 1906

THIS IS THE MAN

WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year. ♡ ♡ ♡ ♡ ♡

Geo. E. Hilton, - Fremont, Mich.

SPECIAL BARGAINS

In dovetailed HIVES, plain and beeway SECTIONS, Hoffman BROOD-FRAMES, Section-holders, Separators, etc.

We are enlarging our FACTORY, and all of these goods have to be moved. If you want any thing in your apiary, you will do well by writing us at once, and we will make you DELIVERED PRICES that will surprise you. Our stock is all new and up-to-date. We do not keep poor or second-grade goods. Our sizes are standard. Quality and finish can not be surpassed by any one. We make any thing used in the apiary, and can save you money and delay at any time of the season. Give us a trial and be convinced. We aim to please our customers, and guarantee all our goods to give entire satisfaction or refund the money.

MINNESOTA BEE-KEEPERS SUPPLY COMPANY,

NICOLETT ISLAND NO. 20.

John Doll & Son, Proprietors.

MINNEAPOLIS, MINN.

BEE - SUPPLIES

Best of every thing needed.
Big Discount from now to
April 1st. . . Catalog free.

C. M. Scott & Co., Indianapolis, Ind.
1004 East Washington Street

PATENTS.

Twenty-five Years' Practice.

PRINDLE & WILLIAMSON,

Second Nat'l Bank Bldg., Washington, D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.

BINGHAM
• Original
• Direct Draft
CLEAN
Bee Smokers



Pat'd 1878, '82, '92 & 1903

Long Advertising

Twenty-seven years ago the first patent bee-smoker surprised bee-keepers. The Bingham Smoker patented improvements are dated 1878, 1882, 1892, and 1903. They always please; they always sell. For October orders we discount 6 per cent; any number, any size, delivered any time.

T. F. Bingham - Farwell, Mich.

How to Keep Bees

By Anna Botsford Comstock

228 pages. \$2 pages of illustrations.

A charmingly written manual describing clearly and in detail the outfit, first steps, and methods. The author's well-known literary ability has combined with her enthusiasm for a subject to produce a very unusual volume. It is a handbook for those who keep bees for happiness and honey, and incidentally for money. It serves as well as an introduction to the more extended manuals already in the field. "Finally with all due deference to the authors of the excellent books on bee culture which we have already, my opinion is that this new book, 'How to Keep Bees,' is the best one for a beginner, or one who does not wish or expect to keep more than a dozen colonies, that has yet come before the world."—*A. I. Root, in Gleanings, July 1, 1906.*

Chap. 1. "Why Keep Bees," urges honey, perhaps money, recreation, love of nature study, and the need of bees in "a perfect garden," as good reasons for keeping bees. The second chapter tells "how to begin" in a small way, and we may get all the necessary detailed information for management from later chapters, arranged in order of demand for information.

Price \$1.00. Postage 10 cents extra.

Money refunded to any dissatisfied purchaser.

The A. I. Root Co., Medina, O.

HONEY-JARS

No. 25, with burnished cap, heavy clear glass, per gross, \$5.00; 3 gross, \$13.50.
11-ounce nickel-cap jar, gross, \$4.00; 3 gross, \$11.00.
1-lb. square jar with cork, gross, \$5.00.
Heavy cartons, \$5.50 per M.
Italian queens, 75c. Catalog free.

I. J. Stringham

105 Park Place, N. Y. City
Apiaries at Glen Cove, L. I.

Swarthmore Books!

BABY NUCLEI (2d ed.)—The second edition of this popular treatise is off the press. This book thoroughly covers the field of small mating under management. The experience of twenty years in mating young queens in baby nuclei is given. A delightful little book good printing, enjoyable reading, and easy understanding. Price 25 cts. postpaid.

SIMPLIFIED QUEEN-REARING.—A revised edition of this book just out. It tells the honey-producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just an effective and economical plan for the bee-keeper who works for profit. Price 25 cts. postpaid.

INCREASE.—Don't depend entirely upon swarming for your increase. It's too slow and uncertain. Swarthmore tells of a way in his delightful little book entitled "Increase"—a natural way, simple and safe, no labor, little trouble. Colonies formed on this plan will work like prime swarms, and store a surplus. Price 25 cts. a copy postpaid.

CELL-GETTING.—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life. Price, postpaid, 50 cts.

SWARTHMORE QUEEN-REARING TOOLS.—Complete outfits or separate parts. Write for price list.

FOR SALE BY

The A. I. Root Company

ALL BRANCHES AND AGENCIES

Northeastern and New England BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

ITALIAN QUEENS

bred from best of honey-gatherers, either three or five banded or Golden races. Untested, 65c each, 3 for \$2.00, 6 for \$3.75, 12 for \$7.25; tested, \$1.00 each, 6 for \$5.00, 12 for \$9.00; select tested, \$1.50 each; breeders, \$3.00 each.

J. W. Taylor, Beeville, Bee Co., Texas

When a Thing Needs Doing

NOW is the time to do it. How about those worthless queens? Will you tolerate them for another season, when the best of stock can be obtained so readily? Laws' bees and queens are bringing the best of reports. I could fill many pages of testimonials, but give you only one. Mr. T. P. Robinson, of Bartlett, Texas, says:

"Dear Sir,—The car of bees shipped June 20th are now all safely landed, and I have overhauled the entire lot. The bees are from 25 to 40 per cent better than contract, and you ought to hear my wife's exclamations of delight at seeing those fine yellow bees so quietly nestle between the combs at the very approach of smoke. I can certainly recommend you."

Leather and Golden Italians, Holy Lands, and Carniolans—single queen, \$1.00; six for \$5.00. Quantity lots, prices on application.

I also manufacture the Hoffman frames, both new and old style, at \$16.00 per M; single-story eight frame hive complete, 75c; 1½-story for extractor, \$1.00. Price list on application.

W. H. Laws, Beeville, Bee Co., Tex.

Yellow from Tip to Tip!!!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce Golden queens and beautiful bees; non-swarmlers, very gentle, and hustlers for honey. Single queen, \$1.00; three queens, \$2.50; six, \$4.50, or \$8.00 per dozen. Large select breeding queen, \$2.00 each. Every thing guaranteed.

H. ALLEY, - - Wenham, Mass.

MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, 75c; six, \$4.00; twelve, \$7.50. Tested, \$1.25; six, \$6.00. Twelve, \$11.00. Best breeders, \$2.50. Safe arrival guaranteed.

W. H. Rails, - - Orange, Calif.

Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest one-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements.

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy-Lands, Italians.

The JENNIE ATCHLEY CO.,

Box 18, Beeville, Bee Co., Tex

MOORE'S - STRAIN - OF - ITALIANS

as Red-clover Workers.

Wm. S. Slocum, Newport, R. I., writes: "My friend, W. O. Sweet, West Mansfield, Mass., asked me about two years ago where he could get good queens, and I referred him to you. To-day he called on me and said he noticed the colonies with your queens were storing much faster than others. He went immediately to his red-clover field, and saw bees working there freely."

Untested queens, 75c each; six, \$4.00; dozen, \$7.50.

Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00.

Safe arrival and satisfaction guaranteed. Descriptive circular free.

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Ky.

Boston Headquarters

—FOR—

Bees-Queens-Supplies

H. H. Jepson, - 182 Friend St.

A. H. REEVES & CO.

DISTRIBUTORS OF

"ROOT'S QUALITY" BEE-SUPPLIES

Cash paid for beeswax. Send for catalog and price list.

17 Morrison Street, Watertown, New York
Phone 1296

Big Reduction in Supplies!

Until May 1

Big stock of Dovetailed hives and Marshfield sections to draw from. FREE—a year's subscription with order amounting to \$15.00 or over. Send for 32-page illustrated catalog free.

W. D. Soper, Jackson, Mich.
Rural Route 3

Queens from 50 Cents Up!

Bred from Root's Imported Italians. Write for prices, stating wants. . .

C. M. Church, Arnold, Pa.

Fire Sale Bee and Poultry Supplies

Come or send, and save 25 to 50 per cent on slightly damaged goods. NEW LEWIS GOODS at factory prices by return freight. Honey and beeswax wanted. State lowest price and particulars. Honey in 5 gal. cans for sale.

Five per cent Discount for November Orders

H. M. Arnd, Propr. York Honey & Bee Supply Co. (Not Inc.)

Long Distance Telephone, North 1559.

191 and 193 Superior St., Chicago, Ills.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Help Wanted.

WANTED.—Manager for small fruit and poultry farm of 20 acres. Must understand fruit, poultry, underdraining, etc. State salary expected, age, experience, references, etc. **Box A, GLEANINGS.**

WANTED.—A man who wants a permanent position to do all kinds of work on a small farm, to help with bees and an extensive honey business. Write wages wanted, and particulars. **H. C. AHLERS,** Tel. 829, ring 4. **R. F. D. 1, West Bend, Wis.**

For Sale.

FOR SALE.—4000 ferrets; some trained. Prices and book mailed free. **N. A. KNAPP, Rochester, Ohio.**

FOR SALE.—Smith Premier, Hammond, and Oliver typewriters. Prices from \$35 up. Will exchange for wax or honey. **THE A. I. ROOT CO., Medina, O.**

FOR SALE.—Twenty acres of choice corn, potato, and strawberry land; fair buildings; forty colonies of bees in good location. **F. MATTHEWS, Route 6, Ithaca, Mich.**

FOR SALE.—Novice extractor, Hubbard press, Daisy foundation-fastener, 270 P. fences, 230 plain section-holders. **J. W. KALFUS, San Luis Obispo, Cal.**

FOR SALE.—A two-horse power Buffalo gasoline-engine in good shape, and has been used very little. Reason for selling, I need a larger engine. All ready to start for (\$35.00) thirty-five dollars, f. o. b. **DR. J. Q. MULFORD, Lebanon, Ohio.**

FOR SALE.—Farm, 320 acres; 160 acres deeded, 160 acres homestead. An ideal bee-farm: 40 swarms and \$300.00 supplies go with the place; 90 acres irrigated alfalfa. For price and terms address **FRED B. JEWEL, Fort Morgan, Colo., R. R. No. 1, B. 12.**

FOR SALE.—Angora and Persian cats; mostly all colors. Persians pure white with blue eyes. Everybody admires these beautiful pets. Women make money raising them. Good profits. Cats and kittens for sale at moderate prices. Also have ferrets for sale. Send stamp for circular. **Mrs. J. F. SKEES, Marion, Ohio.**

FOR SALE.—Will sell my valuable ten acres of fruit and truck farm for one-half what it is really worth. One mile to center of good town of 7000; best market known for fruit, truck, and honey. Write for price and description. Great bargain here. **J. B. DOUGLAS, Mena, Arkansas.**

FOR SALE.—I offer for sale my 40-barrel water-power roller mill with established trade; double circular saw-mill; stone dam; stone-quarry; good 10-room house, with hot water and bath room; good barn and carriage house; 16 acres of land; 5000-bushel elevator. This property is situated at the head of the Little Miami River, with 25-foot fall, located at Clifton, Greene Co., Ohio, 8 miles south of Springfield. For further particulars call on address **G. H. ARMSTRONG, Clifton, Ohio.**

FOR SALE.—Forty-acre ranch, fenced but unimproved except small frame house; fine spring near house; good soil, no alkali, fine alfalfa and fruit land. Also for sale, 100 or more colonies bees. Location very good for alfalfa and sweet-clover honey. Good reason for selling. **R. S. BECKTELL,** Grand Valley, Garfield Co., Colo.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to **FRANK S. STEPHENS,** (Root's Goods.) **Paden City, W. Va.**

FOR SALE.—Till Jan. 1, best Wisconsin sections per 1000, \$4.00; No. 2, \$3.40; plain, 25c less. Big discount on Danz. hives and other Roots goods; also berry boxes. **H. S. DUBY, St. Anne, Ill.**

FOR SALE.—A Florida home is offered cheap, owing to old age and infirmities. Six acres of land, all cleared, and fronting on a fine lake. A good two-story house on cement foundations; a few bearing orange-trees and grape-fruit, guavas, and grapes in great abundance. A good chance for a bee-man. Twelve stands of bees in frame hives, on cement and iron. An excellent honey-extractor; ¼ mile to church and school; ½ mile to store and postoffice. Call on or write to me. **J. A. BARBER, Chuluota, Orange Co., Fla.**

Bees and Queens.

FOR SALE.—400 colonies pure Italian bees in lots to suit. Write for prices. **F. A. GRAY,** Redwood Falls, Minn.

FOR SALE.—Twenty-five colonies of bees, all good strong swarms in new hives, with straight combs; will sell cheap. **JOS. BALDWIN, Sandy Creek, N. Y.**

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell, shall want a good man to run them next season. **W. N. CANNON, Greenville, Ala.**

FOR SALE.—Two apiaries—one of 100 stands of bees close to Pomona, Cal., and the other containing 150 stands near Etiwanda, Cal. Will sell both or either one. For particulars address, enclosing stamp, **M. R. KUEHNE, 173 White Ave., Pomona, Cal.**

Poultry Offers.

FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free. **A. H. DUFF, Larned, Kan.**

Wants and Exchange.

WANTED.—Early American and foreign books on bee-keeping. **A. L. BOYDEN, Medina, Ohio.**

WANTED.—Bee supplies in exchange for 300 colonies bees. Ad. elsewhere. Manufacturers write if interested. **LEO F. HANEGAN, Glenwood, Wis.**

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price. **OREL L. HERSHISER,** 301 Huntington Ave., Buffalo, N. Y.

WANTED.—Australasian readers to know that Root's publications, Root's strain of Italian bees, and Root's world-famed goods are all obtainable from **H. L. JONES, Goodna, Queensland, Australia.**

WANTED.—To exchange a 6x9 Victor improved hand-lever self-inking printing-press, almost new; type, etc., three-fourths value, for extracted honey, books, tools, etc., or offers. **W. H. GARDNER, Roxabell, Ohio. R. R.**

WANTED.—Some seed of the catclaw mesquite of Arizona. For particulars, address
WILLIAM L. ROSE, Box 34, Newhall, Calif.

WANTED.—Small sample of good honey vinegar with price on one gallon mother. Will pay good price.
VINEMONT APIARY, Marshfield Hills, Mass.

Honey and Wax Wanted.

WANTED.—Choice white comb and extracted honey; clover preferred.
B. WALKER, Clyde, Ills.

WANTED.—Comb and ext'd honey. State kind and lowest price. CHAS. KOEPPEN, Fredericksburg, Va.

WANTED.—Fancy white-clover comb honey. Write us. INDIANAPOLIS DAIRY CO., Indianapolis, Ind.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.
GRIGGS BROS., Toledo, O.

WANTED.—20,000 pounds pure clover honey. Send average sample and state best price.
J. E. CRANE & SON, Middlebury, Vt.

WANTED.—Comb and extracted honey. Must guarantee pure and of best quality. State price and how put up. Cash paid.
C. M. CHURCH, Arnold, Pa.

WANTED.—No. 1 and fancy white comb honey (unglassed), Danz. sections preferred.
THE A. I. ROOT CO., Medina, Ohio.

WANTED.—Beeswax. We will pay 30 cts. per pound for fancy pure yellow beeswax delivered in New York until further notice.
CHAS. ISRAEL & BROS.,
486 Canal St., New York City.

WANTED.—Immediately, honey in large and small lots for spot cash. Only dealer in Utah selling Root's goods at factory prices. Write us.
SUPERIOR HONEY CO., Ogden, Utah.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILBRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Honey, steadily from September 1 to April 1. Prices given on application. Suggestions and advice about packing and shipping honey cheerfully given from long experience, close study, and observation.
H. R. WRIGHT, Albany, N. Y.

Honey and Wax For Sale.

FOR SALE.—Buckwheat honey, extracted, in 160-lb. kegs, at 6c.
IRA WILSON, Ovid, N. Y.

FOR SALE.—Buckwheat honey in 60-lb. cans, at 6c per lb.
C. J. BALDRIDGE,
Homestead Farm, Kendaia, Seneca Co., N. Y.

FOR SALE.—350,000 pounds California water-white extracted honey by the case or car.
H. J. MERCER, 731 E. Third St., Los Angeles, Cal.

FOR SALE.—10,000 lbs. of clover and buckwheat honey at 8c per lb. for clover and 7c for buckwheat, in 60-lb. cans.
G. H. ADAMS,
Mill St., Bellevue Sta., Schenectady, N. Y.

FOR SALE.—Light extracted honey, good quality; two 60-lb. cans, 8½c per lb., barrel at 7½c; amber, 60-lb. cans at 7½c, barrel at 6c; sample, 10c. We pay 25c for beeswax.
I. J. STRINGHAM, 105 Park Pl., N. Y.

FOR SALE.—Several hundred cases of 60-pound cans (two in a case); fine bright ones, good as new. Ten cases, \$4.00; 100 cases, \$35.00.
J. A. BUCHANAN & SONS, Holliday's Cove, W. Va.

FOR SALE.—Three tons comb honey, white, at \$3.50 per case, glass front, 24 sections to case; amber and buckwheat, \$2.75 per case; unfinished sections, \$10.00 per 100. All honey well ripened.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—600 lbs. of white-clover honey. Extracted from all sealed new combs; 60-lb. square cans, f. o. b. here, \$5.00. Sample, 5 cts.
B. HOLLENBACK, Spring Hill, Kansas.

FOR SALE.—800 lbs. ext'd clover and basswood honey in 60-lb. cans (2 in a case) at \$10.00 a case, f. o. b. here. Sample, 5 cts. R. H. BAILEY, Ausable Forks, N. Y.

FOR SALE.—3000 lbs. of white-clover and locust honey, in 20-lb. no-drip cases. Fancy, 15c; No. 1, 13c.; f. o. b. Nice article. H. W. BASS, Front Royal, Va.

FOR SALE.—Buckwheat extracted honey; 6000 lbs.; not extracted until the combs were all sealed—ripe, rich, and thick; 60-lb. tin cans, two in a case, at 6 cts. a pound. Sample sent upon request.

W. Z. HUTCHINSON, Flint, Mich.

Bee-keepers' Directory

This department is for the exclusive use of all year-round advertisers. If you have any thing the bee-keeper needs, your card in this department keeps your name always before your prospective customers at half our flat rates. We reserve the right to reject or modify any ad. not eligible to these special rates.

2 lines, 24 issues and GLEANINGS one year	\$ 5.00
3 " " " " " " " " " " " "	7.50
4 " " " " " " " " " " " "	10.00

Cash in advance. Ad's can be changed only in the first issue of January, April, July, and October.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. Geo. H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail.
ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies.
H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' Supplies. Write for catalogue. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

ITALIAN BEES and queens—red clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

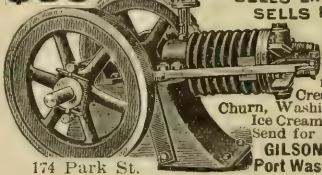
ITALIAN BEES, queens, honey, and bee-keepers' supplies. A. T. DOCKHAM, Box 95, Rt. 1, Eagle Bend, Minn.

SWARTHMORE APIARIES—Golden, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

GOLDEN-ALL-OVER Italian, Caucasian, and Banat races. Bred by Swarthmore methods from best stock in the world, in three mating-yards with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

\$60

GOES LIKE SIXTY
SELLS LIKE SIXTY
SELLS FOR SIXTY
**GASOLINE
ENGINES**
for Pumping,
Cream Separator,
Churn, Washing Machine,
Ice Cream Freezer, etc.
Send for catalogue.
GILSON MFG. CO.
Port Washington, Wis.



174 Park St.

Let Me Quote You a Price on the **AMERICAN** Manure Spreader

We manufacture and sell the celebrated American Manure Spreader to the consumer direct from our factory—saving all the middle profits made by jobbers and dealers. These profits are left out of consideration in the price that I want to make you direct from our factory on an American Manure Spreader.

This means that you can buy from our factory at factory prices—be a Wholesale Buyer.

And that isn't all! We don't ask you to pay cash in advance.

We sell the American Manure Spreader on Time—

liberal time payments—giving our customers easy terms to pay for their Spreaders—letting the Spreader really pay for itself as it earns for you. We are the only concern in the United States manufacturing and selling Manure Spreaders direct to the user on time and on trial at low factory prices.

The American Manure Spreader has 40 per cent more exclusive features than any other Spreader. It is high-class in every respect—made to last a lifetime.

There is no question about the American Manure Spreader being the standard Spreader of the world.

30 Days' FREE Trial

To prove all of our claims for the celebrated American Manure Spreader, we allow 30 days' trial on every Spreader we sell.

This permits the customer to use the Spreader on his own farm for a full month to be satisfied that it is just as represented. If not as represented it can be returned to us. We pay all freight both ways—trial being FREE.

The low price I want to quote you on an American Manure Spreader will be for the Spreader delivered at your station.

We Pay All Freight

This price will be for the Spreader on time—this price will be for the Spreader on trial—and this price will be a price that is lower than dealers are charging for Spreaders that are not nearly so good as the American. When you examine all the exclusive features of the American you will agree with me.

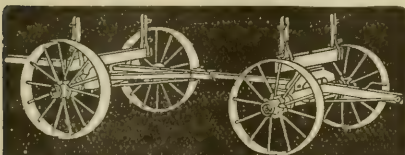
Write for my price—and write for my catalogue and booklet. They will tell you all about the American Manure Spreader and give you a lot of good information on the question of fertilizing—a question that every farmer is interested in and wants to know all about.

Just write me today on a postal card. I will see that you get our book and my especial price at once.

W. W. COLLIER, Gen. Manager
AMERICAN HARROW CO.

4641 Hastings St.

DETROIT, MICH.



WHAT DO YOU SAY?

Several hundred thousand farmers say that the best investment they ever made was when they bought an

Electric Handy Wagon

Low wheels, wide tires; easy work, light draft. We'll sell you a set of the best steel wheels made for your old wagon. Spoke united with hub, guaranteed not to break nor work loose. Send for our catalogue and save money.

ELECTRIC WHEEL CO., Box 95, Quincy, Ill.



MYERS LOCK STITCH AWL

Makes same stitch as sewing machine. Repairs shoes, harness, carpets, awnings, sails, gloves, mittens, saddles, robes, comforts or fur coats. You need one, your neighbor needs one every day.

Costs only \$1.50, prepaid. Get one and secure the agency in your locality. Every one buys it. Great opportunity for agents east of Mississippi River. One agent sold 100 in 4 days. Write for booklet B8

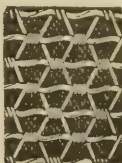
C. A. MYERS CO.,

4941 Vincennes Ave., Chicago, Ill.

THE AWL FOR ALL

COOKS WITHOUT FIRE!!

Saves 80 per cent of time and fuel. No odors nor discomfort. Food more nutritious and palatable; can't burn or dry up. THE MARVEL OF THE AGE! We furnish full directions for making a \$15.00 fireless stove out of home materials and include our new illustrated FIRELESS COOK BOOK for only \$2.00, or for 10 cents, will send photo and pamphlet "C8" Approved and used by U.S. Army. Agents wanted Fireless Cookstove Co., Oakland, Cal.



FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 25 styles and heights of farm and poultry fence. It's free. Buy direct. Write today.

COILED SPRING FENCE CO.
202 101 WINCHESTER, INDIANA

The Youth's Companion

offers a Harvest of Good Reading for 1907



To cherish and uphold the best traditions
of family life has always been the purpose
of The Companion

EVERY NEW SUBSCRIBER B 70

Who cuts out and sends at once this slip (or mentions this publication) with \$1.75
for The Companion for the fifty-two weeks of 1907 will receive

FREE All the issues of The Companion for the remaining weeks of 1906.
The Thanksgiving, Christmas and New Year's Double Numbers.
The Companion's 12-color Four-Leaf Hanging Calendar for 1907.

\$16,290 IN CASH AND MANY OTHER SPECIAL AWARDS
TO SUBSCRIBERS WHO GET NEW SUBSCRIPTIONS.

Send for information, *Announcement for 1907 and free sample copies of the paper.*

ADVT. COPYRIGHTED 1906, PERRY MASON COMPANY, BOSTON, MASS.

THE YOUTH'S COMPANION, BOSTON, MASS.

A New Factory

and also a new firm name,
but in the same place with
the same management. We
have just put in a complete

Weed Process Comb Foundation Factory

of the very latest type, and
we are now ready to work
up wax for western bee-
keepers at low prices.

We want several thousand
pounds of beeswax at once,
and will pay top market
price for same. Let us hear
from any one having wax
to offer.

Buck & Wilson, Augusta, Kan.

Butler County

YOU
CAN
MAKE
IT
PAY

By sending for our
forty-page catalog.

It gives full partic-
ulars about scores
of different hive-
combinations and
other supplies that
we always keep in
stock. We have
handled

ROOT'S GOODS
for twenty years.

They are the best.
Don't fail to write
us about your
wants for next
season's use.

**John Nebel & Son
Supply : Company**

High Hill, Missouri
Montgomery : County

MR. TEXAS BEE-KEEPER

I would like to talk to you *personally*.

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's *better* in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you supplies with the utmost promptness.

Then, too, I have installed a complete Weed-Process Foundation factory. I can turn out 500 lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when at San Antonio. You are *always* welcome. I have fitted up my office with plenty of desks and chairs, with writing material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein - San Antonio, Texas

1322 South Flores Street

Gloves for Handling Bees

Something New. Something You Want.

Our specially prepared Gloves soften the hands, and prevent and cure chapped hands. The fabric contains a preparation which prevents the gloves from becoming hard and stiff. We furnish them without armlets or sleeves for using in sweeping, gardening, or general housework, driving, or outdoor work. They are just the thing for driving in the rain, as they are absolutely waterproof. If worn at night they keep the hands soft and white. All their points of excellence can not be here enumerated, but they never fail to give the greatest satisfaction. To introduce them, we will send by mail or with other goods at the following low prices:

Bee-gloves—long arms, fleece-lined in two sizes—large for men, small for ladies.....	35 cents
Men's gauntlets, fleece lined.....	35 cents
Ladies' gauntlets, fleece lined.....	35 cents
Ladies' unlined for wearing at night or doing light housework.....	40 cents

Early-order discounts on bee-supplies (excepting above and a few other articles) as follows:

5% for cash with order before December 1st	3% for cash with order before February 1st
4% for cash with order before January 1st	

If you haven't our 1906 catalog send for one and a free copy of The American Bee-keeper (50c a year).

The W. T. Falconer Manufacturing Co., Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 124 West Liberty St., Savannah, Ga.

HONEY!

INSTEAD of having honey offered us by bee-keepers this year we have had inquiries from nearly every quarter for good white honey. We have secured an unusually fine lot of

Water-white Alfalfa Honey

packed in sixty-pound cans, two in a case. We offer this at the following prices, f. o. b. Hamilton:

Two 60-lb. cans 8c per lb.

Ten 60-lb. cans or more, 7½c per lb.

This honey is giving entire satisfaction, and is selling where we have previously furnished white-clover honey.

Samples on application.

Dadant & Sons, Hamilton, Ills.

We are Allowing Liberal Discounts on Bee-supplies Now.

Root Goods

for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

Jos. Nysewander, Des Moines, Iowa

655, 567 West Seventh Street

GLEANINGS IN BEE CULTURE

VOL. 34

DEC. 1, 1906

NO. 23.



THE A. I. ROOT CO.,
MEDINA — OHIO

Entered at the Postoffice, Medina, Ohio, as Second-Class Matter

BEE-KEEPERS

We carry the largest stock of goods in the Middle West. The low freight rates from

Toledo

will save you money. We will buy your HONEY and beeswax, and pay highest market price. It will pay you to correspond with us when your crop is ready to market. No shipment is too large for us. Carloads a specialty.

Queens! Queens!

We have a yard at Toledo with 100 colonies and over, which we use for queen-rearing only; besides several out-yards which we run for honey, also for extra bees and brood, and queens are mailed same day order is received.

Our 70-page Catalog

is sent free to any one asking for it. No matter whether you keep one colony or five hundred. We also handle a large line of poultry supplies, and sell eggs for hatching. Our 1906 mailing list is sent with every catalog. Don't buy until you have seen it.

Griggs Brothers

523 Monroe St. : Toledo, Ohio

APICULTORES

De Espana, Portugal y Colonies.

Pidan catalogos de las colmenas, extractores, prendas para cera, ahumadores, zinc perforado, escape de abejas, velos, cuchillos, maquinas para hacer base de panales, y todos otros articulos utiles en apicultura manufacturado por la celeberrima casa de

A. I. Root Company,

la fabrica la mas importante del mundo. Precios muy modicos a los subagentes por mercancias puestas en nuestros talleres.

EMILE BONDONNEAU,

Agente Générale

POR TODA EUROPA Y COLONIAS,

142 Faubourg SAINT DENIS, PARIS. 10me.

CENTRAL AND NORTHERN PENNSYLVANIA

Distributor of Root's Goods from the
Best Shipping - point in this State.
WHOLESALE - AND - RETAIL

I sell at catalog prices, and, with the low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also rear Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

E. E. PRESSLER, WILLIAMSPORT, PENN.

Headquarters for

Bee - Supplies.

"Root's Goods at Root's Factory Prices."

If you want to purchase bee-supplies, THE BEST MADE, order from Cincinnati, as you will save the freight charges and time it takes for goods to be shipped from Medina to Cincinnati. Cincinnati is one of the best shipping-points, particularly for the South. I keep all the time a large stock on hand and can ship promptly on receipt of order.

A Special Discount  
   **on Early Orders**

Will buy or sell **HONEY** extracted or comb

If you have honey to sell describe quality or mail sample with lowest price delivered Cincinnati. If in need, state quality and quantity wanted and we will cheerfully quote you prices.

Beeswax Wanted!

We all the time pay highest market price on delivery of goods.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
 Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Markets.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain, or otherwise; all the cells sealed except an occasional cell; the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW YORK.—We are having a good demand for white comb honey, particularly fancy stock, and same finds ready sale at 15 cts. per lb.; 13 to 14 for No. 1 white. Receipts up to date have been quite numerous, but we expect that from now on they will be lighter, as the bulk of the comb honey, we believe, has been marketed. No. 2, white, amber, and buckwheat, are in fair demand, with sufficient supplies to meet the same. We quote at from 10 to 12, according to quality. Extracted honey is in good demand, principally California stock, and strictly white sage is now selling at 7½ to 8; light amber, 7; amber, 6½. Extracted, near by, New York State amber and buckwheat at 6 to 6½ per lb., with a fair demand. Southern, in good demand at 55 to 65 cts. per gallon, according to quality, for good average stock; 75 for fancy. Beeswax finds ready sale at 30.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

Nov. 19.

SCENECTADY.—We report a very active market, with advancing prices. Our stock of both clover and buckwheat is much reduced, and we would advise producers who still have their honey on hand to forward the same, as the demand always decreases at holiday season. We quote fancy clover, 15 to 16; No. 1, 14 to 15; mixed grades, 13 to 14; buckwheat, 11 to 12½. Extracted, light, 7 to 7½; dark, 6 to 7.

CHAS. MACCULLOCH,
Scenectady, N. Y.

Nov. 20.

ST. LOUIS.—The receipts of comb honey are exceedingly small in this market, with a good demand. We quote: Fancy white comb honey, 16; No. 1, 14 to 15; light amber, 13 to 14; broken and inferior, less. Extracted, light amber, California, firm at 7 to 7½; Spanish needle, 7½ to 8. There is very little white-clover honey on this market; also barrel honey is scarce, and quotable at 5½ to 6 for choice Southern. Beeswax, 29 ½ to 30; all impure, and inferior, less.

R. HARTMAN & Co.,
14 So. Second St., St. Louis, Mo.

Nov. 19.

Honey and Wax Wanted and For Sale.

CHICAGO.—The market is active, taking all that is offered, at the following prices: No. 1 to fancy white comb honey, 15 to 16; off grades, 1 to 2 cts. less; amber grades are irregular, ranging from 10 to 14; extracted active at 7 to 8 for white and 6 to 7 for dark and amber grades, according to quality, flavor, and package. The demand for beeswax is active at 30.

R. A. BURNETT & Co.,
199 So. Water St., Chicago, Ill.

Nov. 19.

TOLEDO.—The market on comb honey remains about the same as last quotations, but has been coming in much more freely, as bee-keepers seem to be very anxious to get rid of their stock. Fancy brings, in a retail way, 16; extra fancy, 17; No. 1, 15; buckwheat, 15. Extracted white clover in barrels brings 7 to 7½; cans, the same. Beeswax, 26 and 28.

Nov. 19.

GRIGGS BROS., Toledo, Ohio.

ZANESVILLE.—Little attention is paid to distinctions in grading of honey either bought or sold on this market, but better grades only are offered at the present time. Fancy white brings \$3.85 to \$4.00 per 24-section case, and No. 1 about \$3.75. There is a pretty good demand for comb, and more calls for extracted in glass packages. Beeswax, 27 to 30.

Nov. 23.

E. W. PEIRCE, Zanesville, Ohio.

INDIANAPOLIS.—Fancy and A No. 1 white comb sells for 16 to 17, and demand is good; fancy amber, 11 to 12, with slow demand; No. 1 white, 13 to 14, demand not good. Best grades of extracted honey in 60-lb. cans bring 8 to 9, and demand is good, but higher prices will retard the market; amber extracted bringing 6½. Good average beeswax sells here at \$33.00 per 100 lbs.

Nov. 19.

WALTER S. POWDER,
513 Mass. Ave., Indianapolis, Ind.

ATLANTA.—The honey market is quiet with us at this writing. We quote: Fancy white comb, 12½ to 14; A No. 1, 11 to 12½; extracted, white, 7 to 7½; extracted, dark, 5½ to 6. Beeswax, 28.

Nov. 21.

JUDSON HEARD & Co.,
Atlanta, Ga.

ST. PAUL.—Fancy No. 1 white-clover honey, per lb., 15 to 16; No. 2 white-clover honey, per lb., 13 to 14; extracted white clover, in 60-lb. cans, per lb., 9 to 10.

Nov. 22.

W. H. PATTON,
Sec. Bd. of Trade, St. Paul, Minn.

MILWAUKEE.—This market is in good condition as touching the best qualities of honey, either comb or extracted. Values are steadily firm at quotations. The supply is only moderate, and receipts meet quite ready sale when in good order and quality pleasing to the eye as well as the taste. We feel justified in advising shippers to send forward their good honey, and feel sure the next 60 days will show satisfactory results. We continue to quote honey in cases, 1-lb. sections, fancy, 16 to 17; 1-lb. sections, mixed, 15 to 16; extracted in barrels, cases, and pails, white, 8 to 8½; ditto dark, 7 to 8. Beeswax, 28 to 30.

Nov. 20.

A. V. BISHOP & Co.,
119 Buffalo St., Milwaukee, Wis.

See Classified Ads. on pages 1465-'66.

BEESWAX WANTED

We are paying 29c. per lb. cash delivered here, for
CHOICE YELLOW BEESWAX

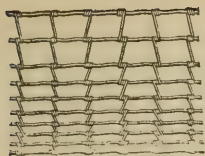
Send us your shipment now.

MONEY BACK THE DAY SHIPMENT ARRIVES.

THE FRED W. MUTH CO.

51 WALNUT ST.,

CINCINNATI, OHIO.



WIRE FENCE 29c
48-in. stock fence
per rod only
Best high carbon coiled steel
spring wire. Catalogue of
fences, tools and supplies
FREE. Buy direct at whole-
sale. Write to-day.
MASON FENCE CO.,
Box 83, Leesburg, O.

Chas. Israel & Brothers

486-490 Canal St., New York

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments Solicited. Established 1875.

FOR SALE.--Extracted honey, strictly
pure, buckwheat, 6½c; clover mixed,
7c in 60-lb. cans and 150-lb. kegs.
This State production; best flavor.

H. R. WRIGHT,

Wholesale Commission, Albany, N. Y.

COOKS WITHOUT FIRE!!

Saves 80 per cent of time and fuel. No odors nor
discomfort. Food more nutritious and palatable; can't
burn or dry up. THE MARVEL OF THE AGE! We
furnish full directions for making a \$15.00 fireless
stove out of home materials and include our new
illustrated FIRELESS COOK BOOK for only \$2.00,
or for 10 cents, will send photo and pamphlet "C8".
Approved and used by U.S. Army. Agents wanted
Fireless Cookstove Co., Oakland, Cal.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

A GOLD MEDAL

at the World's Fair.

St. Louis, 1904.



**BEST,
COOLEST,
CLEANEST,
STRONGEST.
CHEAPEST.**

Largest Smoker Sold for a Dollar.

We Send Direct from Factory to Buyer when the
Nearest Supply-dealer Does not Keep it.

It has a side grate that strengthens the fire-cup,
and holds a removable metal and asbestos lining that
keeps it cool, adding to its durability. It has no
valves to get out of order or snout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.--The General Manager of
the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough
trial. For convenience in lighting, durability, and
long time one filling will last and give ample smoke.
I find it all you claim. In the spring I shall want
several. I always want the best.

N. E. FRANCE, Platteville, Wis.

Price \$1.00; three for \$2.50.

By mail add 25 cents for postage.

Send for circular giving fuller details.

F. DANZENBAKER, MIAMI, FLORIDA

WE WILL BUY

New crop honey, comb and extracted, in any quantity. If you
have a crop to dispose of, write us fully as to quality, quantity,
style of package, etc., and you will have our answer by return
mail. If we should fail to come to an understanding as to price,
we may arrange to handle your crop on consignment, feeling con-
fident that we can do you justice in every respect.

WE WILL SELL

to Bee-keepers whose crop is not large enough to supply their
trade, various grades of honey. Let us know your wants and we
will do our best to satisfy you.

BEESWAX. We are in the market to buy beeswax at
any time of the year. Write us when you have any to sell.

HILDRETH & SEGELKEN,

265-267 Greenwich St.,

NEW YORK, N. Y.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager
A. L. BOYDEN, Advertising Manager

POSTAGE IS PREPAID by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

DISCONTINUANCES.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

HOW TO REMIT. Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by Registered Letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

- PARIS, FRANCE. E. BONDONNEAU, 142
Faubourg St. Denis. *Per year, postpaid, 7½ fr.*
- GOODNA, QUEENSLAND. H. L. JONES.
Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 5/6.*
- DUNEDIN, NEW ZEALAND. ALLIANCE
Box Co., 24 Castle St. *Per year, postpaid, 6/.*

SPECIAL OFFERS.

The Whole Family Group.

- Gleanings in Bee Culture
Delineator
McClure's Magazine
World's Work
Regular price, \$7.00.
- Our price for all the above,
one year, - - - \$3.75

Review of Reviews Special Club.

- Gleanings in Bee Culture
Review of Reviews
Woman's Home Companion
Success Magazine
Regular price for all the above, \$6.00
- Our price for all, one year, - \$3.60

- Country Life
Gleanings in Bee Culture
Both for - - - \$3.50
- Farming
Gleanings in Bee Culture \$1.50
- Gleanings in Bee Culture one
year, and one copy How to
Keep Bees, - - - \$1.50

THE A. I. ROOT CO., Medina, Ohio.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
Please continue sending Gleanings until otherwise ordered.

Name.....

Postoffice.....

County.....State.....

Date.....

If you want Gleanings discontin-
ued at expiration, check here()

Advanced Bee Culture!

One of the most difficult tasks of my life is that of writing an advertisement of **ADVANCED BEE CULTURE**. Be as modest as I can, it still smacks of egotism—sounds like a parent praising his own child. If the book had been written by some other man, the writing of an advertisement would be comparatively easy. However, even at the risk of laying myself open to ridicule, of becoming a laughing-stock, I am going to *forget for once* that I am its author and publisher, and write as though of another's work.

When 18 years old I visited an apiary in swarming-time; saw bees hanging in great golden-brown clusters from the swaying boughs of the old apple-tree; saw the snowy white combs growing as by magic; saw the waxen cells filled with nectar, and inhaled that *sweetest of all perfumes*—the odor from a bee-hive in harvest time. I was filled through and through with enthusiasm. Here was a business that was most truly

The Poetry of Life.

I was that day born a bee-keeper. There was no longer any doubt as to what should be my life occupation. I at once began buying bee books and journals, and visiting bee-keepers, and studying the business from every possible standpoint. It was six years later before I was able actually to engage in the business, but I then possessed as thorough a theoretical knowledge of bee-keeping as does a young physician of medicine when he begins to practice.

All this was 30 odd years ago; and, since then, I have

Run the Whole Camut

of bee-keeping, time and time again. I have practiced all sorts of methods for artificial increase. I have battled with the difficulties of natural swarming; I have produced tons and tons of comb honey; have tried my hand at extracted-honey production; I have reared and sold thousands and thousands of queens; I have exhibited bees and honey for 15 consecutive years at from one to half a dozen State fairs. I have wintered bees in all sorts of ways, out doors and in, in cellars and buried in clamps; I have attended nearly all of the conventions of a National character;

Visited Hundreds Bee-keepers

in their homes, scattered from ocean to ocean and from the lakes to the gulf. I have read all the books and journals; for nearly twenty years I have published the Review, enjoying the confidence and correspondence of bee-keepers scattered all over this country; in short, I have been a wide-awake, enthusiastic, practical, actual, work-a-day, bread-and-butter bee-keeper all of these years, making a living for myself, wife, and little ones, *out of bees*.

ADVANCED BEE CULTURE is the

Ripened Fruit

of all these years of varied experience; it is the crowning effort of my life. I look upon it as the best piece of work that I have ever done, or, perhaps, ever will do. It is written from a bread-and-butter stand-

point. It teaches how to make a living—yes, more than that.

Make Money out of Bees.

From all of these sources I have mentioned, from my own experience, and that of the men with whom I have associated, I have described the most advanced, the *best* methods, of keeping bees for *profit*. I begin at the opening of the year, and go through the season, step by step, touching briefly but clearly and concisely, upon all of the most important points, showing their relationship one to the other, and how, joined together, they make a perfect whole. If I could have had this book twenty years ago, and followed its teachings, I might now have

Been a Rich Man.

I say it fearlessly, because I *know* that it is true, that no practical bee-keeper can afford not to read it. The courage, enthusiasm, and inspiration alone will be worth more to him than the cost of the book, to say nothing of the more practical instructions. Many a man fails from a lack of these very useful qualities, and the perusal of **ADVANCED BEE CULTURE** will do much to help him in this respect.

One more point: A dozen years ago I took up photography as a hobby, as a pastime. I have studied it just as you have studied bee-keeping. I have read journals and books on the subjects, attended the conventions, etc. I have lugged a large camera along with me all over the United States and Canada, and used it with loving care. **ADVANCED BEE CULTURE** contains the

Gems of this Collection

of all these years—a collection that is simply unapproachable in the line of apiculture.

The book is beautifully printed with clear large type, on heavy enameled paper. It is bound in cloth of a bluish drab, and the front cover embellished with a green vine of clover, a

Bee of Gold

sipping nectar from the snowy-white blossoms of the clover. Taken all in all, it is a beautiful book.

If the advertising that I have done in the past has not convinced you that you need the book, then the fault is in the *advertising*; and, for this once, I have cut loose and said just what I think of the book, just as I would of some other book I may never do it again.

Price of the book, \$1.20, or the REVIEW one year and the book for only \$2.00.

Special Offer.

Just at present I am offering all of the back numbers of this year free to all who send \$1.00 for 1907. In other words, you can get the Review for 1906 and 1907, and this book for only \$2.00! I know of no way in which you can get so much helpful, practical, valuable apicultural information for so little money.

W. Z. HUTCHINSON, FLINT, MICH CAN

Ohio and West Virginia BEE-KEEPERS

— Order —

Root's - Goods - from - Zanesville

Nine railroads, Muskingum and Ohio River steamboats, and all express companies, insure a saving of freight and time. . . . Write now for catalog and special discounts.

E. W. Peirce, Zanesville, Ohio

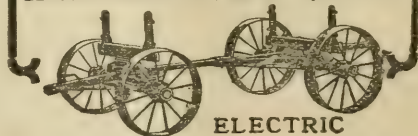
Let Us Send You Our Book.

about good wheels and good wagons that will save you a lot of work and make you a lot of money—the

ELECTRIC STEEL WHEELS —and the— ELECTRIC HANDY WAGON.

By every test, they are the best. More than one and a quarter millions sold. Spokes united to the hub. Can't work loose. A set of our wheels will make your old wagon new. Catalogue free.

ELECTRIC WHEEL CO., Box 95 Quincy, Ills.



ELECTRIC

Gleanings in Bee Culture

E. R. ROOT
Editor

A. I. ROOT
Editor Home Department

H. H. ROOT
Ass't Editor

Department Editors--DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE, LOUIS H. SCHOLL,
G. M. DOOLITTLE, R. F. HOLTERMANN, "STENOGRAPH."

CONTENTS OF DECEMBER 1, 1906

MARKETS	1474	Bees in Newark	1502
STRAWS	1483	Travels in Europe	1502
EDITORIAL	1485	Bees, Stingless	1504
Honeysuckle Apiary	1485	Hive-lifting Devices	1506
Bees Following Owner to Grave	1485	Dzierzon, Death of	1508
The San Antonio Convention	1486	HEADS OF GRAIN	1509
Inspectors' Meeting	1486	Combs, Cleaning up	1509
Visit from Griggs	1487	Cattle and Bees	1510
PICKINGS	1488	Ontario Convention	1510
GLEANINGS FROM THE PACIFIC COAST	1489	Honey-thieves	1511
FANCIES AND FALLACIES	1490	Neighbors and Bees	1511
CONVERSATIONS WITH DOOLITTLE	1492	Comb Honey Not Manufactured	1511
NOTES FROM CANADA	1493	Entrance-guard, Corrugated	1512
GENERAL CORRESPONDENCE	1495	Wax in Tropics	1512
Honey Crop of 1906	1495	Heartsease and Smartweed	1512
Bee Demonstration in Pennsylvania	1497	Alfalfa for Honey	1512
Entrances, Upper	1498	Sweet Clover on Lawn	1512
Cloverless Localities	1499	HIGH-PRESSURE GARDENING	1513
Sugar and Kidney Troubles	1499	Basswoods	1513
Exhibits in Australia	1500	NOTES OF TRAVEL	1514
Exhibits of Honey	1501	OUR HOMES	1516

INDEX TO ADVERTISEMENTS.

Banking by Mail.	Classified Advertisements.	Machinery
Savings Deposit Bank Co. 1526	Bee-keepers' Directory	American Harrow Co. 1527
Bee-books.	Bees and Queens	Gibson Mfg. Co. 1466
Swarthmore	For Sale	Lyons Engine Co. 1520
Bee-smokers.	Honey and Wax Wanted	Myers & Bros., F. E. 1527
Bingham, T. F. 1530	Honey and Wax for Sale	Miscellaneous.
Danzonbaker, F. 1475	Help Wanted	Chicago House-wrecking Co. 1526
Bee Supplies.	Poultry Offers	Doone, T. E. 1526
Blancke & Hauk	Wants and Exchange	Gordon Van Tine Co. 1526
Cook, J. H. M. 1532	Comb Foundation	Hough, F. H. 1527
Falconer Mfg. Co., back cover.	Dadant & Son, back cover.	Prindle & Williamson
Hilton, Geo. E. 1530	Dittmer Gus. 1529	Selser, W. A. 1535
Hunt & Son, M. H. 1529	Fences	Publishers, Agricultural-paper.
Jepson, H. H. 1532	American Steel and Wire Co. 1519	Agricultural Epitomist
Kretschmer Mfg. Co. 1530	Brown Fence and Wire Co. 1518	Farm Journal
Lewis Co., G. B. 1482	Coiled Spring Fence Co. 1477-1518	Southern Fruit Grower
Mason, J. B. 1531	Kitselman Brothers	Western Fruit Grower
Minnesota Bee Supply Co. 1530	Honey for Sale.	Poultry Supplies.
Muth Co., F. W. 1474	Wright, H. R. 1475	Automatic Hatching Co. 1524
Nysewander, J., back cover.	Household Specialties.	Conkey, G. E. & Co. 1525
Pouder, Walter S. 1528	Best Light Co. 1526	Humphrey
Prothero, Frank W. 1529	Fireless Cook-stove Co. 1477	J. W. Miller Co. 1542
Reeves, A. H. 1532	Horne Co., Joseph	Lee's Three Leaders
Root Co., Syracuse	Mary Eliz. B. P. Co. 1521	Mann Co., F. W. 1524
Root Co., St. Paul	Rochester Radiator Co. 1526	Stratten Mfg. Co. 1525
Scott & Co., C. M. 1530	Stromberg-Carlson Tel. Co. 1481	Publishers, Bee-Journal
Stringham, I. J. 1531	Sun Vapor Light Co. 1527	Falconer Mfg. Co. Back Cover
Texas Seed and Floral Co. 1531	Honey-buyers.	Hutchinson, W. Z. 1477
Weber, C. H. W. 1473	Hildreth & Segelken	Root Co., The A. I. 1476
Woodman, A. C. Co. 1532	Israel, Charles, & Bros. 1475	York & Co., Geo. W. 1481
York Honey & Bee Supply Co. 1532	Incubators	Publishers, Poultry-paper
Bees and Queens.	Clyde Hatcher Co. 1525	American Poultry Journal
Atley, H. 1532	Cyphers Incubator Co. 1525	Poultry Item
Atchley Co., The Jennie	Gem Incubator Co. 1525	Seeds and Trees.
Church, C. M. 1532	Mason Campbell Co. 1523	Gardner Nursery Co. 1522
Laws, W. H. 1532	Stahl, George H. 1525	Storrs & Harrison Co. 1523

At St. Louis

On a  Line

to all points in the South and
Middle West.

Send for our free illustrated catalog of

Root's Bee-supplies

We sell at factory prices, and are allowing a four per cent cash discount during December. Send us a trial order.

Beeswax Wanted.

Blanke & Hauk Supply Co.

DEPT. B.

202-204 Market St., **St. Louis, Mo.**

Manufacturers and Jobbers of Dairy, Creamery,
Ice-cream, and Poultry Supplies.

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

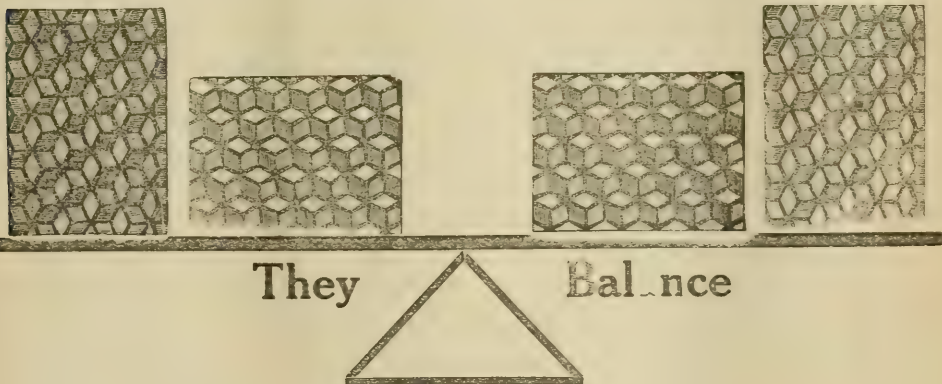
Secure a catalog at once.

BEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company

H. G. ACKLIN, MANAGER

1024 Mississippi Street, St. Paul, Minn.



Every inch of our foundation is equal to every other inch. Why not secure your foundation now for next season? On all orders for December there is a discount of 4 per cent.

THE A. I. ROOT COMPANY, Syracuse, N. Y.

A Page with Our Readers and Advertisers.

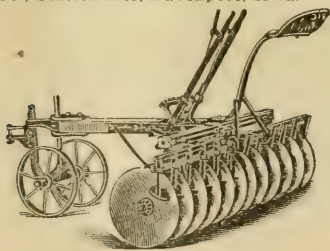
A GREAT OPPORTUNITY.

Last year we had many letters from advertisers expressing regret that they were not able to have their ads inserted in our special number for Dec. 15. We will again issue a Christmas number, which will, in several ways, exceed that of 1905. The greatly increased circulation and interest taken by our subscribers in this number makes it of unusual advertising value. Our old rates, based on 20,000 circulation, will remain in force. Send in copy for new or additional space at once.

SASH, DOOR, AND MILLWORK BARGAINS, WRITE GORDON VAN TINE & CO. FOR CATALOG, AND BUY GUARANTEED BUILDING MATERIAL AT 50 PER CENT SAVING—QUALITY AND SAFE DELIVERY GUARANTEED.

Gordon Van Tine & Co., of Davenport, Iowa, are the largest manufacturers in the world of sash, doors, millwork, and building material. Their catalog tells all about their own timber lands, their own sawmills, their factories, their enormous capacity, their guarantees of quality and safe delivery, and shows why they save 50 per cent over dealers' prices, no matter where you live. They sell by mail order only, and guarantee safe delivery and quality.

To get the benefit of this saving, whether you are a contractor, carpenter, or individual user, or whether you want a \$5 or a \$10 order, whether you are going to build a handsome home or put storm windows in the old home—first write for the catalog to Gordon Van Tine & Co., Station A 83, Davenport, Iowa.



This catalog is so simple you can order every thing by letter and save 50 per cent.

The catalog is illustrated, and one of the main features is a set of pictures and complete architect's plans for five houses of moderate cost, which in itself saves many a builder the expense of having plans drawn.

In fact, the Gordon Van Tine & Co. catalog is such a complete one that it has become a standard reference book in thousands of country homes, to be consulted whenever any building is to be done. Write to-day and get your order in before prices go up.

A QUEEN-BREEDER'S OPINION.

The surest indication that a paper is read and appreciated is in the manner its advertisements are answered. That GLEANINGS pays its advertisers is forcibly presented by a recent letter from Mr. Simmons.

Gentlemen:—My ad. in GLEANINGS has brought me more business than I can attend to. It always brings a rush of orders with every issue. My ad. in your paper brings us great results.
E. A. SIMMONS.
Greenville, Ala., Sept. 24.

One of the most welcome farm papers received at our office is the old *Farm Journal*. This magazine seems to have the personality of some dear farmer friend who speaks the plain simple truth, and whose advice is always heeded. We wish our readers would look over the ad. found on page 1536. Some very attractive offers are made. If you are not familiar with the *Farm Journal*, GLEANINGS assures you that there will be no disappointment in the receipt of the first number, and that every succeeding issue will become more valued.

Study your own advertisements more and your opponents' less.—*Burba's Barbs*.

WINTER EGGS.

If you are interested in this subject, write the F. W. Mann Co., Milford, Mass., Box 37, for their book entitled "Worms and Bugs."

WANT A POCKETBOOK? YOU CAN GET ONE FREE WITH YOUR NAME PRINTED ON IT.

Charles E. Ellis, publisher of the *Metropolitan and Rural Home*, offers to give away 5000 pocketbooks, as explained in his advertisement on page 1386 of Nov. 1 issue. His offer is to send, on receipt of a small amount, stated in his announcement, one of the pocketbooks and a year's subscription to his publication. After the three months have expired, if you order the *Metropolitan and Rural Home* discontinued to your address, Mr. Ellis will return the money paid him; if you like the publication and ask him to continue it, the amount you have paid will pay for a year's subscription; the pocketbook will be yours, and you will enjoy a high-class rural monthly magazine. The pocketbook is a very attractive, substantial article that looks like a bargain in connection with a year's subscription to the paper. Mr. Ellis explains his proposition in a straightforward talk. It is worth investigating. When writing him, be sure to mention Gleanings.

The October issue of the *American Wire Rope News* has reached our desk. It is issued quarterly, and, we judge, is sent free. At any rate, if you are interested in such matters ask Mr. F. Baackes, Sales Agent, American Steel and Wire Co., Cleveland, O., to send you a copy. If you mention GLEANINGS we are sure he will do it.

ADVERTISING - RATES

Twenty cents per agate line flat.
Classified columns—bona-fide exchange or want ads.—20c a line.
Discount for cash in advance, 5%; if paid in 10 days, 2%.
No objectionable advertising accepted.
Forms close 10th and 25th of each month.
Guaranteed circulation per issue, 30,000.

GLEANINGS IN BEE CULTURE
MEDINA, OHIO

SOMETHING NEW for B E-E-KEEPERS.

JUST THE THING TO CALL ATTENTION TO THE USE OF HONEY.

A SOUVENIR POSTAL CARD IN FOUR COLORS

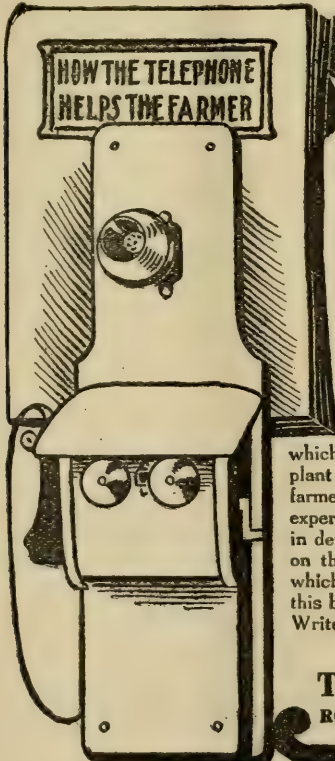
We have secured a somewhat comic Souvenir Postal Card for bee-keepers, printed in four colors (on the same card)—red, yellow, blue, and black. At the left end the following are pictured: An old-fashioned straw bee-hive with bees circling around and above it; a sad-eyed bear with his "hands" over his sweet-loving heart; a jar and a section of honey; also a spoon with a card attached, reading, "Come, let us spoon awhile." At the bottom of the card, and at the right, are these words: "Eat thou honey because it is good."—Prov. 24:13. At the left of the bear's head, and encircled with bees, is this sentence: "I can not BEAR to lose you;" and at the top, and at the right of the bear's head and bees, is this stanza:

"Oh! won't you BEE my HONEY,
And cheer this lonely heart?
For I would hug you all the time,
And we would never part."

PRICES, postpaid: 1 card, 5 cents; 3 for 10 cents (stamps or silver); 10 for 25 cents; or 25 for 50 cents. There is a blank space on the card about 2x2½ inches in size for writing.

Or we will send to a *new* subscriber 10 of these Souvenir Postal Cards and the *Weekly American Bee Journal* from the time the order is received to the end of 1907, for only \$1.00. This is a great chance to get a good trial order of these Postal Cards and also the only weekly bee-paper in America. Or a "trial trip" of 3 months and 2 souvenir cards for 20 cents. Sample of the *Bee Journal* FREE on request. Address

334 Dearborn St. **GEORGE W. YORK & CO.** Chicago, Ill.



You Want This Free Book

Of course you need a telephone. You need it for business, for the family, in sickness, in case of fire, or in danger of any kind. The question is—how can you get one on your farm? This little book which we send free the same day we get your request answers the question perfectly and tells you how to get the greatest convenience of the twentieth century so easily and cheaply that it becomes a positive saving and a money-maker, instead of an expense. It tells all about

Stromberg-Carlson Telephones

which are made in the largest independent telephone plant in the world. These are the best instruments for farmers' lines, because they have been constructed by experts for this particular purpose. They are described in detail in the booklet, together with full information on the organization of farmers' lines, the manner in which they are built, cost of material, etc. You want this book, F36 "How the Telephone Helps the Farmer." Write for it today.

**Stromberg-Carlson
Telephone Mfg. Company**
ROCHESTER, N. Y. CHICAGO, ILL.

Mr. Beeman, what do you get for your money?

That's the question to consider when buying your bee-supplies.

Simply because you have bought from some other firm for years and years, and because you perhaps think that you are satisfied is no reason why you should not look around to see if you can't buy from a better firm.

You don't know what satisfaction is until you get it.

By a better firm we mean a firm selling better goods in better packages, giving better service; a firm who can and will do not only better by you than the concern you have been doing business with, but who will do the best of them all.

"I bought fifty Lewis hives from a fellow in our town last year, and I never saw nicer, whiter, better-fitting bee-hives in all my life. I have always bought my supplies from _____ so I had no idea you made such fine goods until I stumbled on to them by mistake. Now I want Lewis Beeware and nothing else."

The above is only a sample of what bee-keepers think and have to say about Lewis goods. Thousands of our customers come to us in just this way.

They come to stay.

Now, we are going to ask you to buy just five Lewis hives and five hundred Lewis sections—even less, if you do not care to run that risk—just to see what they are. We leave the decision entirely with you. If after getting a sample you are not convinced that Lewis goods are the goods for you—we don't ask your business. That's fair, isn't it?

AGENTS EVERYWHERE.

G. B. Lewis Company, Watertown, Wisconsin.

GLEANINGS

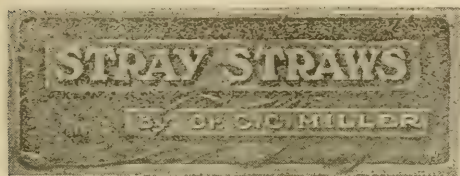
IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
 Illustrated : Semi-monthly : One Dollar per Year
 Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

DEC. 1, 1906.

No 23



FRENCH SCIENTISTS have determined that the digestive organs of the larvæ of the wax-moth can destroy the bacilli of tuberculosis. Whether any practical use can be made of this interesting fact is doubtful.

CELLARED bees Nov. 19. Sorry to say they had no flight after Nov. 9. [We have not yet put our bees in the cellar, and it probably will be the first of December before they go in—a difference in locality.—Ed.]

HONEY SELLING in Great Britain at 48 cts., p. 1418. Shouldn't those figures be doubled or halved, or something? [No. If my information is correct, the price at which the best grades of comb honey sell for in England is 48 cents, or 2 shillings.—Ed.]

EDITOR HILL expresses doubt as to whether I know enough to know that Cuba will not be annexed. Rather unkind to awaken doubts as to one of the few things I thought I knew. But say, Harry, didn't Uncle Samuel promise that Cuba shouldn't be annexed, and isn't Uncle Samuel a man of his word?

EMPTY COMBS need more care to protect them against the ravages of mice than combs containing honey. I said that once to an experienced bee-keeper, and the reply was, "No, indeed; they prefer the combs with honey every time." That's just it. Give them combs with honey and they will eat the honey, chewing the combs very little; whereas if no honey is present pretty much all the combs will be chewed up into little bits. The value of the honey they consume is much

less than that of the combs they will destroy if no honey is present.

DR. BRUENNICH declares the view of Reidenbach, that formic acid is developed in brood-cells, utterly untenable. Planta's carefully conducted investigations clearly show its origin in the blood. One fact that knocks out Reidenbach is that no acid is found in nectar in the flowers, but it is found in nectar in the honey-sac.—*Schweiz. Bztg.*

ISN'T THAT AD. of fireless cook-stove, p. 1467, a little strained? Would you call an old trunk and an armful of hay a \$15.00 stove? And to be on a level with it I am afraid that cook-book is rather small for \$2.00. [No, not "strained" if the book describes a fireless stove that is worth a good deal more than an old trunk and a bundle of hay.—Ed.]

MAJOR VON HRUSCHKA, the inventor of the honey-extractor, born in Moravia, was an officer of the Austrian army at Legnano, Italy. His leisure was occupied with bee-keeping, and one day he sent his little boy to the house with a comb of honey on a plate in a hand basket. The boy whirled it about to get rid of robber bees. The lower side of the comb was emptied, and the honey-extractor was born. After the peace of 1866, von Hruschka left the army, lived a while at Dolo, and then at Venice, where he ran a big hotel. This swamped him financially, and in May, 1888, he died a poor man, forgotten by most bee-keepers. This little tribute is to awaken in the minds of the younger members of the fraternity a feeling of warm regard for one to whom we owe so much.

How COULD increasing the size of bees possibly increase the number of laying workers, p. 1417? The largest hive bees I ever knew any thing about were those that Dr. J. P. Murdock had some years ago. They made worker-cells that measured 4 to the inch, with drone-cells correspondingly large. I

stink I sent a sample of the comb to Medina, if large size layers laying workers, certainly laying workers should have been plentiful in that stock; but if so, I think Dr. Murdock would have mentioned it. The colony I had showed nothing of the kind, but they were not a fair test. [I am referring this to W. K. Morrison for a reply. It was he who made the statement that an enlargement of the honey-cells would result in an excess of laying workers. —Ed.]

A GOOD BIT of nonsense about that second item, p. 1418—"No manufacturer or dealer desires to hold any office in a honey-producers' organization." How do you know that, Mr. Editor? And would it be a capital offense if he did? A worse bit of nonsense is the idea that a law is needed to debar certain classes from office. I don't think a man that can't hear should be elected president; but it would be foolish to pass a law to that effect. The National is made up almost entirely of bee-keepers; and if they don't want to vote for a supply-manufacturer they don't have to. They are not a lot of soft-heads, but a set of bright men who know what they want, and what they don't want, and it sounds foolish to make a law to prevent them from voting for a thing they don't want. [The number of supply-dealers and manufacturers is very small compared with the aggregate number of honey-producers or bee-keepers. While I do not think the dealers or manufacturers that have been or may be now on the list of officers have abused their privileges while in office, yet as a general proposition I believe it would be better if they were not eligible to any official position. —Ed.]

THE *Irish Bee Journal*, referring to a Straw, p. 1228, thinks it was not changing to a lighter but to a cleaner shirt that prevented further stings—that it might be "not the color, but the smell that caused the second and subsequent stings." Not the least doubt that bees are sensitive to odors, but that does not in the least disprove their sensitiveness to colors. It so happened that the colored shirt had just been put on clean, and it drew the first sting—the white shirt didn't. Editor Digges "uses a black felt hat, and never had a sting in it." At different times I have used a black felt hat, and had it well peppered with stings. I've changed from light to dark clothing the same day, and had more stings. I've changed from dark to light, and had less or no stings. I've worn dark clothes and my assistant light ones—I was stung severely and she wasn't. These things, happening not once, but a whole lot of times, through a whole lot of years, furnish "a whole lot of positive proofs" that are at least satisfactory enough to me to make me prefer not only light but white clothing.

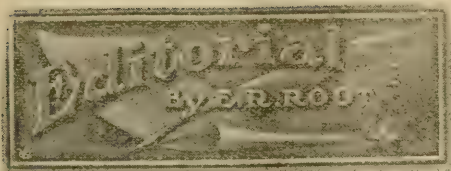
My assistant adds the following suggestions: There can certainly be no odor to the black glass head of a hat-pin, and yet it has been funny to see at least a dozen bees at a time dabbing viciously at it, following it for half a day. When Huber Root was here he visited the apiary, with a black felt hat on.

In a very short time it was *literally* decorated with stings. Huber was very much interested, and, to make sure that it was the color and not the felt that was the trouble, he went to the house and donned a gray felt hat, and came back. Not a sting did he get. He carried that black hat, with the stings in it, home, to convince Ernest. [Huber reported this incident to me at the time, showing the hat in evidence. There has been so much proof adduced on this point that I do not see how the fact can be questioned. —Ed.]

RALPH I. HALE had a thousand acres of clover in full bloom within five miles, yet no surplus, and wants to charge the failure to an insect, p. 1445. I had perhaps as much clover here, and certainly as much failure, but I don't charge the failure to any insect. The clover blooms and blooms and blooms, all right in appearance, but the bees just don't get any honey. Seasons of this kind occur with painful frequency, and I wish somebody could tell us what the trouble is. [Is it true that these off seasons of clover are coming with more painful frequency than formerly? Is it not rather true that there is less of clover owing to intensive agriculture than twenty or thirty years ago? When a season comes along that is unfavorable to the clovers, for secreting nectar, the very greatly decreased acreage makes the shortage much more pronounced. There is less pasturage for cattle and consequently less clover for bees. Twenty years ago there was comparatively little beef raised in the West; but now a great deal of western beef is shipped in. While our population has increased, I am of the opinion that the actual figures would show that we have less of pasturage for cattle per 1000 population than we had before irrigation was opened up in the West. If that be true we have less clover; but that is not all—we have more bees and bee-keepers for that same population.]

Do you think it is possible that nature has changed in any way during the last twenty years in the amount of nectar secured from clover for a given acreage? Is it not rather true that there is less of that acreage, and hence a noticeable shortage—a shortage that would not have been apparent when there was a larger acreage of clover?

[[Precisely the same condition holds true in a locality now overstocked which formerly had comparatively few bees to gather the nectar. Bee-keepers in the great West are beginning to feel the influx of Eastern bee-keepers into their territory, and the result is they have every now and then poor seasons—something they never knew of years ago. It is not that nature is less lavish than she used to be in secreting nectar, but, rather, that there are either too many bees for the pasturage, or, to put it another way, too little pasturage for the same number of bees that, twenty years ago, gathered a good crop of honey. When we remember that nature during centuries makes no noticeable changes in the character of its species, we are almost forced to conclude that clover per head yields as much nectar as ever. —Ed.]



OUR last issue was a little late, owing to the fact that we are preparing to move into our new quarters. Some paper that we had ordered for our new press had not arrived.

OUR Christmas number is going to be a beauty. The entire number will be issued from our new publishing house, and a large portion of it will be printed on our mammoth new press. Of its kind it is within two sizes of being the largest and most expensive that is built. This will enable us to triple our output.

IN the Australian *Commonwealth Bee-keeper* is a notice of a eucalyptus which is claimed to be hardy. As it grows naturally on the mountain-tops of Tasmania there is some chance of this being so. It grows only as a shrub, and flowers very young. Our bee-keepers in the Gulf States ought to investigate this proposition, as such a bush is likely to be popular. It might grow also in North and South Carolina, Georgia, Tennessee, and Arkansas.

THE Rev. Paul Schönfeld, who was pastor of a church in Teutschel, Germany, for 42 years, and one of the brightest bee-keepers this world has ever produced, died recently at his home in Lieguitz. He was born in Lower Silesia. We are indebted to him for most of our knowledge of chyle food and royal jelly. Practically all our knowledge as to the functions of the chyle-stomach of the bee we owe to him. He was an expert on the anatomy and physiology of the honey-bee—probably the best we ever had. He was 85 years of age when he died.

BEES FOLLOWING THEIR OWNER TO HIS GRAVE.

OUR readers have doubtless seen a news item going the rounds of the press, to the effect that a bee-keeper in or near Des Moines, Iowa, who recently died, was followed to his grave by his bees. The item even goes so far as to state that, when their owner died, they became immediately very uneasy, and swarmed out and hung around the trees in the cemetery. Quite a number of our subscribers have asked what this all meant. It does not mean any thing. The weather may have been warm on the day of the funeral; and on such days after a cold spell bees are likely to make themselves particularly numerous *everywhere*. That they swarmed out and hung on the trees in the cemetery is

utter nonsense. The statement probably originated in the brain of the reporter, who was writing to fill up space and make a general sensation.

HONEY-SUCKLE APIARY AT MALTABEND, MO.; A BEE-YARD CONVENTION OR FIELD MEETING.

ON the front cover page of this issue will be seen a very pretty apiary belonging to E. G. Guthrey, at Maltabend, Mo. This yard contains something like 100 colonies, and, as will be seen, it is very neatly arranged and especially fitted for the entertainment of visitors.

Mr. Guthrey, the owner, is Vice-president of the Saline Co. Bee-keepers' Association—an organization which had a field meeting at his apiary on the 14th of July last. Mr. R. G. Robert is President, and M. E. Tribble is Secretary. The county association is a sort of club of bee-keepers that meets every six or eight weeks, or at least that was the plan of the organization.

Apparently this journal is in good favor with the members or the owner, for there is a tent at the left-hand corner with the word "Gleanings" across the top of it. Then there is another tent or booth on one side of the apiary, where the members, after they finish their field work, can assemble and discuss their work, and talk as only a lot of bee-keepers can. On an occasion of this kind, with only a small gathering the discussion is probably informal, all taking part. It is just such free-for-all conversation that brings out valuable hints, and why? Because everybody can and will talk.

Mr. Guthrie reports that last year was a very poor one; but nevertheless he had one colony of hybrids that stored 239 lbs. of first-class extracted honey on full sheets of foundation.

The Saline Co. Bee-keepers' Association has worked up a great deal of interest and enthusiasm on bees—so much so that it recently entertained the Missouri State Bee-keepers' Association at Marshall, the county-seat of Saline County, about ten miles from where Maltabend is located. The effect of these field meetings at Mr. Guthrey's yard, which many have attended, has been such that there was a large attendance of the State Association. The members report that they were highly pleased with the entertainment that they received from their hosts.

Among the subjects were foul-brood inspectors, queen-rearing, uniting weak colonies, foul-brood laws, etc. There was a fine display of honey, beeswax, and bees in an observatory hive.

The following officers were elected: J. W. Rouse, President, Mexico; E. G. Guthrie, Vice-president, Maltabend; Robert A. Holcamp, Secretary and Treasurer, St. Louis. Mr. H. is a director in the National Bee-keepers' Association, and an enthusiast on bees.

GLEANINGS will be glad to encourage any of these field meetings, as it believes that discussion accompanied with field demon-

stration is a most effective way of disseminating information. To know how to do a thing theoretically can not be compared to seeing the thing done practically. What one sees he remembers, while what he reads or is told he may forget.

THE 37TH ANNUAL CONVENTION OF THE NATIONAL BEE-KEEPERS' ASSOCIATION.

THE convention of the National Bee-keepers' Association at San Antonio, Nov. 8, 9, and 10, was one of the largest and most enthusiastic ever held. The General Manager's report showed an excellent financial condition and a good healthy state of affairs all around. It is doubtful whether the National ever held a meeting where more actual good was accomplished for the bee-keepers of this land.

It will be impossible, because of lack of space, to give a full and detailed report of this big meeting; but a few of the good things accomplished can be mentioned. Fewer papers were read this year than last, for it was the intention of the program committee to have more of the question-box so that all could have a part.

One of the first and most important questions submitted was that concerning freight rates for honey. In the discussion which followed, the fact was brought out that these rates on comb honey are very unreasonable; and that if proper steps were taken the classification could be so changed as to be of untold benefit to every shipper of honey. It was decided that a committee should be appointed to confer with the railroad classification committees for the purpose of bringing up this matter and getting some reduction so that comb honey would not have to be shipped always at first-class rates.

In order to get this in proper form the whole question was put into the hands of a resolution committee who submitted the following:

We, the committee on resolutions, recommend that the following resolution be passed by the National Bee-keepers' Association in convention assembled:

Resolved, That a committee of three be appointed by the President, of which the General Manager shall be one and be its chairman, for the purpose of securing more favorable freight rates on the products of the apiary, namely, honey, bees, and beeswax; that the Board of Directors be requested to pass a resolution authorizing and directing the General Manager of our Association to pay out of the funds of the Association the necessary expenses of the committee, and such expenses as may be incurred in bringing before the railroad officials such articles as may be necessary to demonstrate the packages on which resolutions are desired.

This resolution was unanimously adopted. Since General Manager France is chairman of this committee, all the members can be very sure that there will be "something doing," and that the work will not be delayed or hindered. The other two members appointed were Robert A. Holecamp, of Saint Louis, and Fred W. Muth, of Cincinnati—both strong men who will do their best.

There is another thing of great importance that should be mentioned here. General Manager France said that for some time he had been working on a scheme for a nation-

al honey-label, and he had gone so far as to have a quantity of the labels printed so that any one might take one as a sample to see what it is like. These would be furnished at cost to the members; and each member, furthermore, would be provided with a permanent number, so that, no matter how many labels he purchased, he would still keep his original number, which would be printed on the label. This, as can be readily seen, will be a guarantee of purity.

All through the convention the Texas people showed their true hospitality. The Mexican banquet was a never-to-be-forgotten feature.

"We-all sure liked it, and would be right glad to meet up with you-all again some time."

THE INSPECTORS' MEETING AT SAN ANTONIO; PRELIMINARY REPORT.

THE inspectors' meeting at San Antonio, Texas, Nov. 12, was a grand success. There was a good attendance, consisting of inspectors and many others who had stayed over after the National convention to learn what they could.

Dr. G. F. White, of the U. S. Department of Agriculture, gave a very interesting address on the bacteria of bee-diseases, showing the methods pursued in making cultures of all the bacteria in the juices of larvae, and studying those which were found to be the cause of the disease. The point was brought out that the microscope alone can not be relied upon.

Dr. E. F. Phillips showed that there were evidently two distinct brood diseases in Europe, as well as in America, resembling each other very closely. These are commonly known as foul brood and black brood, but should more properly be called American foul brood and European foul brood.

A discussion of the practical methods for curing these diseases followed, and the question of the laws of the different States was also taken up.

We expect to publish a full official report of this meeting later, and it will be well worth the close attention of every reader.

"BEE-KEEPING FOR BEGINNERS," BY WALTER CHITTY, F. S. SC.

THIS little book has been prepared in accordance with the regulations of the English board of education, being primarily intended for use in "board" or what we would term public schools. From what we can see, the book will fulfill its mission to the letter, as the matter is excellent, clearly written, well printed, well illustrated, and the book itself well bound. It is, therefore, excellently adapted to use in schools; but we opine it will also be found very useful to amateur beginners who want a very simple book to start with. Mr. Chitty has long been known as a practical bee-keeper, and, what is pleasant to record, evidently appreciates old Father Langstroth at his real value. This may be mentioned because some English writers seem desirous of robbing Langstroth of his

rights as the inventor of *practical* movable-frame hives. Some of the illustrations of hives are excellent, particularly that of the "Holborn," which is evidently an up-to-date home for a hive of bees. In this country we have long since discarded the straw hive, and it seems strange to find it referred to in a work of this kind; but this is probably to suit the views of the Board of Education, who may love old-fashioned things even when they are bad. It is recommended because Mr. Pettigrew, a Scotch bee-keeper, made \$480 in one year with it; but some men in this country have cleared \$8000 in a season with wooden hives, and quite possibly some have exceeded this, selling the honey, too, at half the price it would sell for in England. In the matter of foundation, frames, sections, etc., this book is right up with the times, however.

A school-book on bee-keeping would be a novelty in this country; but we see no reason why bee-keeping should not become a school-subject in many parts of this country, where bee-keeping is not well developed. This book shows our English friends are not slow on the subject of sound education for the rural population. The book is published by the old reliable firm of Kegan Paul, Trübner, French & Co., London.

"WHAT'S THE USE OF KNOWIN' SO MUCH, WHEN SO MUCH YOU KNOW AIN'T SO?"

MR. S. J. GRIGGS, of the Griggs Brothers, Toledo, the honey merchants of that city, visited us recently. I asked him what he thought would be the effect of the Hepburn pure-food law on the honey business.

"Decidedly beneficial," he said. Prices, in his opinion, would seek a higher level than they had ever obtained before. The comb-honey canard would not then have any foundation upon which to stand.

He told a number of amusing instances in his experience in selling honey, of how that phantom canard would every now and then be thrown up in his face. Once when he was making a demonstration at one of the bee and poultry shows, an old lady came up, looked over his nice comb honey, and nodded very wisely, saying, "All manufactured." Mr. Griggs paid no attention, for he was giving some bees water through the wire cloth of an observatory hive. A daughter of the old lady remarked, looking at some bottles of very nice extracted clover honey, "But, mother, here is some nice strained honey."

"Naw," retorted the elder, "that is nothing but sugar-fed stuff—can't fool me."

Mr. Griggs immediately sided with the old lady in this wise:

"You are right, madam. Now just watch me and I will show you just how I do it. See, I am pouring the stuff on the top of these bees. Now if you will wait a minute, you will see it come out of the entrance of the hive right into this dish.

"But say, madam," he added, "how do you know comb honey is manufactured?"

"Oh!" she retorted with a toss of her head, "I have eaten too much of it to be fooled. I know it when I see it and taste. Can't fool me."

Mr. Griggs was all but squeaked, for he knew that a woman convinced against her will is of the same opinion still. He made, however, one more attempt:

"You do, eh? Say, my dear lady," he said, growing serious, "if you will prove that there is one pound of manufactured honey on the market, I will see to it that you will get several thousand dollars. The National Bee-keepers' Association, with a membership of something like 2000, and a big fund in its treasury, has offered over \$1000 for proof of what you are talking about; and, what is more, I know of a big firm that will pay an equal sum. Yes, my dear woman, there is a big pile of money waiting for you when you prove your statement."

"Ahem!" said she, becoming a little bit shaken in her faith, "it tastes like it, anyhow."

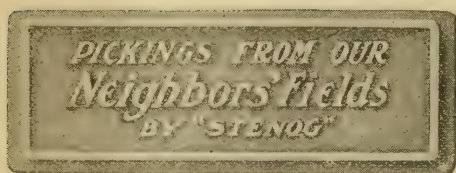
"But it does beat all," said Mr. Griggs, "how many people believe that comb honey is manufactured. One of my best customers, a man who produces nothing but fancy and No. 1 comb honey, sections all scraped, and combs built clear out to the wood, took a sample of these goods to a grocer in a neighboring town. He displayed it on the counter, and held it up before his would-be purchaser. The man examined it with a great deal of interest, and then, with a knowing smile, said, 'Yes, it is genuine manufactured comb honey. Real bees' honey is not so perfect nor so clean and pretty as this.' The comb-honey producer was too mad to argue the question, so he grabbed up his case of honey and ripped out, 'You are a good guesser, you are.' Out he went and slammed the door.

"Now, may be that grocer," continued Griggs, "thought he had actually spotted a man who was putting out the bogus stuff, and that the rascal admitted the fact. I would have turned around and argued the matter with him a little, and convinced him it was a mistake, and asked him to sample the honey with the view of making him a purchaser. But not so with our gilt-edged comb-honey man. He had no time to fool with such a know-it-all ignoramus."

It is no doubt true that an extra-fine lot of comb honey, clean and well scraped, combs pearly white, and well filled out, to some people appear not so honest as bee-bread propolis-daubed honey from the old farm of yesteryear. These beautiful clean goods they think must be manufactured.

Moral No. 1.—"What's the use of knowin' so much, when so much you know ain't so?"

Moral No. 2.—What's the use of scraping sections, and selling only fancy to those who know so much? Why not sell such chaps bee-bready chunk honey? Let them have what they want, and charge 'em a good round price until they know less, or, rather, know more, about their own business?



NEW ZEALAND — A GOVERNMENT OF THE
PEOPLE AND BY THE PEOPLE; WHAT ITS
GOVERNMENT DOES FOR BEE-MEN.

For several years New Zealand has been attracting the attention of the world in a commendable way. It consists mainly of two islands, in size about like Illinois and Indiana. Although politically a ward of Great Britain, it is practically as independent of the mother country as is Canada, while geographically it is as far from England as it can be on this globe, being 180° east or west of London, and as far south of the equator as that city is north; so that, while the New Zealanders stand quite parallel with the King of England, their heads are opposite while their soles come together except the trifling intervention of 7980 miles of globe between them. In this pleasant nook of the far south some political questions have been solved as to the proper function of a government in relation to the people; and in no other place on earth have we a better example of "a government of the people, by the people, and for the people," than there. The political boss has no job in New Zealand; the natural blessings of nature are not made the subjects of monopoly; the people make their own laws, and all have an equal opportunity.

One of the best features of that far-off land is its Department of Agriculture; and whatever modern science can do to place that greatest of all industries on a high and firm footing has been and is being done there. The agricultural bulletins published in New Zealand are of the highest order, and may be read with interest by all.

These reflections were called out by a recent reading of Bulletin No. 5, on bee culture, which industry is under the immediate supervision of Mr. Isaac Hopkins, a man who has thrown his exceptional energy and ability into his work. The bulletin in question treats on the following subjects: The use of comb foundation; ripening extracted honey; foul brood; the large bee-moth; apiculture in relation to agriculture. I intend to make liberal extracts from these later.

I was about to say more about Mr. Hopkins and his work when the following letter was received from the editor of the *Waikato Times*—a man who is fully competent to handle the subject, being right on the ground, and who, I am glad to say, entertains as high an opinion of Mr. Hopkins as I do. He says:

BEE-KEEPING IN NEW ZEALAND: WHAT THE STATE IS DOING; FOUL BROOD A GREAT DRAWBACK.

New Zealand is a great undeveloped bee country. With an area of 104,000 square miles, a temperate to

sub-tropical climate, and most of the land divided between agriculture and grazing, there are few, if any, parts of the colony where honey production can not be profitably carried on. What little honey is raised is some of the finest in the world, and fetches the highest prices in the European markets; but the quantity is so insignificant that the Government Year Book does not mention it. The Agricultural Department has at last awakened to these facts, and has resolved to make the industry a big success.

Early in 1905 Mr. Isaac Hopkins was appointed Government Bee Expert. A better man could not have been chosen. Mr. Hopkins is the author of the "Australasian Bee Manual," and the pioneer of scientific bee-keeping in New Zealand. Since his appointment he has visited almost every apiary in the colony, and worried and exhorted the box-hive barbarian, delivered many lectures, established the first State apiary, prepared two departmental bulletins, and helped to start bee-keepers' associations. He estimates that, within the next few years, there will be 100,000 profitable bee-colonies in New Zealand. These should produce, even in a poor season, over 20,000 tons of honey, which, if exported, would return something more than \$300,000; and that should not be the end, for in time Mr. Hopkins (and he is a cautious man, prone to understatement) thinks the output may be three or four times that indicated above. New Zealand alone, he considers, could absorb at present 600 tons without a serious reduction of price, and nothing approaching that quantity is offered.

The industry, however, is growing, for the season which closed in March (New Zealand seasons are antipodean) saw an increase in the number of colonies kept, which, in some districts, must have been nearly 50 per cent.

Mr. Lenz, of Masterton, is probably the biggest bee-farmer in the country. His output for the season of 1903 and '4 was 20 tons. The few men who go in for scientific bee-farming are generally quite up-to-date in their methods. They read *GLEANINGS* and other journals; they import and rear queens, run nuclei, and control swarming. But Mr. Hopkins found that, of the colonies he inspected, 16 per cent in the North Island and 58 per cent in the comparatively inclement extreme south, were housed in common boxes, and destined to the yearly holocaust of the sulphur-pit. The proportion must really be much greater, because many settlers, whom the expert would never hear of, have a few boxes of bees in their gardens. Wild swarms the progeny of the black bees introduced many years ago, are plentiful in the season, and the farmer thinks it no trouble to take any that come his way and let them shift for themselves until he wants to rob them. It is these neglected colonies that are the chief source of foul brood; but when the foul-brood bill becomes law, as it probably will this year, their numbers will be greatly reduced. The bill will create inspectors with power to supervise apiaries and enforce the destruction or proper treatment of infected colonies.

Foul brood is the one great drawback to bee-keeping in New Zealand, and bee-keepers say that, if it is not suppressed, it will suppress the industry. One bee-keeper who has 220 effective colonies had to treat 30 for this disease during last season, and his experience is not exceptional. What is needed is a means of cutting off the sources of infection, and that will be supplied by the proposed legislation.

The first State apiary is located on the Government Experimental Farm, near Hamilton, in the Waikato district. Two or three others will be established next season. That on the Ruakura Farm began the season with 33 colonies, and increased them to 55, chiefly by artificial swarming. Next season there are to be 80.

For some time to come the objects of the State apiary will be educational rather than experimental. With this view a lady with English training, Miss Livesay, has been placed in charge, and she hopes to popularize the industry among the farmers' wives and daughters. The supervisor, Mr. C. Sinton Hutchinson, is one of the best scientific bee-keepers in the country. The Langstroth hive is used, as is the case throughout the country, its general adoption being due to the efforts of Mr. Hopkins many years ago. American bee literature, too, is read far more than English, which, indeed, is but rarely seen.

The bees at the State Farm are hybrids, and nothing has been done yet to improve the strain; but next season Mr. Hopkins will import some of the best Italian queens. There will also be observatory hives and probably a library.

The honey-house, built on Mr. Hopkins' plans, is of timber, with iron roof. It is divided into an extract ing-room 16x14 ft., a store and workroom 10x14 ft. I-

is intended to serve as a pattern for an apiary of about 100 hives. Two notable features are the ripening arrangement and the bee-escape device. The tank for ripening the honey is made of 1½-inch timber lined with tin. It is 18 inches deep, and is divided into two compartments, having the lower half of each side shelving inward. The idea is to expose a large surface to the air. Each compartment holds 1250 lbs. of honey. Later on another double tank will be built. The bee-escape, properly so called, is not used, but instead the windows are hung on a pivot so that they can be revolved.

When the apiarist sees the bees getting thick on the glass he swings it around, and they are outside. It will be realized that good joining and seasoned timber are necessary to make the window beetight, and that the method has the disadvantage of not being automatic. The building, without apparatus, costs about \$200.

The bee-expert is to have a stand at the New Zealand International Exhibition, which opens next November at Christchurch.

This last honey harvest in New Zealand has been disappointing. Mr. Sinton Hutchinson took only 4½ tons from his 220 colonies. He had expected 8 tons, which was a very cautious estimate for a normal season. This was in Waikato, which disputes with Hawke's Bay the title of being the best honey district in the country. White clover is the main forage in those parts; and, though there was plenty of bloom, a quite exceptional lack of New Zealand's usual sunshine was responsible for the scarcity of nectar. Mr. Hutchinson reckons on making about \$200 a ton profit, selling on commission in Auckland.

There is a great future before bee-keeping in New Zealand, but the people want a lot of educating.

Mr. Bracher will receive the thanks of all for his interesting information.



MUSCLES.

Organisms are more interesting than inanimate things, as the life principle begets surprise and admiration in the student or attentive observer. The livelier the life, the greater the interest; and so animals are more attractive to the most of us than are plants. If I can show that, in this *role*, insects stand well to the front, and bees in the lead of insects, then surely I have another claim for bees in some respects as the most interesting of all life.

We usually associate voluntary motion with muscle; and in the higher forms, as far as we usually observe, this is correct; yet plants like the mimosa, or sensitive plant, move under the stimulus of the slightest touch; and the lower plants, like the bacteria and diatoms, are sprightly indeed as we view them under the microscope, and these are surely without muscle. Indeed, if we study the lining membrane of our own bronchial tubes, the lining of the nose, or the eustachian tubes (the tubes that reach from the throat to the middle ear), we shall find little cilia, or fine hairs, that are ever waving in a manner that reminds us of the grain-field as the wind disturbs its rest; yet these cilia have no muscles.

TWO KINDS OF MUSCLES.

The muscles that give rise to most of the motion that animals are wont to exhibit are very interesting, and are of special interest to bee-keepers who wish to know all about their pets of the hive. There are plain unstriated or involuntary muscle and the striated or voluntary muscle. Each minute fiber of the first kind is a single cell, elongate, bulging in the middle, and often possessed of more than one nucleus. I may say here that a cell, typified in the yolk of an egg, is a simple mass of protoplasm, often in animals with no cell wall, and possessed in the central portion with a nucleus, a thicker portion, of a different make-up. These cells are microscopic for the most part; and is it not interesting that they form most of all animals and plants? When we come, therefore, to the basic structure, what we are really made up of, animals and plants are essentially alike. We may almost say, then, that the plants we so much admire are our brothers; and if this will in any sense heighten our love for these gems of creation, then we may well claim them as kindred. Surely we have a common Father, and does not this make us kindred in very truth? The white and red blood discs, or corpuscles, are also cells. As I have said, these fibers of plain muscle are lengthened cells. They are the muscles of our blood-vessels, of the intestines, the stomach, and of other involuntary organs, if we except the heart. They are less easily excited to act than are the striped muscles, and less vehement in their action when excited. They seem to lack the strength and vigor which we note and admire in the striated muscle.

STRIPED MUSCLE.

The voluntary or striped muscle, the muscles so familiar to us, and which make up so large and so very important a part of our food, are very different from the plain muscle just described. The fibers here are cylindrical, each arising from a single cell, and may be said to be, when fully formed, a giant cell with several nuclei. Across these fibers are lighter and darker lines, and so they are called striped or striated. As they are the actors in all voluntary effort, they are well called voluntary muscles. Although these vary in strength in different muscles, yet they are always surprisingly strong.

Bee-keepers will be interested to know that the insect muscles, and so the muscles of our bees, are precisely the same in structure as are our own. In kinds, position, structure, and function there is a close similarity between the muscular fibers of insects, and so of bees, and of our own. There is only one apparent difference in our muscles and those of all vertebrate animals—the several fibers that go to make up a muscle are bound together by a surrounding membrane known as fascia, which is not found in insects.

Muscles are excited to act normally by nerves, yet they may be induced to act by pinching them, by acids, by cold, and by

use of electricity. Indeed, we may remove a muscle and excite it to act at once, and it will act in every way as if it were working in the living body as has been its wont. In fact, such a muscle may be loaded; and when the electric shock is given, the fibers will contract or shorten, and the weight will be raised just as though the muscle were in the body. If we galvanize such an isolated muscle we find that a very brief time elapses before shortening commences. It then contracts and then relaxes. Cold-blooded animals, like frogs, are slower to act, and warm-blooded animals differ. As they show greater vital activity, the muscles are more quick to respond. It is interesting to note that bees are among the very highest in this quickness to respond. We also find that the duration of a single muscular contraction varies in different animals with their vitality. In the frog it is twice as long as in man, and in the insect only $\frac{1}{4}$ as long as in man. Thus we see the insect measures up well in the perfection of its muscular organization, even greatly distancing man himself.

Temperature also affects strength and duration of contraction. Too great cold lessens it, while heat also does the same, and also destroys the power to act. A muscle will raise a heavier weight after it has worked a little. Both kinds of muscular fibers, and the muscles of the heart, show this same tendency to improve in power after a little exercise. This explains why we often work better after we have exercised a little. The work that a muscle is capable of exerting is 35 to 40 per cent of the whole energy expended, which is more than twice the efficiency of our power engines. The human muscle is more than twice as efficient as that of the frog, of similar proportions. Here, again, our insect shines forth with surprising superiority, as it is many times greater than that of man.

TETANUS.

By tetanus is meant the continuous contraction of a muscle, consequent upon many rapidly repeated stimuli. Here, again, the number of stimuli necessary to produce complete tetanus varies with functional activity. In the frog it is but 20 or 30 per second, while at the other limit, in bees, it is 300. Prolonged work exhausts the muscle. Even the isolated fresh muscle will recover with rest, and the fatigue will be much slower, if a little time, only a very little, is granted for rest between each stimulus. This is a practical point, and will influence us to let our hard-worked animals have short, frequent rest-periods.

From the above we no longer wonder that the bee distances the railroad train, and that the absconding swarm sometimes shoots away with such surprising swiftness. The bee has muscles of the highest quality, as we know by direct experiments. Sensation and voluntary motion are the preëminent animal functions. One of these is phenomenal in its development in the highest insects. Must we say, then, that bees are among the highest of animals?



NEVER TOO LATE TO LEARN; THE IMPORTANCE OF KNOWING SOME OF THE SIMPLE FACTS OF SCIENCE.

I believe there is a feeling on the part of many who have had only a common-school education, and perhaps a very poor one at that, that they must necessarily be debarred from a knowledge of the sciences as something far above their reach. I believe, and know, further, that such thoughts or feelings are fancies and fallacies that should be met and exposed as false and pernicious in perhaps the majority of cases. I know there is something rather forbidding in all of the "ologies;" but if squarely met in a courageous way they may so far be overcome as to yield us great pleasure.

In my opinion, no other class of persons engaged in rural pursuits are of more inquiring minds than are bee-keepers. That they should sit beneath the tree of knowledge, with its branches bending low with golden fruitage, and be unable either to pluck or eat, seems indeed too bad. Take, to begin with, entomology. How intensely interesting to learn of the different families of insects, how they are classified, their food and habits, their relation to each other, and our relation to them! How much better to know that the dragon-fly, or, as it is often called, "devil's needle," lives on flies, mosquitoes, etc., than that it sews up the eyes of our children! How much better to be able to tell an ichneumon fly from a codling-moth than to smoke a clay pipe? How much better to be able to tell our friends from our enemies among insects than to listen to the gossip at the village store!

Some years ago my garden was overrun with the aphid (plant-louse). I tried to destroy them with kerosene emulsion, as the horticultural papers said, but they could increase faster than I could kill. The next spring they started in again; but, distrusting my ability, I found a "lady-bird" and placed her among them, and soon the aphid was overcome.

A few years ago we had an epidemic of forest-worms, and many of our forests were about as bare in June as January. Some thought, and it looked certainly as though our basswoods and maples would all be killed; but I found a little ichneumon fly at one of my yards of bees, and I knew the days of the worms were numbered. These little flies had done more than many regiments of men could do, and soon the worms were all gone.

If we take botany and learn the various parts of plants, their relation to each other, how classified, we may find it more enjoy-

able for recreation than almost any thing else. We may have noticed how the clovers—red, white, and alsike—have leaves and blossoms that are different from other plants, and we think of them as a family by themselves. Then, perhaps, we notice the melilot and alfalfa are somewhat like the other clovers, and so may be related to them; and then the peas and beans, although so different, have some things in common; while the giant locust—how like the pea in leaf and flower! and we wonder how they can have so many things in common and be so different, and so unconsciously we have been studying botany without knowing it. How much better to have a text-book, although it may be a very elementary one, from which we may learn more in an evening than in a month by ourselves! Besides the pleasure of the study of this science, it has its own rewards. Some years ago I had a plum-tree that bloomed from year to year, but refused to give me more than a few imperfect specimens of fruit. Suspecting the trouble, the next spring when the tree was in bloom I went to another tree in flower, of the same species, but a different variety, and broke off a branch and hung it up in my hitherto barren tree. When the sun came out the bees flew, and there were many marriages that day; and when the autumn came that tree was bending low beneath its bountiful load of beautiful Satsuma plums. And then I marveled anew at the dislike of nature to the marriage of near relations.

The word *chemistry* reminds us at once of the chemist and his mysterious laboratory and paraphernalia of bottles and fluids and big names; but we need not be frightened. We may learn to know very well the few simple elements of which our bodies are composed, as well as the bodies of all animals about us, and, we might add, plants too, without ever entering a laboratory or taking a college course. We may then understand why pollen is so necessary when bees are rearing brood or why they can substitute flower or meal for pollen. We may then easily guess why the larva of the wax-moth can grow if it can get a bit of pollen or a dead bee or even old dirty combs, but will die if compelled to feed on pure clean wax alone.

The orderly way the simple elements unite to form new compounds is a thousand times more interesting than the latest scandal in the daily press.

Of physiology we ought certainly to know enough to be able to care intelligently for our own bodies. Many a man has failed because he did not know how to take care of himself—yes, and died because he did not know how to live. I once knew an agricultural speaker so ignorant of his own anatomy that he verily thought that what he swallowed went somehow on to his lungs instead of into his stomach, and yet he was employed to go about the country to enlighten the natives!

And so we might speak of physics and other sciences such as geology and natural

history, and even astronomy. They are all nuts that may be cracked by patient hands or heads, and their meats enjoyed by the humble bee-keeper as well as by the learned scholar.

Does all that I have outlined seem like an idle fancy or mischievous fallacy? Does it seem like an impractical thing that a man in business should be able to give time to acquire an elementary knowledge, at least, of the more common sciences, while still working for daily bread? I believe not. Where there is a will there is a way, and the number who have done it is constantly increasing. Only yesterday a lady was telling me of a man from the slums of New York city, who has recently published some books that have attracted considerable attention, yet at thirty did not even know his letters, and his material wealth does not appear to have been any greater than his knowledge of his mother tongue. I refer to Owen Kildare.

At the beginning of this year the world is vocal with the praises of Benjamin Franklin, and still we are told that he did not begin his scientific studies till past middle life, while later he was considered one of the great scientists of his time.

I remember well one old farmer who at seventy took up the study of Latin, and had the pleasure later of reading his old Latin authors. I admit that that was beginning rather late in life, but it shows what, with good mental powers, may be done.

We have all, I suppose, heard of Elihu Burrett, who mastered the languages while he worked at the forge as a common blacksmith; and the influences or movements that he started are still moving on to bless the world.

But I wanted to speak of another man whom I met some twenty-five years ago, by the name of Frost. He has sometimes been known as the learned shoemaker. I went with a friend to visit him in his shop one evening; and as we were alone with him he told the simple story of his life. He said that, at the age of forty, owing to close confinement at the cobbler's bench, he was quite broken down in health, and went to New York to consult a specialist who gave him no medicine, but advised him to exercise in open air; and, that there might not be too much monotony, he advised the study of botany. He said that, in six weeks, he was a well man; but so intense had his interest become in his studies that he kept them up till he had exhausted all the text-books that would help him in this country. Then he sent to Europe for a valuable treatise on his favorite subject, only to find, to his amazement when he received it, that it was in Latin, if I remember rightly. But he was not to be denied the pleasure of reading the book that had cost him so much, and so began at once the study of Latin, and was rewarded by being able to read his latest author. After that he said he never inquired in what language a book was printed if it only contained the information he sought. Later he said

he received them in French and German as well as Latin. He said he did not find it difficult to learn to read in the different languages sufficiently to read the books he had bought, as he could lay out on the counter before him the grammar and dictionaries of the different languages, and study them as he had a few minutes' time from his business. At the time I saw him he was making out a catalog of the flowerless plants of New England, as ferns, mosses, etc., for Harvard University.

But what has all this to do with bee-keeping? It is that our minds may be broadened, our knowledge increased, and we be better fitted for our work. With the same amount of strength exerted, a sharp ax applied with skill will do far greater execution than the dull ax in uncertain hands. Then the pleasure of wielding the ax is many times increased.



TEN-FRAME GALLUP HIVES; THE ADVANTAGE
IN USING STANDARD GOODS.

"How deep the snow is here, Doolittle!"

"Yes, Mr. Sharp; we have a good foot of snow on the ground."

"Is not this something unusual for this time of the year? To-day is only November 14th, I believe."

"Yes. It is unusual to have so much snow so early in the season. I suppose that you do not have it thus in Indiana?"

"No, I hope not. I have heard that Central New York is a place which gives hardy bees; but I never thought you had winter begun thus early. Have you the bees in the cellar yet?"

"No. The bees have not had a flight since the 25th of October, and I was in hopes they might have one more flight before they were housed; but I guess I have missed it in not getting them in before this snowstorm of the past three days came on."

"But you could get them in now, could you not?"

"If I am obliged to, yes; otherwise, no. You see that the snow commenced to come before it was freezing; then later it commenced to freeze, so the snow and slush are frozen on the hives, which makes a bad mess when the hives are set in the cellar, as this slush then thaws off, letting the water run down all over the hives, bottom-boards, and cellar, thus placing the bees in a poor condition to start with. I have been caught this way once or twice before during the last twenty years, and only once have I had to set them in in this condition, as it generally

warms up enough to thaw the snow off the hives, if nothing more, before winter really sets in. But you must have had some purpose in coming down from Indiana (by letter) to see me."

"Yes. I should like to ask a question or two in regard to bee-hives."

"Well, there are bee-hives, and then there are bee-hives."

"What do you mean by that?"

"Well, I mean that, when I was younger than I am now, I thought there was only *one* hive in the world that was *best* suited to the wants of the bees; but now I am not so partial to any *one* hive."

"What hive was the *one* of your more youthful years?"

"That hive was the *Gallup*."

"Strange! That is just the hive I am using, and that was the hive my father used. You see that I came up in my father's footsteps."

"If your father used the Gallup hive it is not so strange that we have used the same hive. Elisha Gallup was one of the *great* writers on bees during the seventies and eighties, and he had a large adherence, for his articles always had an attractiveness to beginners. Then Mr. Gallup's great forte was, in that he would sit up nights to answer the questions of the merest beginner, one who did not know his first A B C in the matter of keeping bees, and he would so go into the minutiae of the matter that it would be plain to the one who hardly knew a bee from a wasp. I have a stack of letters four or five inches high that came from him while trying to guide my tender feet in the way of bee-keeping."

"That was very good of him, I am sure. But how many frames should be used in a Gallup hive for the best success?"

"That depends upon what you mean by 'success.' If it is bees and successful wintering you are after, then probably the number of frames Gallup used in his hives would be best."

"What was that number?"

"Twelve."

"But I use only ten. What number did you use?"

"I started out with the regular Gallup hive, so of course used twelve. But I soon saw that, as a rule, the bees would fill two or three of these frames solid with honey at the opening of the honey harvest from white clover, so that I was carrying from 15 to 17 pounds of white honey in the hive from year to year, when this same honey might go into the surplus boxes and be sold at a good figure, thus giving me three or four dollars for each hive, if I could manage to have this first white honey stored in the boxes, while the bees would winter just as well on dark honey stored in the fall of the year."

"I see the point. How did you manage to bring things where you wished them?"

"Simply by taking out three of the twelve frames and inserting dummies made of inch lumber, with the top-bar of a frame tacked on them, to take the places of the frames."

"This reduced your hive to nine frames, then?"

"Yes; and I used those nine-frame Gallup hives for more than 25 years; and from such hives, in the year 1877, I secured over 300 lbs. of section honey from two colonies, while the average of the whole apiary was 166½ pounds."

"Whew! That almost takes my breath away. And what was the selling price of that honey?"

"I sold honey in those years from 25 to 28½ cents per pound, drawn to my nearest city, Syracuse, we having a honey-dealer there in those days who bought our crops all through this section."

"That explains how you could get three to four dollars more per colony by using the dummies as you just spoke of. When you made that statement I did not see how it was done. But this makes it plain. Bee-keeping must have been profitable in those days."

"Yes, it certainly was. And one of the things that made it so, besides the large price, was that the smallest box or section then used weighed 2½ pounds, while very many bee-keepers used from three to six pound boxes. Now the largest sections used weigh only a pound when filled, so that the bee-keeper of to-day, when raising his 10 to 15 cent honey, has from more than twice to six times the number of boxes to scrape, crate, and get ready for market, that he had then. But we are wandering from your questions."

"Yes, I knew we were; but I was anxious to learn of these things. Do you think that my ten Gallup-frame hives are about right for comb-honey production? The white clover is our main honey-plant, but we have some linden and poplar."

"Yes. They will do very well. I like the idea of using a hive sufficiently large; and then where any queen keeps or has the frames well filled with brood at the time the flow of nectar begins, allow the whole number of frames to remain, when putting on the supers. And where the queen is not competent to keep all full, I take away all the frames she is not keeping up with brood, and put dummies in their places. In this way all hives are suited to the laying capacity of the queens when the supers are put on. I have had splendid work done in the sections by colonies which had only six Gallup frames in the hive all during the flow from white clover and basswood."

"But you did not leave them thus for wintering?"

"No. At the end of the white-honey harvest the sections were taken off, the dummies taken out, and the hive filled out with frames, and in this way the colonies generally stored sufficient stores from the fall flow for winter. In this way we are able to sell the larger part of the white honey gathered, which brings a better price in market, while the bees winter on the dark honey (just as good for them), which would not bring us nearly so much, if we had this for sale, and allowed the bees to winter on the white, as I

used to do when each hive was a full twelve frame hive."

"I see what you are driving at, and I thank you for these thoughts. But can I buy the Gallup hives and supers on the market? I know the hive is a back number, but I like it."

"I doubt about the Gallup hive being kept in stock now by any supply-dealer or manufacturer; but you should have no trouble in getting them made to order. The supply-manufacturers will fill an order for 'any old thing,' but you will want to tell them what you want a month or so before you wish to use the material, and then you will have it, just as much to your advantage as though it were something regularly kept in stock."

"That is all, and I thank you for this interview."

"You are welcome. But before you go I wish to say that there is very little choice in any of the good hives of to-day; and as you grow older you will come to think as I do—that there is *advantage enough* in using a regular line of goods to pay us for falling into line with the rest. It may surprise you when I tell you that I have bees in only three or four Gallup hives now, and those only as relics of the past."

"Well, that is a surprise. What hive do you use?"

"The ten-frame Langstroth; and after getting fully used to it I have no doubt that I can produce just as much comb honey with it as it was possible to do with the Gallup in its balmy days, and that with very much less labor."



ANNUAL MEETING OF THE ONTARIO BEE-KEEPERS' ASSOCIATION.

In spite of the very poor honey season the opening session of the association brought about as large an attendance as that organization ever had at that function. No doubt the single return railroad fare had much to do with this. The rate was secured owing to the meeting being in conjunction with the fruit, flower, and honey show, and the annual meeting of the Fruit-growers' and Vegetable-growers' Associations. Let the wise take a lesson.

The meeting opened in the spacious hall of the York County Council (free to us) at 2 P.M., Nov. 7, Pres. H. G. Sibbald, Claude, Ont., in the chair. Delegates had numbers, and there was a list to identify speakers.

In his Presidential address Mr. Sibbald stated that, out of the season's discouragements, there was this to say: They were one

year nearer a big honey crop than this time last year [laughter]. Prices had advanced to something nearer what they ought to be, and they should remain nearer to what they are at present. Bee-keeping year by year in Ontario is getting to be an occupation of greater dignity. There would be an announcement to the effect that the grant for the suppression of foul brood would be doubled. The act had been changed, taking the power to appoint inspectors out of the hands of the association, and resting it in the hands of the Department of Agriculture. A committee had met with the officers of the Department before this act had been introduced to the Legislature, and they had been unanimous in considering this advisable. The inspector or inspectors would also go out under the direction of the department.

Mr. R. H. Smith, St. Thomas, vice-president, opened the discussion on the president's address. He said bee-keeping in the province had made much progress during the 27 years since the O. B. K. A. was organized, but he would like to see much more. Many farmer bee-keepers require to be reached—men with, perhaps, only a few colonies. The proper way is to get them to attend local and other association meetings; those active and getting in touch with the *life* of bee-keeping are not the ones to cut prices. By-laws which would be submitted to the meeting had for their object the encouragement of greater activity in existing local associations, and the encouragement of the organization of new where they do not now exist.

Mr. W. H. Kirby, Ottawa, an extensive bee-keeper, spoke of the need of greater activity in local associations.

BETTER QUALITY.

Messrs. R. F. Holtermann and M. B. Holmes strongly emphasized the need of instructing all so that we may have a more uniform and better quality of honey put upon the market. Mr. Holmes advised any thing not first class to be sold for manufacturing purposes.

COMMITTEE FOR ADVISING AS TO PRICES.

The association has a committee which asks for and receives reports as to the honey crop at the earliest possible moment. They then meet, compare, and carefully go over the information in hand, and then advise as to what, in their opinion, the price should be. There was no divided opinion as to the usefulness of this committee. They have now for three or four years done their work well; and Mr. Wm. Couse, secretary of the association, said that, after acting on this committee for years, he was more and more satisfied as to the good work it is doing.

COMB-HONEY PRODUCTION.

Mr. N. H. Bowen, Niagara Falls, Ont., brought this subject in a paper before the convention. The essential requisites are, a good honey-flow, strong colonies of bees, convenient hives, and an apiarist who understands handling the bees and hives so as to take advantage of the flow of nectar. Care

should be taken in locating an apiary. He advocated good wintering, a good queen, ample food. He used the eight-frame Langstroth; but, if need be, enlarged this with a shallow addition on top, making it equal to a thirteen Langstroth brood-chamber. When sections were put on he placed the comb-honey super between these two brood-chambers, removing the upper when the bees were nicely started in the sections.

For comb honey the swarming impulse was not the great misfortune some described it to be. He controlled it by shaking the bees on a hive containing five frames filled with wired foundation or starters—he preferred the former—and one frame of comb to catch the pollen. If this frame contained unsealed brood it did no harm. The rest of the hive was dummies. An empty brood-chamber was put underneath, and removed after the second or third day. He shook *all* the bees—in shaking, giving the brood to other colonies, and the sections removed from the old colony and given to the new. He preferred plain sections and fence separators. There should be a fence between the outside section and the wall of the super. He always used full sheets of thinnest foundation in the sections. Italian bees were not as good as Italian and blacks crossed.

The Hon. Nelson Monteith, Member of Agriculture, in a brief address stated he was deeply interested in bee-keeping; he recognized its value to other branches of agriculture, the value of honey as a food, and asserted that bee-keepers are not aggressive enough in placing honey upon the tables of the people in general. He then referred to the matter of the inspection of apiaries. The Department had sent a letter to the association, proposing to divide the province into six parts, with six inspectors and a much increased grant. The executive would be consulted in the appointments, but the Department would suggest that Mr. Wm. McEvoy be retained in his home district, and also as an advisor in case of disputes. Manyspoke, all favoring an increased number of inspectors, and it was found that there was very little difference of opinion after all in the views expressed.

Mr. Wm. Couse, Streetsville, Ont., spoke on the subject of wintering. Dryness of the condition was the keynote, with plenty of stores, and the bees kept dry, and all else appeared to be secondary.

BEE-SMOKERS.

A discussion as to the requisites of a good smoker showed some were in favor of a large smoker and others a small one. Mr. J. F. Miller used one with a bellows 7×10½ in., and barrel to correspond. He held it between his knees when operating, and wanted nothing smaller. The convention was pretty well agreed upon the desirability of having a strong connection between the barrel and bellows—a smoker with the nozzle slipping inside of the barrel sides being pronounced especially weak in this respect.

METHOD OF USE.

Light and heavy smoking was advocated. Probably a fair condensation of the opinions and arguments would be that, where there were times when a heavy volume of smoke should be used, the objection to excessive smoke was that, in robbing time, the robber bees would be thrown from their guard; in the honey season it would tend to taint the honey, and in queen-clipping and hunting time the bees would be so disturbed that it would be a difficult matter to locate the queen readily.

Mr. Miller, in addition to previous remarks, mentioned the desirability of a rim riveted inside the smoker-nozzle to keep in position the bunch of grass generally shoved into it to prevent sparks, etc., from coming out with the smoke; also a contrivance superior to a hinge for attaching the nozzle to the barrel. This device will be given by photograph and word description later.

Mr. R. Lowey gave as the best smoker fuel second-growth pine bark.

Mr. Bailey, of Bracebridge, advocated a smoker-barrel large enough to have grass at both ends; he also advocated lighting the smoker at the top of the fuel instead of nearest the source of draft.

ELECTION OF OFFICERS.

The convention was historic in that the by-laws had to be amended to conform to the new Agricultural and Art Act. Directors were elected, and these later appointed their president and vice-president, which resulted as follows:

President, R. H. Smith, St. Thomas.

First Vice-pres., J. F. Miller, London.

Second Vice-pres., Wm. Couse, Streetsville.

Directors, W. J. Brown, Chard; A. A. Ferrier, Renfrew; M. B. Holmes, Athens; R. Lowey, Woodrows; Jas. Storer, Lindsay; J. M. Switzer, Orangeville; G. A. Deadman, Brussels; Jas. Armstrong, Cheapside; Prof. Sherman, O. A. C., Guelph.

Representative to Toronto Industrial Exhibition, E. Grainger, Toronto.

Representative to Western Fair, J. B. Hall, Woodstock.

Central Exhibition, J. K. Darling, Almonte.

Next annual meeting is to be held at Toronto.

SOME TERSE REMARKS DURING THE CONVENTION.

Mr. E. Grainger says that, while one little girl was looking at the observatory hive at the convention, she asked another girl how to find the queen. "Why, look for the one with the crown on," was the reply.

Mr. Arthur Laing (in the discussion on the cold-and-hot method of making syrup for winter feed) said, "I make my syrup with just a stick and cold water."

A member asked, "What proportion of stick to water do you use?" [Laughter.]

Mr. Laing said, "Two to one, and be sure to use a maple stick, as it is the best wood for making sugar." [Great laughter.]



THE HONEY CROP OF 1906.

A Visit to the New York Markets; Effect of the Importations of Cuban and California Honey on Prices of the Home-grown Product; Remedy for Low Prices.

BY E. W. ALEXANDER.

As the child naturally turns to the parent for help and protection, so we as honey-producers naturally turn to our bee journals for help and advice in disposing of our honey when the markets are supplied. We were told by good authority during the summer that, over a large section of the United States, the honey crop was almost a failure, especially in Southern California; also that in Cuba it was the lightest crop known in many years. Some of us who sold early got a good price. We were fortunate in selling our entire crop of about 30 tons early in October; but many others still have a large part of their crop unsold.

Recently I spent some time in New York city, and took pains to visit the most extensive dealers in honey in that city. I was somewhat surprised to see the amount of honey they already had on hand. One party who had a large stock bought a carload of 50,000 lbs. from a dealer while I was present, at a ruinously low figure. After this speculator went out I made the remark that that carload was quite an addition to an already large stock. The merchant said that 25 or 50 tons additional, if the price was right, made but little difference with their trade.

Another extensive dealer whom I called on bought large quantities in Cuba and Southern California. He had just returned a few days before, after having bought several carloads at from $3\frac{1}{2}$ to $4\frac{1}{2}$ cents per lb. on board the cars. This was all sage honey of the finest quality, put up in new five-gallon square tin cans, two in a case, all clean and attractive. I asked him about the cost of getting it to New York. He said the freight was a small fraction less than a cent a pound. I asked him in regard to Cuban honey. He said the price was about the same, usually a little cheaper for that choicest bellflower honey. We have been told many times that we need not worry about Cuban honey affecting our markets; but if you could see the hundreds of tons of Cuban honey that is sometimes on the New York market, and that of as nice quality as was ever gathered by bees, I am sure you would realize that Cuban honey is no small factor in the United States.

I asked this dealer in regard to our extracted clover honey. He said he did not

care to handle it, as he could seldom find many packages of the same shade or quality, whereas either the bellflower honey of Cuba or the sage honey of California is always the same, and any can of a carload is a good sample of the whole shipment.

Another point against our clover honey was its tendency to granulate soon after extracting. Parties engaged in the bottling business prefer honey that will keep in the liquid state until bought by the consumer.

In regard to our buckwheat extracted honey, these dealers preferred it at the same price to clover. The Jews buy large quantities of this dark honey; and the National Biscuit Co. in the spring clean up the unsold stock of these large dealers. This company is not particular about the color or quality—they look only to the price. After the large dealers have had a good trade in honey they are willing to sell what they have left at some sacrifice rather than to carry it over to another season.

I also called on some of the smaller dealers, but they said they liked to buy of the commission men best, for two reasons. First, they could buy somewhat cheaper than they could of the producers, and then they could get two or three months' time on what they bought along with other things; whereas, if they bought of the producer they had to pay cash down.

Now, my friends, with these conditions staring us in the face this season, when the crop as a whole has been a short one, what are we to do when the United States and Cuba have a good crop? I must say I for one am not competent to solve this problem. This California and Cuban honey I have just spoken of, which costs only about $4\frac{1}{2}$ to 5 cents delivered in New York, is sold to small dealers for from 7 to $8\frac{1}{2}$ cents per lb. You may think this a good margin of profit for the wholesale dealer; but when you take into consideration the enormous rents they have to pay, and their large insurance expense, together with all their other expenses, it is little enough for them to have to carry on their business. One of these dealers told me that their postage and stationery are two of their smallest items of expense, but still it amounted to over \$40,000 annually for each of these items; so you see they must not only do a large volume of business, but they must have a good margin of profit on nearly every thing they handle. I can see no better way than to take more pains in supplying our local market in the future than many of us have done in the past. New York, with its nearly four million inhabitants, has been a good market for our honey; but with a continual increase in the production of honey we must now look to our smaller cities to help relieve this market. Yes, and even our small country towns must not be overlooked, for they can help in a small way to work off this great surplus.

Since I returned home I have been sorry I did not inquire into the condition of our comb-honey market; but this is a part of our business that I seldom think of.

According to what experience we have had in advertising our honey, there seems to be no trouble in disposing of a large surplus; and I am quite sure that a few dollars spent in this way will soon bring the producer and consumer or dealer together, and be a mutual benefit to each.

During the past three years we have sold honey in nearly every State east of the Mississippi River, and in a few States west of it. We have had some large orders from parties in Illinois and Minnesota. These customers we got by placing a small notice in the bee journals. If we would all try as hard to sell our honey as we do to produce it we should soon find a good market for the most of it. I hope to hear from others this winter on this subject, for surely we can not do any thing of more importance to our business than to prepare ourselves for a large surplus before it comes, for come it will, and then we shall wish we had customers ready to take our whole crop. So, lose no time, but make it a point to secure some customers every season. The time has now come when we must advertise our produce in some way, if we expect to make a success of our business. I am sure I can see no other way to work off this surplus. Our village grocer can retail quite a quantity of extracted honey if we will furnish a keg to commence with. I know one party who sells nearly 1000 lbs. a season in a village of less than 600 inhabitants. He pays us $6\frac{1}{2}$ cents, and sells for 10. His comb-honey sales are not as large nor as profitable as his sales of extracted honey. Give them a chance to make three or four cents a pound on what they can sell, and they will work off a lot of it. His customers bring a pail, and he weighs out whatever they wish. I have tried hard to produce and teach others how to produce large quantities of honey at a small expense; but one important thing in doing this is that you must have the best strain of bees that can be procured, and give them the best of care.

Now a few words in regard to getting good customers to buy your surplus. First, produce honey of the best quality—honey that is of good body and fine flavor; then through advertising in our bee journals let the public know what you have and its price. In this way we have been successful in procuring more customers than we can supply, and every season we have to return postal money orders and checks sent to us for honey after our crop is all sold. This season, about Oct. 10, soon after our honey was all gone we had an order from a party who has sold over 100 tons of our honey, for a carload to fill out a shipment to Europe. This order had to be canceled, and our only wish was that we had twice as many colonies of bees.

In conclusion I will say, deal honorably and squarely with your customers, so that, after they buy of you once, they will have confidence in what you say, and send their orders to you again in preference to a stranger. In this way you will find an outlet for your honey all over the United States, and it will be a great satisfaction when you look

at many tons in your storehouse to know that, in a short time, it will be all sold and you will have a nice sum of money to your credit in the bank.

Delanson, N. Y., Nov. 10.

[Now that the Hepburn pure-food law has been passed, taking effect Jan. 1st next, we may reasonably hope that the severe competition due to cheap honey pieced out with glucose will, to some extent at least, be removed. Nothing after that but pure honey can be sold *as* honey. As there is unquestionably an enormous demand for honey, the piecing-out of a short crop with glucose and calling the mixture *honey* will not take place as formerly. Even when the supply is good, there will be but very little glucose adulteration even then.

While we may fear the effect of Cuban honey in a good year on the Eastern markets,

A PENNSYLVANIAN DEMONSTRATION.

BY A SPECTATOR.

One direct outcome of the Jenkintown field meeting is a greater interest being taken upon the Atlantic slope in modern methods of bee-keeping, and a realization of the importance of keeping bees in modern hives.

One of the interested spectators at that meeting was Mr. J. K. Owen, of Freeland, Pa., who is one of the State Inspectors of Orchards under Prof. Surface, of Harrisburg, and who witnessed with much interest the demonstration given by the latter in putting bees from an old box hive into a modern frame hive. Mr. Owen was then engaged in orchard inspection in Monroe County, in the eastern part of Pennsylvania, and at once returned to his territory and carried to the bee-keepers an account of what he had seen



A PENNSYLVANIA ORCHARD-INSPECTOR GIVING A DEMONSTRATION OF THE PROPER WAY TO TRANSFER.

we must not forget that there will be a constantly increasing demand for honey now that the glucose concoctions masquerading under the name of honey will no more stand in our way—at least in interstate business.

We must not, however, expect an immediate advance in prices; and should Cuban sugar be admitted free to the United States at some time in the future, this will of itself have a tendency to pull down the price of honey, as many poor will buy the cheapest sweet that can be had. We wish to indorse particularly Mr. Alexander's closing paragraphs on creating one's own market in spite of the competition of cheaper goods.—ED.]

at the field meeting. These persons were especially interested in the method of transferring from antiquated hives to those of the modern type, and prevailed upon Mr. Owen to give a demonstration, showing the *modus operandi*. This he did at Stroudsburg about a month later, and the camera man caught him just in the act of holding up one of the frames with the comb and brood. This shows Mr. Owen on the platform, and a small portion of the crowd near it.

There was a large and interested audience at the demonstration, and so much was said and published about it that Mr. Owen was asked within a few days to give another.

He could not take time for this; but as a result of the work the managers of the Monroe County fair saw that such an exhibition would be an important and practical attraction, and they consequently arranged with Mr. J. C. Wood, the florist and apiarist, of Stroudsburg, who had seen Mr. Owen's demonstration, to give an exhibition for two hours during each forenoon at the county fair, transferring bees from old hives and "skeps" to modern hives. In announcing this, one of the local papers says, "The bee-keeping industry in Monroe County is not among the least of its many industries, and the care and culture of bees among our enterprising farmers is an interesting topic at all times. There are between seven hundred and eight hundred bee-keepers in this county alone; and the promoters of the Monroe County fair,

keepers' Association, in which he said that the greatest obstacle to progressive and most profitable bee-keeping in that State was the failure of bee-keepers to use modern hives.

UPPER ENTRANCES.

This Plan Advised for the Production of Extracted Honey; Shaded Colonies Vs. those in the Sun.

BY W. F. CARD.

Under separate cover we are sending you a view of our apiary. It is located six miles west of Crosswell, Mich., and, as will be seen, it is partly in the shade and protection of an orchard. We have been unable to see any



AN APIARY IN WHICH UPPER ENTRANCES ARE FOUND TO BE AN ADVANTAGE.

who are always on the alert for what most interests the agricultural community, have at considerable expense arranged for a special display and demonstration at the coming fair, by one of the most experienced and practical bee-men in the county. This feature of the fair will undoubtedly add to the general attractions, and be instructive to the many who are interested in bee culture."

It is interesting to know that there are yet a few of the old-fashioned straw "skeps" used in that county, and Prof. Surface reports that he has procured some of them for the apiarian section of the new State Museum at Harrisburg. The tendency to change from the old to the modern hives is along the lines suggested by Prof. Surface in his last address as President of the Pennsylvania State Bee-

marked difference between those that are in a position where the sun strikes them early in the morning and those that are in heavy shade. They both "dig out" at about the same time, and, apparently, one works just as well as the other.

We are running most of our hives to extract honey, using one and two upper stories, giving upper entrances to most of them, especially to those of two and three stories. The upper entrances are used more for the upper stories than for the brood-chamber below. By using upper entrances for upper stories the bees are enabled to reach the combs in the third story, and deposit their load much quicker than they could if they used the lower entrance only—at least it proves more satisfactory with us. The hive

with the cover off, from which I took the frame, gave us on an average of five gallons of extracted honey in six days during the best of our clover season, and this was no more than what we got from others that worked freely out of the upper entrances. While this may not seem like much to some, yet it is good for this locality. We have one chaff hive that will work *only* from the upper entrance. We run it for comb honey, allowing them an entrance at the end of each super. They gave me 84 sections of clover honey this season, but we do not make a practice of giving upper entrances for comb honey.

Croswell, Mich., Aug. 20.

A LOCALITY WHERE THERE IS NO HONEY FROM WHITE CLOVER.

A Reply to Dr. Miller's Straw, Page 867:
Only One Load of Honey to Five of
Pollens.

BY ALLAN LATHAM.

[By turning back to the July 1st issue, page 867, the reader will see that Dr. Miller disagreed with Allan Latham, and had a "sneaking belief" that, during a very light flow from white clover, there may be but one load of pollen to four or five of nectar. Mr. Latham replied at once, which reply, the doctor felt, deserved a wider reading. This brief introduction, then, will explain the following letter.—ED.]

My dear Dr. Miller:—If you would live here in southern New England a year or two your "sneaking belief" would sneak right away. Let me state a few facts:

I have kept bees 22 years, and in all that time I have seen bees come home heavily loaded with *clover honey* but *once*. There were two days last season when one of my small out-apiaries enjoyed that rare privilege. The combs were glistening with new honey, and there was every prospect of a good crop. There were scarcely any bees carrying pollen. The wind went into the northwest, and no more honey came from clover.

In 1896 I produced my only case of clover honey. One colony that summer worked on either red or white clover, and filled 18 sections with most delicious honey. It was just at the time my second child was born; and as I was not with the bees much just then I did not know any thing about the honey till I found it in the sections. In all the 22 years, I have never had even one section of pure-clover honey except those 18. I have harvested many hundredweight of clover honey, but it was variously blended with honey from many other sources, rarely better than 50 per cent clover.

There was once this past June when the bees could be seen working on white clover, and a few bees were to be seen without pollen. Again the weather changed, and since then not one bee in 100, I venture to say, has carried home nectar from clover without carrying pollen.

If one doubted this from watching the bees as they entered the hive he could watch them on the blossoms. I can tell as they enter the

hive. It is a simple matter to an observing person to tell approximately what bees are working on clover, and, by noting the pollen, get at a good estimate of the number carrying pollen.

But, my dear friend, just go to the blossoms. If you see one hundred bees working on clover and do not see one which is without pollen, what say you? If you then return to the hive and see every third bee entering with pellets of blackish green pollen, what say you? If you then open one of these bees and find a drop of honey in the sac no larger than a mustard seed, what say you?

My kind friend, if I were to see one bee in five going home from clover without pollen, I should go into the house and say to my wife: "Well, the bees are getting honey from clover." But four out of five! Why, I should sit down by the hives and watch the good work go on, and feel happy.

It may be all locality. I am envious when I read of bees dropping on the ground in front of the hive during a flow from white clover. I have seen that happen in the case of maple, apple, huckleberry, locust, mustard, buckwheat, sumac, goldenrod, but never in the case of clover. In fact, I have been tempted at times to think that such a thing as a crop of honey from white clover is a myth.

I hope and pray that before I die I may enjoy the blessing of one good crop of honey from white clover; but my faith is so weak that I do not think that my prayers will be answered unless I move out of southern New England.

But we have the sumac, God bless it. In July the bees revel on that, and the honey is but slightly inferior to that from white clover.

I am sorry that the prospects are so poor with you this season. I hope that you will see them better soon. Thus far, except for a hundred pounds of apple-blossom honey, I have seen nothing but some almost unedible dark honey, probably from mustard. Bees have stored from 10 to 50 pounds per colony of this.

Norwich, Conn., July 4.

CANE SUGAR RESPONSIBLE FOR MANY KIDNEY TROUBLES.

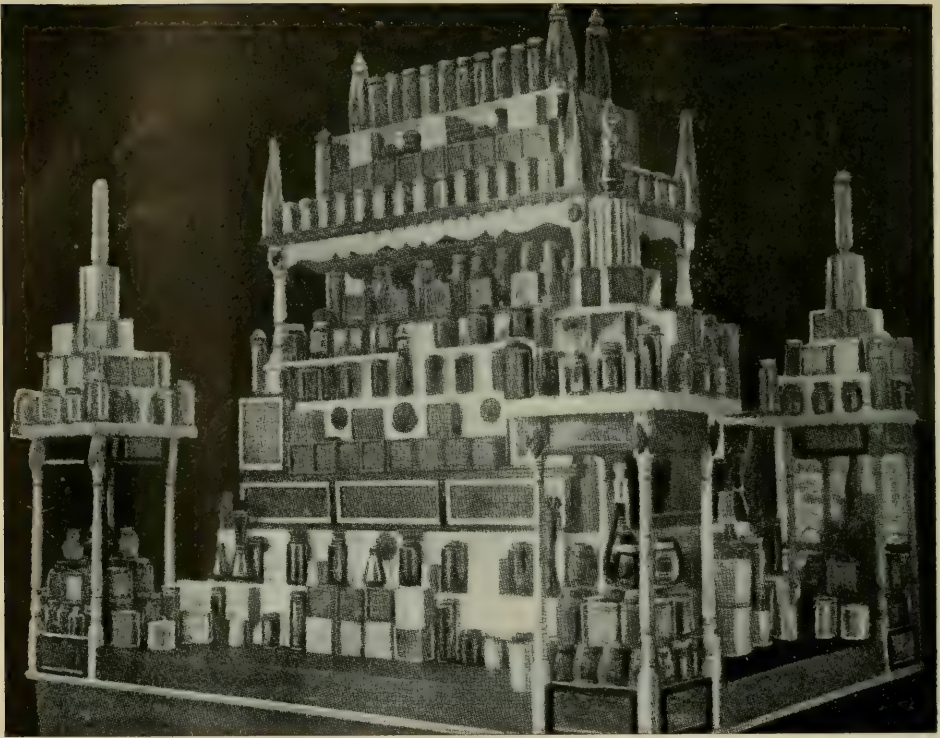
A Valuable Point for the Honey-seller.

BY FRANK W. MORGAN.

Can somebody tell us through GLEANINGS whether cane sugar is at all responsible for the large amount of kidney troubles now existing? If it is so (which I think it is), that it is the main cause of said disease, would we not have in the fact a great power to use for the sale of honey and the lessening of the sugar habit? We are indebted to the cotton-wood-tree for most of the tormenting propolis in our bee-boxes here.

De Land, Ill., Sept. 4.

[Believing Dr. Miller to be best informed



A HONEY EXHIBIT IN AUSTRALIA.

—From the *Agricultural Gazette*, N. S. W.

on this subject, we sent these questions to him. His reply is as follows.—ED.]

DR. MILLER'S REPLY.

Yes, this matter was fully emphasized in a leaflet issued several years ago, of which many thousand copies have been published, in which it was said: "Besides the various disorders of the alimentary canal, that dread scourge, Bright's disease of the kidneys, is credited with being one of the results of sugar-eating. When cane sugar is taken into the stomach it can not be assimilated until first changed by digestion into grape sugar. Only too often the overtaxed stomach fails to perform this digestion properly; then comes sour stomach and various dyspeptic phases . . . Now, in the wonderful laboratory of the bee-hive is found a sweet that needs no further digestion, having been prepared fully by those wonderful chemists—the bees—for prompt assimilation without taxing stomach or kidneys. As Prof. Cook says: 'There can be no doubt but that, in eating honey, our digestive machinery is saved work that it would have to perform if we ate cane sugar; and in case it is overtaxed and feeble, this may be just the respite that will save from a breakdown.' "

When these remarks were written, the average annual consumption of sugar for every man, woman, and child in the United States was about 60 pounds. Now it is about 65

pounds—an increase of 8 per cent. Do not make the mistake of thinking that that increases the danger of sugar-eating only 8 per cent. The danger-increase is much more than that; for up to a certain amount there is no danger in eating sugar. It is the excess beyond that certain amount which plays the mischief. It is doubtful that any one can say just where lies the danger-line; but for the sake of illustration let us suppose that 55 pounds may be consumed annually with safety. Then when 60 pounds were consumed annually, the danger lay in the 5 pounds of excess. Now, when 65 is the annual rate, the excess beyond a safe amount is 10 pounds, making the danger just 100 per cent greater than it was when the excess was 5 pounds.

Another thing may be worth considering. It is said that the excess consumed is not evenly distributed. That is, each man, woman, and child does not consume exactly 65 pounds annually. Some, especially of the poor, may eat much less than that; and to make up for this deficit some must eat much more. Especially are the heavy consumers likely to be among the rich and the well-to-do middle classes who can well afford to pay the higher price for the more delicious and entirely wholesome sweet—honey.

If bee-keepers could unite upon a campaign of advertising, it would be not only a matter of profit to themselves, but a matter of gain

to the health of the general public; and the legend to be kept continuously before the eyes of that same public would run something like this: "Danger and death lies in an excessive diet of sugar, which requires conversion before assimilation; health and happiness lies in the use of nature's purest and best sweet, honey, which, without any undue tax upon the digestive organs, is ready for immediate assimilation."

HONEY EXHIBITS.

How to Render them Attractive.

BY W. K. MORRISON.

Mr. Albert Gale, that well-known New South Wales bee authority, in an article on bee and honey exhibits, which appeared in the October number of the *New South Wales Agricultural Gazette*, contributes some ideas on the subject of showing honey which deserve the attention of North American bee-keepers as well as those of the southern hemisphere, for there can be no manner of doubt that these exhibits are an excellent means of creating a local demand for honey. Over in Europe, where honey sells for much more money than it does here, honey-shows of great artistic excellence are common affairs, and undoubtedly form the best means possible of advertising the bee industry. Mr. Gale's article is much enhanced in value by two illustrations, which we are glad to reproduce here for the benefit of those who intend to get up such exhibits, for they really are artistic to a high degree.

It may be well to explain that the exhibits shown were made by individual bee-keepers anxious to carry off a "trophy" prize in competition. The hints given for showing liquid honey are excellent.

"Too frequently the bottles are not selected with regard to a unicolor tint, which gives the contents the appearance of not being a uniform grade. Imperfect clearness of the glass—that is, its being speckled with opaque substances, is reflected in the honey, and therefore the contents of the bottle get the credit of the impurities of the glass. Ofttimes a bottle, after it is washed, is permitted to drain, and the internal surface not polished, thereby leaving streaks and blurs; the honey reflected through it appears to be cloudy. Judges are as careful to search for faults as for perfection, and there is no doubt that many an exhibit has been rejected on account of the imperfec-

tions narrated." There is a pretty good hint here for the bee-keeper who bottles honey. The hints on comb honey are equally helpful.

"Comb honey, when exhibited in 1-lb. sections, is one of the most interesting and at the same time one of the most admired forms in which honey is staged. It appeals to the onlooker in its most appetizing form, and at the same time demonstrates the producer's skill—that is to say, that of the bee-keeper, not the bee. For a bee-keeper to produce first-class sections and comb honey, he has to be a master of his business. The get-up in the 1-lb. sections is every thing. The wooden frame surrounding the honey should be scrupulously white, and free from blemishes. All propolis should be removed. The beautiful white capping of the honey should be perfect, free from bruises, free from weeping, free from travel-stain, free from finger-marks. Often a small puncture in the capping causes the honey to exude and thus damage the whole exhibit. The frame or section must be complete—no uncapped or empty cells, and the fewer pop-holes the better. The comb should extend to the four sides of the frame as completely as possible, and the pop-holes in the four corners of the frames should be absent in all sections."

It is true we have been over this ground before; but for the benefit of new readers, or those who are thinking of making an exhibit locally, we think the foregoing will prove very helpful.

There can be no doubt that a bee and



A HONEY EXHIBIT MADE IN AUSTRALIA.

—From the *Agricultural Gazette*, N. S. W.



BEE-KEEPING IN A CITY BACK LOT.

honey show or exhibition ought to be a regular annual feature of city and town life, and will be. What many bee-keepers should strive for is to get the name of the "honey-man" in their own locality. It will take more than a newspaper "yarn" to kill the business of such a man.

CITY BEE-KEEPING.

How a Busy Doctor Spends his Leisure Hours.

BY T. E. GURTNER.

Right in the heart of the city of Newark, N. J., there are four Danzenbaker ten-frame hives from The A. I. Root Co., set up on a strong foundation built of heavy lumber. Between the hives, and underneath the same, the reader will notice galvanized-wire screens for climbing-plants. The plants have grown since this picture was taken, and give a nice shade to the hives, but leaving the entrance free. The little tent next to the hives is the tool-house. The place is remarkably cool, even in the hot season, and is giving the bees the benefit of the morning sun until noon. The garden is full of asters and other honey-flowers, but there are also some flowers blooming now, imported from other countries. The hives are all painted, one white with the Swiss flag; two white; three blue; four red, making the colors red, white, and blue. I have also some observation hives with Carniolans near the house, under screen,

a picture of which I shall send later on. The four Danzenbaker hives are occupied by Italians, some of them with choice queens. The location for the bees seems to be good, because they are doing well now. We have plenty of nursery stock around Newark.

The yard was in a bad shape when I took the house, about a year ago; but if you could look at it now it would look to you almost like Central Park. This shows what can be done with such a yard. It is more than a pleasure to look at those hives from my office windows on a nice morning, and I am thinking of increasing my apiary to about 50 hives next year in the country. This little spot is the place where I have my pleasure in a free hour, and I am not blaming my colleague, Dr. C. C. Miller, when he says, "I thank God for such a happy busy life."

Newark, N. J.

EUROPEAN TRAVELS.

Field Meeting of the Vienna Bee-keepers at Wagram; Migratory Bee-keeping; an Immense Buckwheat-Field.

BY RALPH BENTON, B. S.

Assistant in Entomology, University of California.

It was bright and early on a late August morning that we hurried to the station in Vienna to take the train out a short distance to Wagram. Here there was to be a field meeting of the Vienna bee-keepers to inspect

the great buckwheat-fields then in full bloom. Off the train we gathered together and crossed to the nearest tavern, where we had something in the nature of a late breakfast. There were some twenty-five of us in the party, including several ladies. Refreshed we took our way down the dusty road by twos and threes, and the all a-hum with things pertaining to bees, bee-keeping, and honey-plants.

After about an hour's walk we reached the edge of the great white fields of buckwheat stretching across the flat plains of the Danube as far as the eye could see—the acreage numbering up into the thousands. The members of the party began to pull out their veils and don them, and secure themselves in various ways by turning up collars and drawing on gloves. The writer had no veil with him, not being accustomed to wearing one, and so he moved on with somewhat of a dubious feeling, it is true. When nearing the bees one of the party came hurrying up with some extra veils, and we crawled into one in a hurry—dodging the pelting bees all the while. The colonies, numbering fully two to three thousand, stretched away near the center of the fields in a long row, some of them in rough sheds and others standing singly. The hives were of various types. There were the flat Carniolan hives; there were Dadant and Berlepsch hives. It was with pleasure that we caught sight of long rows of German straw hives ranged along on boards, rearing their little domes up through the waving heads of buckwheat. These straw hives stood about eighteen or twenty inches high, and were perhaps some fifteen inches in diameter. We turned some of them up and saw how the bees had their combs fastened on two cross-sticks, much as our common box hives, patterned after them in principle, are arranged.

And all through the tour of inspection of this host of migratory colonies we were continuously pelted with a swarm

of the most enraged and vicious bees the writer ever saw. The proximity of so many colonies, and the strong sickening odor of the buckwheat-bloom, seemed to combine to infuriate the bees. Carniolans as well as blacks and Italians seemed to be possessed with a mania for stinging, and we

gathered on our coats and hats a large harvest of stingers. Doubtless the crossness of the bees was increased on account of having been recently moved. The colonies here collected had been shipped in from some distances by surrounding bee-keepers, and here assembled for the buckwheat flow. With each large apiary there was a tender who busied himself now in showing us through his section and opening colonies for our inspection.

The gauntlet ran, we turned off for the road; and, when out of the reach of our pursuers, removed our veils and breathed somewhat freer. We wound our way back to the tavern, and the accompanying picture shows the party assembled while waiting for the train. In the center, with a hat at his feet, is seated Herr Prosser, the managing editor of *Bienen-Vater*, to whom we owe our trip together. The writer is seated at the left of him in the front row.

At Vienna there is quite an extensive apicultural school in which all branches of bee-keeping are taught. Among the equipment are some rare old appliances used by Graevenhorst and Dzierzon. It is well these old relics can be assembled and cared for, so that they can be held for future generations of bee-keepers.

[A buckwheat-field of thousands of acres, and colonies of bees around it by the thousand—perhaps we do not equal that anywhere in this country, where we are supposed to practice bee-keeping in a big way. It is true we do have immense acres of buckwheat in the State of New York; but they



A EUROPEAN BEE-KEEPERS' FIELD MEETING.

are divided up into fields, making a sort of checker-board effect when the bloom is on.

Speaking about that field meeting reminds me that we here in America have only just begun this sort of thing, while they of Europe have long been having outdoor meetings of this kind.—Ed.]

MORE ABOUT THE STINGLESS BEES.

A Few Salient Facts about Them.

BY W. K. MORRISON.

Let me add a word or two about the stingless bee. Mr. Green has done a good job with the means at his disposal, but it will be a long time before we arrive at a working knowledge of even one species, let alone fifty. Here let me digress a little to give a little historical matter.

My first knowledge of stingless bees was obtained when only a child, in reading Capt. Hall's Travels in South America and Stedman's Travels in Surinam, and since that time I have never ceased to take a lively interest in these bees. Years ago I examined the libraries of Congress, the Astor library, the Lenox library, the library of Columbia College, of the Brooklyn Institute, of American Museum of Natural History, and other good libraries, for references to these bees, but got very little information for my trouble. I also consulted eminent entomologists, American and English, also to little purpose. The only real assistance I ever got was from the government of Venezuela, more particu-

larly N. Bolet Peraza, its minister, and M. Palacio, the president of the republic at the time.

Your warning as to the true place of *Melipona* in its biological classification is timely, but here let me add a further warning. The average bee-keeper is acquainted with only two or three species of bees—hive bees, bumble bees, etc.; but so far as I am able to hazard a guess I should say South America has fifty species of *Melipona* alone, and there may be as many of *Trigona* and the honey-gathering wasps. The latter are not wasps at all, in my opinion. They seem very fond of the nectar of coffee-flowers, whereas wasps are flesh-eaters. As a matter of fact, very little is known with reference to the bees of South America. Nearly all we know is from men who never made a study of bees, or to whom the whole subject was academic. It will, therefore, be seen that we have to begin at the beginning, and we bee-keepers will have to acquire the required knowledge ourselves by our own unaided efforts. Here let me state some salient facts about these bees, which I think will stand the test of time; and I speak only of the species illustrated in GLEANINGS.

1. They will withstand as much cold as *Apis mellifica* (both are natives of the tropics).
 2. They are stingless, and practically harmless as a dove.
 3. They are proof against moths.
 4. They are proof against ants.
 5. They build in very thick hollow trees.
- Possibly the last fact is the most important, as it enables them to resist cold weather. A number of the *meliponas* build their nest *all out of doors*, their only protection being a thin papery material to shed the rain. The latter I have seen with nests as large as a flour-barrel, and much the same shape. However, they will be more valuable south than north, though the sequel may turn out otherwise. I think my stingless bees have far more "sense" than the others, and are certainly far more wary. For example, they work on deep flowers "head out," hence it is almost impossible to catch them on a flower. Nothing irritates them so much as to catch one entering the hive. Evidently they hear her cries inside; for, like a flash, the others fly out to rescue their comrade, and in the case of a lizard they bite it around the eyes to make it let go.

In some respects they are learning. In

South America they maintain a vigilant watch at the entrance, just as the West India bees do; but, not having been teased by their enemies for some time, they have lately relaxed their watchfulness, and for hours at a time no sentinel can be seen at the entrance.

They make beeswax, apparently in all respects the same as their friends the *Apis*. They are apt to use propolis, however, to help out on the wax. In addition they make paper and cement. The honey crop will depend very largely on the kind of hive that may be invented for them, and here is the great problem around which revolves the fate of these bees. I think our enterprising expert queen-breeders will be able to work out a system of bee-keeping suited to these bees; but until this is done it is useless to speculate on the matter.

I am far from thinking this is the only species of *Melipona* capable of domestication, and probably some of the *Trigona* can be domesticated, more particularly the species making its home on the prairies of Venezuela and Colombia. It has a very bad temper, however, quite as bad as Cyprians are said to have.

The honey-gathering wasp, so called, re-



DELEGATES OF THE ONTARIO BEE-KEEPERS' CONVENTION, HELD IN CANADA, NOV. 7, 8, 9, 1906.—See Canadian Notes, p. 1493.

sembles very much an ordinary queen-bee, both in color and the general shape of her body. There are probably many species of bees in South America I have never seen or can ever hope to see. This much is true, however: That continent holds much in store for the bee-keepers of the future. Only long, patient, scientific investigation will discover just how much. It seems to me the way to attack this problem is to distribute these bees to the queen-breeders in Florida, Texas, and California, for experimental purposes. Probably quite a number would be sacrificed in the venture; but we are badly in want of a working knowledge of the life-history of these bees, and we must secure this at all hazards, and I think the queen-raisers are the ones to do this. It will give a new zest to bee-keeping.

A SYMPOSIUM ON HIVE-LIFTING DEVICES.

Some New-fangled Forms of 'em; Price of Lumber.

BY FRANK M'GLADE.

In the September 1st issue of GLEANINGS there appeared some illustrated articles on the subject of hive-lifting devices, the reading of which nearly took my breath away. Could it be possible we have come to that, or are about to? What I've needed was a *hive-holder* to hold them down to the ground; and as for the "supers," I've simply had to put stones on them and sit on the rest to keep the wind from blowing them over into the next county, they were so light.



"What I've needed was a *hive-holder* to hold them down to the ground."

Then I thought of what a fix a fellow would be in if, when he was down there looking for a one-winged queen, the rope would break and let the whole business down on his head.

That, or something similar, would be just my luck. Then, again, what does a bee-keeper want to be "nosing" down below if honey's coming in faster than he can put the supers on? If a colony is so industrious as to need five or six supers they've got sense enough to mind their own business, and only need



"It costs \$3.75 to look in a lumber-yard here . . . I don't go past the lumber-yard."

to be left alone. But if the thing takes, and we have to have them, why not have one built stationary in the middle of the yard, with a boom long enough to reach the outside hives, then have a gasoline-engine to run it? All the bee-keeper would have to do would be to stand at the machine and work the lever, and the boys could do the rest. I'm afraid if I were to try one it would be sure to "creel" at a critical moment, and work disaster. Then how would it work on one of those hillside apiaries in California and Nevada, where there is hardly level ground to set a hive? Again, one of the writers, Mr. Baily, says the whole cost of the "hive-lifter" is from \$2.00 to \$3.00. There must be some mistake here, for it costs \$3.75 down here to look into a lumber-yard; and if you go in and buy anything, it takes nearly one corner of the farm. You can sit down and figure it out and be liberal; but they'll get it more every time. Then they always add on that "one-fifth." That one-fifth always spoils my figures. I forget about it, and whatever they do with that money I don't know unless it is to buy the boys cigars, etc.

I don't go past the lumber-yard when I go down town. I go on the other street.

I built a little addition to my house this summer, and I have about come to the conclusion that The A. I. Root Co. is about the cheapest place I know of. When I consider there are about 125 pieces in a hive, every one of which has gone under the "former," all for an average of a little over one cent apiece, I'm one who is not "kicking" at the price.

When I read those articles I sat down and wrote to four bee-keepers in different parts of the country, asking for a "postal card" opinion of the thing. I enclosed a card, the

kind that Uncle Sam puts the stamp on, and every one of them bore fruit; and for the benefit of our bee-keeping friends I shall insert them.

The first is from California:

Dear Sir:—A former partner and I talked of a similar derrick over ten years ago, but never made one. I have needed it badly a few times. I would not make a roller to raise the rope—it's too slow.

I think the general idea is good, to raise heavy hives for loading on wheelbarrows and sleds, and possibly on wagons. For lifting supers I doubt if it is necessary for any one who is able to do other work in the apiary. I guess I'll make one, and see if it is as good as it looks.

W. A. H. GILSTRAP.

Ceres, Cal., Sept. 10, 1906.

Then along came this:

Dear Sir:—The hive-lifting device would be of no practical advantage to me—too much like trying to carry yourself by your boot-straps. I have never tried one, and probably never shall.

C. A. HATCH.

Richland Center, Wis., September, 1906.

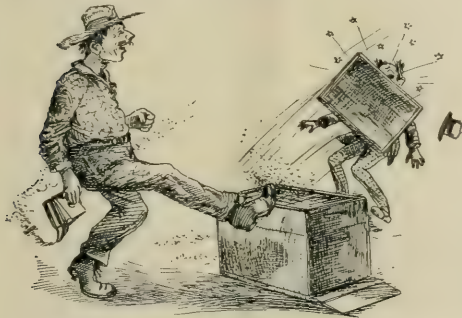
The third one is from New York, from Coggschall, the renowned lightning operator:

Dear Sir:—I think you are an exception to the rule, to send card with stamp. The way I lift a super from hive is by main strength and awkwardness.

It will take more strength to lift the device than to do the work. I have got about through doing missionary work. Traveling bee-men have to raise honey for 8 to 10 cts., and undersell me by 4 to 6 cts. I get 13 to 15 cts. wholesale. I'm off the subject. I would not have one of those lifters at all. I might use it for a step-ladder.

N. Y. COGGSCHALL.

He seems to be blue about something, and I should like to say something that would cheer him up. Coggschall, haven't you had glory enough? Are you like Alexander—not



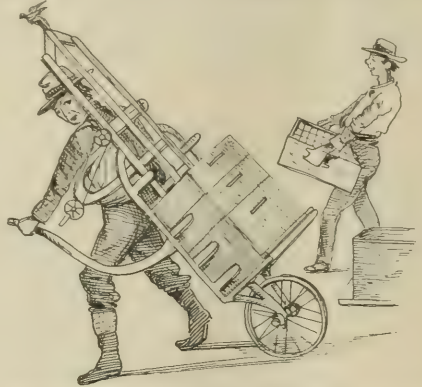
"The way I lift a super is by main strength and awkwardness."

that Alexander who lives somewhere in the buckwheat regions of New York, but the one who lived a few years ago; and who cried because he had got to the end of his string, and his "glory" stopped coming in? So it was, is, and shall be. "The glory of man is as the flower of the field." So don't cry, but just put on a longer string, and to-morrow there'll come a breeze of wind that will take your kite up higher than "them other fellers'," so be ready.

Last, but not least, comes one from Indiana, down at old Vincennes, from Smith—Jay Smith. Hoosiers are nothing unless generous, so he sends a whole letter, full measure, well shaken, heaped up, and pressed together. Indiana is a great State—next to the greatest in the Union—the only State with a Wabash River, along whose banks

corn and horseweeds grow, and the sycamore's crooked branches show the way the river goes. Indianians are a cheerful lot, always looking out and up. If you find one plowing corn in weeds higher than his head, he'll sit down on the plow and brag on Indiana; so I'll just give you his letter:

Mr. Frank McGlade:—Your letter asking about the "elevating dumplings" is received. I feel hardly qualified to speak about something I don't know anything about. Nobody but a politician could do that.



"I had thought of inventing a sort of hay-rack attachment to slip over the shoulders."

Great minds run in the same direction—sometimes—and sometimes this is the case. In the matter of lifting-devices this is the case. For our Indiana crop, and the hives as they are with me, I had thought of inventing a sort of hay-rack attachment to slip over the shoulders to pile the hives on so I could get a load. Now the other fellows are racking their brains to find some way to handle—not a hive—but just supers. If their crop is as big as *that*, it would take so many derricks and horsepowers to handle it that it would cost so much they would have to go out of the business. Like a man I did not know, who had so much money that, when he bought a pocket-book to hold it, he went broke.

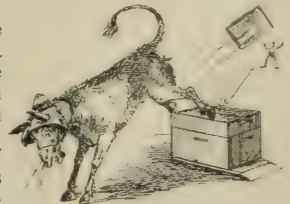
But, say, don't you think locality makes the difference—not that those fellows produce so much bigger crops, but that "this locality" (Indiana and Ohio) produces so much better men? My curiosity is up to the spilling-over point to know how you happened to write to me for my opinion. I had thought a little later to write an article on "Twenty-first-century Bee-keeping," in which I would set forth some of the advantages that will be enjoyed by our great-grandchildren, owing to the intellect of the present generation.

JAY SMITH.

Vincennes, Ind.

I think the kind of lifter that would suit me the most would be a good healthy mule—one with long ears. It would be easier moving it about.

Then it could be taught to do a good many fine "stunts," which would take much of the extra arduous strain off from some of us overworked beekeepers. It could soon be taught to work faster on the approach of a shower, then the sound of a good healthy "hee-haw" (*a la Maud*), early in the morning, would put us all in a merry mood for the day.



A portable hive-lifter.

DEATH OF DR. JOHN DZIERZON.

His Place in Apicultural History.

BY W. K. MORRISON.

We have to chronicle the death, on the 26th of October, of the Rev. John Dzierzon, D. D., Father Emeritus in the Catholic Church, at his home in Lowkowitz, a hamlet near Kreutzburg, Silesia, Prussia. He was born in the same place, Jan. 11, 1811, probably in the same house in which he died, so that, had he lived a few weeks more, he would have celebrated his 96th birthday, or



REV. JOHN DZIERZON.

—From Gravenhorst's *Practical Bee-keeper*.

25 years over the allotted threescore and ten. He was born just 17 days after L. L. Langstroth, the father and founder of American bee-keeping. In many ways these men greatly resembled each other. Both lived to a good old age—the one 85 and the other 95; both were clergymen, typical of their country, and both were founders of a great school of bee-keeping, and both died in October, after long and useful lives. Though Father Dzierzon spent his whole life in the same little hamlet, he was not without honor in his own country. He was of Polish extraction, and lived only a short distance from the

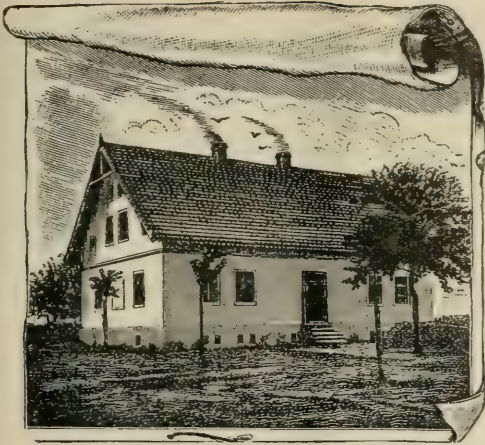
Polish line. We hear much nowadays about environment and heredity, and believers in both will find that Dr. Dzierzon's life bears testimony to the value of both, for the Poles are great bee-keepers, and, owing largely to the presence of large amounts of linden (basswood), that part of Europe is a great bee country, although the subject of our sketch had to depend very largely on the blue corn-flower (*Centaurea cyanus*) and buckwheat for almost all his surplus honey. The Poles are a gifted race.

In his early years young Dzierzon must have been greatly impressed with the horrors of war, for he lived in a region decimated by Napoleon in his great campaign against Russia. It hardly seems possible that one man's life would connect us with the great battles of Friedland, Eylau, and Borodino; but here we have to do with a great bee-keeper who could do it, and who died only last month. But the people were sick of glory and carnage, and devoted themselves with great industry for many years to the arts of peace. Dzierzon chose the peaceful vocation of pastor of a church in Karlsmarkt, a nearby town, and, as a pastime, to the art of bee-keeping, and in due season became the chiefest of bee-keepers in the two great empires of Germany and Austria-Hungary.

Some too enthusiastic followers have claimed for Dr. Dzierzon honors which he himself never laid claim to—the invention of movable frames. In his "Rational Bee-keeping," published in 1878, he strongly approves frames and fixtures far inferior to those shown in Langstroth's book published in 1852, and inferior to Huber's hive invented in the 18th century. Dr. Dzierzon was also strongly opposed to movable roofs, one of the most important

features of Langstroth's hives. But, nevertheless, he worked out a system of bee-keeping which achieved great results in Germany and Austria-Hungary.

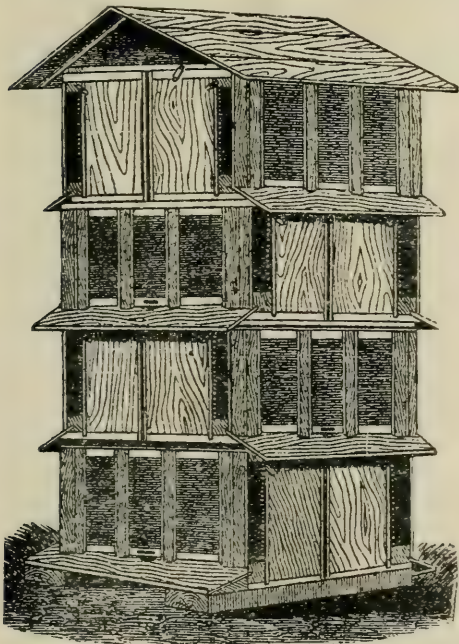
Dr. Dzierzon was the chief agent in discovering parthenogenesis as applied to bees, and it is on this that his fame, I think, will rest—at least we on this side of the Atlantic will so regard it. He had great assistance, however, from Professors Leuckart and von Siebold in proving the theory to be true; in fact, their part of the work called for greater skill than his. He was a great believer in the utility of the Italian bee, and bred and



DZIERZON'S HOME FOR 95 YEARS AT LOKOWITZ, UPPER SILESIA, GERMANY.

—From *Gravenhorst's Practical Bee-keeper*.

sold thousands of colonies during his long career; and he maintained this business long after he ceased to be an active clergyman. He would have been called a queen-breeder specialist in this country, and he was a very able one, without a doubt. He was a very prolific writer on apicultural subjects, both in journals and books. As a practical bee-keeper he possessed the keenest acumen coupled with intense observation powers, so that he was a wise guide to those in need of



THE DZIERZON HIVE.

—From *Gravenhorst's book*.

advice concerning bee-keeping operations. He also possessed the power of bringing people around to his way of thinking, and compelling them to adopt improvements. These attributes were necessary in him, living as he did among a people who were intensely conservative, and suspicious of all improvements to a degree that Americans can not understand.

Thousands of our fellow bee-keepers in Europe will mourn the death of their great leader, and American followers of the craft will sympathize very sincerely with them in their loss, which is a bereavement to a world-wide company of bee-keepers.



HOW TO CLEAN UP EXTRACTING-COMBS AFTER THE SEASON IS OVER.

Should the combs, after extracting and before storing them away for the winter, be placed somewhere on the hives or stacked up at some distance from the apiary with a very small entrance, so the bees can clean out dry? This is my first season in producing extracted honey, so I should like some advice, as I intend using the combs as many years as possible. I extracted some, but the cells are wet, and it seems to me all the honey ought to be cleaned out dry; or isn't it necessary?

E. L. HOFMANN.

Janesville, Minn.

[Different honey-producers follow different practices. Some put the combs, just as extracted, into empty supers and stack them up in the honey-house over a drip-pan and leave them there till next season. But the great majority put them on the hives at least long enough for the bees to clean them up; but in doing so the bees may store back into the combs a little honey. To overcome this, some put all such combs, at the close of the season, in upper stories, then pile them out a little distance from the bee-yard, providing an entrance so that only one or two bees can enter at a time, as you suggest. This prevents the uproar of a lot of flying robbers to a great extent. Other bee-keepers consider it just as well to expose the combs right out in the open, a few rods from the apiary, and let the bees clean them out with a rush. While there will be a high keynote of robbing, it will all subside as soon as the combs are cleaned up dry; but don't take the combs away until they are perfectly clean and the bees have ceased going to them.]

But this plan has its objection, in that the bees are ten times more alert to discover any sweet the good housewife may have exposed

in her kitchen, than they would be if they had not been permitted to help themselves in a wholesale way to the exposed combs.

All things considered, and *especially* for beginners, it is best to let the bees clean things up over a colony. Better have a little honey stored back in the cells than to have the whole apiary ready to seize on any sweet at an instant's notice.—Ed.]

DO CATTLE LEARN TO KEEP AWAY FROM
BEES? A BEE-AND-STEER STORY.

Mr. Root:—I can not quite agree with you in what you say on page 32 of horses and cattle not learning to keep away from bees. If the pasture is large enough, and stock is not tied, they soon learn to stay away. I moved last spring to a new place, and put 80 colonies of bees in a ten-acre field which I also used as a pasture for a mare. Now, that very beeyard seemed the most favored place for the mare. It was the first place in the morning, after she was turned out of the stable, and the last in the evening. She would go in and out among the hives, eating grass, and paying no attention to bees as long as they would not fly too strong; but let one bee sting her, or get tangled up in her mane, you could soon see her at the far end of the pasture. A mule might be fool

enough to stay and kick. I had once a swarm settle on a tall tree in my neighbor's yard. There were six steers and two calves in the lot. I had to climb the tree, saw the limb off, and let them down on a rope. No sooner did the limb get near the ground than the steers and calves took a notion for green leaves, and, in spite of all I could do from above to scare them away, they crowded around the limb, eating leaves and shaking part of the swarm off. My bees are mostly a very cross hybrid; and as I was expecting to see a bull-fight any minute I stayed where I was, up in the tree; but, to my disappointment, all the steers would do was to switch their tails and eat leaves, and shake more bees off; but not so with the calves. After bawling, and circling around the arena several times, and drawing more bees every round, they made a landing in the hen-house, and had sense enough to stay there until I came down and hived my swarm.

Bard, Ark.

AIKEN SAYER.

[No doubt you are right that horses will learn by experience to keep away from bees when they get too numerous in the air; but, as advised on page 32, I think we bee-keepers had better assume that they may not do so, and err on the safe side.—Ed.]



OFFICERS AND EX-OFFICERS OF THE ONTARIO CONVENTION, TORONTO, CANADA.

See *Canadian Notes*, page 1493.

—From *Toronto Daily News*.

Top row, reading from left to right—James Armstrong, Cheapside; William McEvoy, Inspector of Apiaries, Woodburn; R. Lowey, Woodrose; M. Emigh, Treasurer, Holbrook; G. A. Deadman, Brussels; W. Craig, Brantford.
Lower row—M. B. Holmes, Athens; G. L. Grosjean, Coburg; H. G. Sibbald, President, Claude; R. H. Smith, First Vice-president, St. Thomas; J. F. Miller, Second Vice-president, London; Wm. Couse, Secretary, Streetsville; J. Brown, Chard.

HONEY-THIEVES AS WELL AS CHICKEN-THIEVES.

The honey crop is very light here. Some one stole the surplus honey off all my hives, amounting to about 200 lbs.; and as this is a fine warm day I am feeding them some honey I bought. I have found eight bee-trees this year, and some had a good bit of honey in, but none of them over 50 lbs. I had hives put at every tree we cut down, but every time somebody took bees, hive, and all. Honey is selling at 20 cts. per lb., No. 1, fancy white.

ROBERT ARCHIBALD.

New Straitsville, Ohio.

[Why, friend A., it is really a shame to have the thieves come and take the honey off your hives so you have to go to work to feed the bees for safe wintering. If things are in such a shape as that in your locality it is no wonder that they steal your bees out in the woods after you have gone to the trouble of getting them out of the trees. The above suggested to me that you probably had plenty of saloons and drinking men in your town or near there. Referring again to Dun and Bradstreet, I find that New Straitsville, Perry Co., Ohio, has about 3000 inhabitants; and I find, also, that there are a dozen or more saloons and places where liquors are sold at retail. You will either have to put your bees under lock and key or go to work and arouse public indignation until they will banish the saloons as other towns are doing all over Ohio. Then when you get the saloons out, or before, get these honey-thieves and chicken-thieves into the churches and Sunday-school—especially get hold of the boys before the saloon men get them, if it is a possible thing. Don't you think I am right about it?—A. I. R.]

WHAT TO DO WHEN NEIGHBORS OBJECT TO THE BEES.

I have come to you for a little information and advice. I have bees, and they sit beside a division wall between me and an adjoining tenement, the occupant of which is somewhat peculiar in that he wants all of his rights and some of other people's, and, of course, my bees go on to his land and he wants me to move them 4 or 5 rods on to the other side of the field. I am willing to move them, but I tell him that to move them now will make matters worse, for they would come back to where the hive did stand, and, not finding it, would be very apt to be cross and sting any one near.

Another thing, when I take off the surplus honey they will be cross, and liable to sting people. Is there any way that I can use so they will not? Would the use of a small amount of chloroform or ether be of any advantage over the use of smoke? If so, how much would it require? How much would kill the colony? I don't want any trouble about the bees, and I don't want to destroy them either.

D. E. WASHBURN.

Felchville, Vermont.

[It is not difficult to move bees three or four rods. This past summer we moved

some forty odd colonies that distance, and did not lose a bee. How did we do it? We "hitched" them along a few inches every day, gradually working the hives toward the location they were to occupy permanently. Another plan that involves just as much work is to move our bees to an out-yard or to some location two miles from their present one, and leave them there about two months. After that you can bring them back and put them where you please. A better plan is to move the bees after they have been taken out of the cellar, or if wintered outdoors after they have been confined three months in the hives without a flight. With regard to the use of chloroform, it would be very unwise to use it. Too much of it will put a colony out of commission, with the result that robbers, or bees from other hives, will be liable to steal their sweets, bringing on the very condition that you seek to avoid.

Of course, your bees do not do your neighbor any harm; and we suggest that you sweeten him up with a section or two of honey and a fine sample of extracted. If you do this every year we do not think you will hear any thing from him about your bees being a nuisance. When it comes time to take off your surplus, do it toward night. Blow quite a little smoke in at the entrance; pry up the super a little way, and blow in smoke at the crack; then lift the super up and put under a bee-escape. By using the ordinary Porter escape you will have no trouble with cross bees afterward. If you have no bee-escape, take off the honey toward night, after smoking the bees, then shake the super in front of the entrance. By next morning they will have quieted down, so there will be no confusion nor crossness.—Ed.]

MANUFACTURED COMB HONEY; CONSUMERS WOULD NOT BELIEVE THE FOOLISH STORIES SO MUCH IF MORE PROPOLIS WERE LEFT ON THE SECTIONS.

In regard to manufactured honey, I would say that, while in a grocery in a large city last winter, I heard a lady ask one of the clerks for some honey. The young man behind the counter, with his hair parted in the middle, asked her if she would have manufactured honey or bee honey, at the same time handing down a section of fine clear honey with not a particle of bee-glue on it, and a section of dark honey pretty well smeared with bee-glue. The lady said she would take the bee-honey. After the customer was gone I asked the young man if he did not know there was no such thing as manufactured honey, and he said that he did know it, but that they took that way to sell the dark poor honey. After that was gone they could then sell the nice clover honey. But he said if bee-men would not keep the sections so clean they could not fool the people, for a section daubed with bee-glue would show for itself that it was made by bees, and that it was the fault of the bee-men sending such clean sections. He said he had sold tons of honey at retail, and

never had a customer object to bee-glue on the wood section, but that customers are always suspicious of a perfectly clean section.

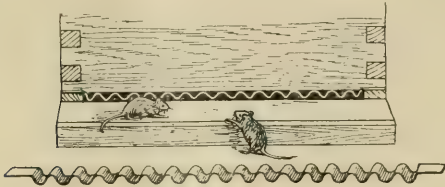
Miller, Neb.

T. J. QUAIL.

[See editorial on this subject.—ED.]

AN ENTRANCE-GUARD TO KEEP MICE OUT OF HIVES IN WINTER.

The accompanying cut shows a tin entrance-guard to keep mice out of hives in winter. It is simply a strip of tin about 20 in. long and $\frac{3}{4}$ inch wide, corrugated.



This is placed in the entrance, with the ends clamped between the hive-body and bottom-board. The tin strips can be easily corrugated by running them between the cog wheels of a tinner's forming-rolls. I have used these guards with success.

G. J. STURM.

Flora, Ill.

[The scheme proposed is not bad; but for the average bee-keeper it will be easier and cheaper to go to the hardware store and buy some wire cloth of coarse mesh that will not exclude bees, but yet keep out mice and other vermin. When cut up into narrow strips it can be nailed over the entrances. If such wire cloth can not be had, a strip of tin corrugated as above would answer as an excellent substitute.—ED.]

8. Feed about 5 o'clock in the afternoon—a good lot at once.

9. Send the wax to London or Liverpool yourself.

W. K. MORRISON.

HEARTSEASE AND SMARTWEED IN THE SAME LOCALITY.

The honey-flow this fall has been better than usual from cotton, heartsease, and smartweed. We note what you have to say on page 1111, and Dr. Miller's comment. In "our locality" we have both heartsease and smartweed. While the plants are very much alike they are very different as to bloom. Heartsease grows from two to three feet high, and is abundant in fields on headlands and turnrows, and along the irrigated ditches in the rice-fields. While it seems to prefer low places, it grows as well on high ground. The flower-heads are from three to four inches in length, and a beautiful rose pink. The leaf is not peppery. Smartweed, or water-pepper, grows in low places as a rule, and along the bayou banks, seldom more than 18 inches high. The flowers are white, and much smaller than those of heartsease. The leaves are very peppery. Bees work busily on both in the morning, but are seldom seen on either after 10 o'clock. The honey is light in color, and quite pungent as to smell. Whether this is heartsease or smartweed honey we can not say, as both are gathered at the same time. The honey, before it is capped, has a tendency to foam in the cells, as though it were fermented. We never extract this honey, but leave it on the hives. Top stories are left on all winter. In the spring the combs are used in queen-rearing.

J. W. K. SHAW & Co.

Loreauville, La.

ALFALFA AS A HONEY-PLANT.

I can endorse what Dr. Miller says about alfalfa as a honey-plant, p. 791. There are several patches of alfalfa here. I planted it for bee-feed and hay four years ago. I got the latter, but never a drop of nectar. I allowed it to get fully ripe for two successive years. Bees did not touch it, so am satisfied it is not a honey-plant in Northeast Alabama. I have some in full bloom now, no bees on it, while my one-half acre of white and alsike is covered with them. There is a great amount of Japanese clover here—good cow pasture, but I do not remember ever seeing a bee on it. Intuitively, when I see a bee, or hear one in my walks, I watch what it is working on.

As to 1-lb. sections, I find as a rule my two-way bee-space $4\frac{1}{2} \times 4\frac{1}{2}$ sections are the heaviest—some 17 oz.

D. NEILSON.

Fruithurst, Ala.

SWEET CLOVER ON A LAWN.

There is a part of my lawn covered with sweet clover that has been cut once or twice a week all summer, and there is a nice growth of it now. This came from the seed this spring.

W. CRAIG.

Luce, Mich., Sept. 7.

THE PRODUCTION OF WAX IN THE TROPICS; AN ANSWER TO THE QUESTIONS ASKED ON PAGE 1255.

Mr. Frank McCann, of La Gloria, Cuba, asks questions with respect to wax-production, which, if satisfactorily answered, would go a long way toward solving the difficulties of the tropical bee-keeper. It would be a good thing if Mr. McCann or any others working for wax-production would explain their methods more fully. This would result in much good to the industry, as we could then see where improvements could be effected. At present I content myself with answering imaginary queries in the absence of definite questions.

1. A queen-excluder should be used to save refining the wax.
2. Cut out the whole comb except $\frac{1}{4}$ or $\frac{3}{4}$ of an inch.
3. Press out the honey with a Root press.
4. In "feeding back," add a fairly large amount of water to the honey.
5. In "feeding back," have a small brood-chamber.
6. In taking out combs of wax, use only a very little smoke and no brush.
7. Use a bottom feeder.



SOMETHING ABOUT GROWING BASSWOODS:
FROM THE FOREST SERVICE OF THE DE-
PARTMENT OF AGRICULTURE.

Every man who has anything to do with bees, and especially those who are enthusiastic in the matter of bee culture, should be interested in growing basswood-trees—first, because it is still, so far as I know, the greatest honey plant or tree in this whole country. While we can not say that basswood honey is the *best* honey produced in the world, yet when thoroughly ripened (as it always should be) it comes pretty near being first-class. Secondly, it looks just now as if the best and cheapest material for making sections to hold the honey is this same basswood. We have tested quite a good many kinds of lumber as a substitute, but do not find anything so good as white basswood. It is true some preparation of manufactured paper or paste-board might answer; but it would cost a great deal more, and I doubt whether it would be any handsomer in appearance than our nicely polished basswood lumber. In view of this I am sure our readers will be interested in a letter I have just received from the Chief of the Forest Service of the Department of Agriculture, Washington, D. C. Perhaps I should say I asked for information in regard to getting basswood seeds to germinate. Below we give also a copy of the leaflet referred to.

UNITED STATES
DEPARTMENT OF AGRICULTURE.
FOREST SERVICE.

Mr. A. I. Root:—Your letter of October 30 is received. I am enclosing herewith a forest-planting leaflet, No. 10, prepared by our office of Forest Extension, which has to do with all matters pertaining to the growing and planting of trees. This paper does not go into the difficulty of growing basswood beyond reference to the advisability of planting the seeds in the fall. Regarding this point, I want to say further that a most essential requirement in the matter of inducing basswood seed to germinate as fully as possible at one time depends, in my judgment, upon maintaining a constant supply of moisture in the seed-bed. Too much emphasis can not be put upon this essential. In order that moisture may be properly retained, it is well to place the seed-beds in a dense shade. In addition, it has been my personal practice to cover the beds during the winter, and even during the following spring and summer, with a fairly heavy mulch, keeping watch constantly, of course, for the appearing seedlings and seeing to it that the mulch does not smother them as they begin to break through the surface of the earth. GEO. B. SUDWORTH, Chief.
Washington, Nov. 3.

BASSWOOD—*TILIA AMERICANA*.
FORM AND SIZE.

The basswood is a forest tree which often attains a height of 70 to 80 feet, and a diameter of 2 feet. Under favorable conditions it may be considerably larger. When grown free the tree bears a large, compact crown, which makes a dense shade; in the forest it has a straight stem with but few branches, which are closely clustered at the top. The inner bark (bast),

from which the tree gets its name, is fibrous and tough.

RANGE.

The natural range of the basswood is from New Brunswick south along the Allegheny Mountains to Alabama, and westward to eastern Texas, Nebraska, and southern Minnesota. The tree is commonest about the Great Lakes, but attains its best development on the bottom lands of the Ohio River, where it is associated with white oak, cottonwood, white ash, blackwalnut, and hickories. It may be planted on good soils almost anywhere within its natural range, though the most favorable region for economic planting is within the Northeastern States and north of the Ohio River.

SILVICULTURAL QUALITIES.

The basswood is best suited to deep rich river-bottom soils, and to cool situations. While it will maintain itself on poorer uplands, it is recommended for planting only where the soil is moist and well drained, and where drouths are infrequent. It is, in general, a hardy tree. It is moderately tolerant of shade, and the seedlings require some protection from the hot sun. In dry situations it is subject to injury from the sun's heat.

The rate of growth is fairly rapid during early age, being about the same as that of red oak and Norway maple. After attaining maturity the trunk frequently becomes hollow.

The basswood is sometimes attacked by insects which denude it of leaves or bore into the bark, but serious damage is not frequent. The European species are much more liable to insect injury than the native basswood, and are much less desirable trees generally.

ECONOMIC USES.

The light-brown wood is soft, straight-grained, and easily worked, but not durable. It is often sold under the name of whitewood, and is largely used for house lumber, woodenware, carriage-bodies, panel work, trunks, and paper pulp.

Its large crown and dense foliage render it desirable for planting along roadsides and about the home, and also for low shelterbelts throughout the greater part of its range. Its flowers, which yield great quantities of fine honey, lend it great value for bee-keepers.

PROPAGATION.

The basswood reproduces freely both by seed and by sprout. The seed ripen in September or early October, and may easily be collected while attached to their large wings or bracts. They should be separated from the wings and planted at once in nursery-beds, as alternate freezing and thawing during the winter rots and loosens the seed coat and causes early germination. If it is impracticable to plant in the fall, they may be kept over winter in a cool dry place between layers of sand.

The basswood is one of the most prolific among our native trees in sprouts from the stumps, and hence this method of renewing an old stand is recommended. To secure vigorous sprouts the trees should be felled between November and March, and the stumps cut low. Sprouts then start close to the ground, where they can soon develop a root system of their own and become self-supporting. All but two or three of the sprouts should be removed at the end of the first season. Under favorable conditions a sprout grows only about a foot the first year.

The basswood seedling develops a single stout root, but this is soon replaced by a number of lateral roots which give the tree a strong hold upon the ground.

PLANTING.

In planting the basswood it is best to use one-year-old seedlings, which should be set out as soon as the frost is out of the ground and before the leaves unfold. As a rule it is advisable to space the trees about five feet apart each way.

Basswood does well when planted in pure stands, but it is also of value in mixture with white or red pine (on good soil), or with white elm, white oak, red oak, maple, or hickories.

CARE AFTER PLANTING.

In most situations to which basswood is adapted, little cultivation is needed, since the heavy crowns and rapid growth of the young trees will soon form dense cover, which will exclude grass and weeds, and furnish the proper soil conditions. Where the undergrowth is very rank, however, it is necessary to clear out the weeds in order to give the trees growing space.

Cattle have an especial fondness for basswood boughs and foliage, so that the young trees must be carefully protected from them.

The plantation should be carefully guarded from fire, and should be allowed to assume the character of a forest as soon as it can.

EUONYMUS VARIEGATA AUREA: A HARDY ORNAMENTAL FOLIAGE EVERGREEN.

Two or three years ago my daughter called my attention to a plant that stood in the Sunday-school room of our church. She said it seemed neglected—that is, nobody seemed to water it, and it was left in a room having a freezing temperature. But its leaves looked bright and glossy, even though covered with dust. She ventured to clip off a little twig, may be two inches long, and asked if I could give the name. I told her I could not; but I put it in the cutting-bed of the greenhouse, and in a little time it put out roots and made a plant. The leaves are of a dark glossy green, smooth and shining as the leaves of the rubber-plant. But, besides this, a part of the foliage shows spots or blotches of a very bright golden hue. A good-sized plant presents an appearance that makes you think the sun is shining through the foliage overhead, and just striking certain leaves or parts of leaves. As the plant increased in size it showed occasionally a twig with whole leaves of gold, and other leaves that were part gold and part green. Our florist here did not know the name of it, and nobody seemed to know what it should be called; but while on a visit to our experiment station at Wooster I saw the same plant in the center of a bed of ornamentals under the buildings. They said it was a species of euonymus. During the severe frost we had in the fore part of October all tender plants in our dooryard were killed outright; but the euonymus stood up as bright and shining as it had been all summer and through the fall; in fact, it rather seemed to enjoy the freeze, and during the recent bright days of Indian summer it has been putting out new foliage. After my attention was called to this beautiful plant I noticed it in George W. Park's list of five-cent plants, and sent for two—one named aurea and the other argentea. The aurea, which means gold, seemed exactly like the one I grew from the slip; but after I put them outdoors I got the two mixed so I can not tell whether the one I admire so much now came from Park or not. It does not matter so much, anyway. The plant in question is about two feet tall. It has a very pretty bushy head, and the limbs seem inclined to grow pretty nearly straight up. Very likely it will winter outdoors; but it is so handsome I put it into a ten-inch pot, and I am going to keep it in the greenhouse.

I have always been fond of ornamental foliage plants. You see they are always in blossom—that is, they are always showing their beauty. This one is so handsome I think it would sell for a dollar almost anywhere; but I should not want to part with it for several dollars. As I look at it and feel happy, I wonder the hardy euonymus has

not received more attention in the past. It will stand neglect, and will keep alive better than any other plant I ever saw. I have now perhaps half a dozen plants, and I expect to leave them all outdoors except the handsomest one. I wrote to our experiment station in regard to leaving them outdoors, and here is the reply of one of the professors:

Mr. A. I. Root:—Your letter of inquiry regarding hardness of euonymus has been referred by Prof. Thorne to me for reply. The sort which you enclose is practically hardy. However, to prevent injury from freezing and thawing it is well to give slight protection. This can readily be done by turning over each plant a nail-keg or small barrel, after the plant has had a small quantity of straw or grass packed and wrapped about it.

W. E. BONTRAGER,
In charge of ornamental planting, O. A. E. S.
Wooster, O., Oct. 22.



THE BLACK HILLS OF SOUTH DAKOTA, CONTINUED.

There are two different lines of railroad running through the Black Hills—the Chicago & Northwestern on the east, and the Burlington on the west. I found that, to take in the Black Hills completely, I would need to go up one route and come back on the other. I had no transportation over the Burlington; but it was only a hundred miles to Spearfish, close by the terminus of the Northwestern. In the East we get transportation for 3 cents a mile, and even less; but here I found it was something over \$6.00 to make that hundred miles. But I could get a round-trip ticket for about \$7.50. It seems to me this is hardly fair to the traveling public, but very likely the railroad companies have their reasons. When I came to see the curves and turns, and the expense of building a railroad through and over the mountains, especially in a mining region, it occurred to me that perhaps 6 cents a mile might not be too much. But why didn't they charge something like that price both ways?

I took along a list of our subscribers so as to call on bee-keepers as far as I could. At Edgemont I found we had a subscriber, and she was a lady besides. When I arrived at Edgemont Junction, and found we were to wait there an hour or more, I began to look around for bee-keepers; but there was not a house of any kind in sight in any direction. My attention was soon directed to an enormous windmill—the largest one I ever saw, and it was pumping water laboriously. Next I saw near the windmill a tank-car on a side-track, loaded with water. I supposed this was medical water from Hot Springs. It was allowed to drip down between the ties into an enormous cistern.

and the windmill's sole business was to pump the water out of the cistern into a huge tank for the locomotives. When I asked if it were not possible to get water from a well the agent of the railroad company told me they had gone down into the ground as far as they could afford, but found no sign of water,* so they were obliged to haul it all the way from Hot Springs, a distance of thirty or forty miles. I was told that, on this Burlington route, was Spearfish Falls, Spearfish Canyon, and some of the finest scenery to be found anywhere in the Black Hills. Imagine my disappointment, therefore, to find, when we reached Englewood, to change cars, that the locomotive on the new train was crippled. They tinkered and fussed with it until dark, then wired Deadwood for a better engine. This resulted in making the whole trip through the magnificent scenery after dark. Although it was quite a hot day when I left Hot Springs, in going less than a hundred miles we got up on the mountains so that it was so cold we were exceedingly glad to find a little car with a stove in it, almost redhot. Going up the mountains had something to do with it, but perhaps the sudden change in the weather had more to do with it. The conductor remarked that I was the only man in the crowd who had the good sense to bring along an overcoat.

There are some funny names to towns in the Black Hills, as you will note. Spearfish gets its name from the great abundance of beautiful speckled trout in Spearfish River and mountain streams that are tributary to it. In fact, it is not uncommon to get as many fish as one wants to carry home, in just two or three hours—that is, when one is an expert with the spears used to catch this particular trout.

I was particularly attracted to this town by the following at the end of a letter I found in our files:

We started in the spring with 108 colonies of bees; increased to 178, and a good lot of honey besides. Some colonies have filled the third super, and we have put on the fourth. This is the best we have had in seven years of bee-keeping.

Dec. 26, 1904.

MRS. N. L. ANDERSON.

Of course, the above is not so very extraordinary; but coming from a new locality, where bees had but recently gotten a foothold, I made a note of it.

I reached Spearfish late Saturday night. Learning at the hotel that the Andersons lived in the outskirts of the town I thought I would make a call, even if it was Sunday morning, and go to church with them. They had a Congregational church, but it was closed for repairs. There was also a Methodist church, but the pastor was away on his vacation. However, we had an excellent Sunday-school, and attended services at the Episcopal church in the evening. I remember the good lady who taught our Sunday-

school class. She was the pastor's wife, if I am correct. She said in her remarks that only one person in a hundred reaches the age of 80 years, and our teacher was pretty close to that, I judged; and yet her talk to that large Bible-class made a very excellent sermon, even if it was a short one. I do not know whether she is in the habit of occupying the pulpit during her husband's absence, but I think she might fill it very acceptably. Perhaps the invigorating air of the Black Hills had something to do with the fact that she had preserved her faculties so well to such a good old age.

Now, friends, perhaps some of you might think that myself and new friends were not remembering the Sabbath to keep it holy; but I was a stranger in a strange land, and there were a hundred things new to me that I felt curious about. God's gifts were scattered about on every hand; and I am inclined to think it was just as acceptable to God to have us notice and speak of his wondrous gifts as to spend the time in some other way.

I found more beautiful apples, without spot or blemish, right in Mr. Anderson's dooryard. I found a lot of neatly painted bee-hives from the Home of the Honey-bees, even if it did cost a big lot for freight to that far-away locality. It is a little peculiar that bee-keeping all through the Black Hills seems to be largely in the hands of the women.

Our good friend Mr. Anderson has a harness-shop, and does quite a business; but his wife has been succeeding so well in bee culture that I believe he contemplates closing up his shop and giving his whole attention to bees. I think they have now something like 130 colonies, and have started a very pretty apiary a mile or so out of town. Comb honey mostly is produced. They tier up the supers one above another. Quite a little honey had been taken off and sold, and yet I saw as many as four supers on some of the hives. The honey comes mostly from alfalfa, which grows, with the aid of irrigation, in wonderful luxuriance. In a pretty dooryard close to the house I saw two hives that were brought in from the woods. One of them had an entrance for the bees, as large as your hand, or larger—so large, in fact, that the bees in coming home with a load alighted directly on the combs. Friend Anderson said they seemed to do as well as any colony in his yard—no trouble from robbers. The combs were pretty well covered, however, with a cluster of bees, and it would take a very bold robber to sail in and take his chances of being hauled down by the whole "congregation." Now, would it not really be a saving to have some such large entrance, especially during the honey-flow, so the heavy-laden bees could sail right in and alight on the combs, without any preliminary tumbling down in the grass, taking wing again, and crawling into the ordinary entrance, and then from the bottom-board up on to the combs? Dr. Miller, what do you think about it?

Some of the prettiest gardens I ever saw

* Who knows but that wonderful Wind Cave extends clear over to and away down under the region round about Edgemont? Of course, no water could be found in the region of such caves unless the well were sunk down a tremendous depth to get below the cavern.

in my life were round about Spearfish. Beautiful sparkling babbling water is everywhere, by the sides of the roads and through the fields. I always feel happy when I see running water—that is, clear sparkling water. I like to see it hustle along; and where the fall is sufficient it always seems to me as if it were too busy to stop and talk, or do any thing but push ahead. I heard of a paper out west called the *Daily Pusher*. Well, the water in these irrigating canals and wooden flumes makes me think of the "*Daily Pusher*." My friend, are you one of that sort? I have suspected sometimes that the secret of growing old and holding all our faculties is probably in being a "daily pusher." We talked about almost every thing, even if it was on Sunday, but we did not do much visiting; but early Monday morning we took a trip part way up the celebrated Spearfish Canyon, and also took in the fish-hatchery belonging to the State. I have described so many of these that I hardly need go over it here. This special fish-hatchery has much to do with keeping the mountain streams plentifully supplied with the finest kind of speckled trout to be found anywhere in the United States, and may be I should be right if I said anywhere in the world. The town of Spearfish is 16 miles from Deadwood by stage line; but by rail it takes 40 miles to make the same distance, and it is through some of the finest scenery in the Black Hills. At one place you look over a precipice and see the railroad 1300 feet below where you stand; but a train on that road has to go 13 miles to get down those 1300 feet.

The mining industry, with the recent developments in agriculture, is making much activity there just now. Not only railways but trolley lines are being built between the large cities, and at one place I found a gasoline trolley line running 60 miles quite successfully. The impression was that it was cheaper than electricity.

A stage ride of twelve or fifteen miles took me over to Belle Fourche, Butte Co., S. D. The fertile soil around Belle Fourche has for years furnished great plenty of cattle. Why, the figures almost make one's head swim. I am told on good authority that the cattle industry of the Black Hills has, some years, reached 5000 carloads, worth something like *four millions of dollars*. Not far from Belle Fourche a great irrigation-dam is being constructed by the government, and this will greatly increase the present possibilities of agriculture and cattle-raising. I found quite an excitement in regard to what had recently been done in bee culture at this place; and, queer enough, bee-keeping there is almost entirely in the hands of women. One lady said that the bees got so much honey they were everlastingly swarming; and there were so many swarms that came out when nobody was around to care for them that they clustered in dooryards and gardens all over town; and now almost every home had one or more colonies hived in drygoods-boxes, kegs, or something else; but the women were taking the lead.



Train up a child in the way he should go, and when he is old he will not depart from it.—PROV. 22:6.

OUR AMERICAN BOYS.

Of late I have been pondering over and watching our boys a little more, perhaps, than ever before. One reason is, may be, that I have been recently appointed guardian of a boy in his teens, whose parents are both dead. I am supposed to look after him, see how he spends his money, keep track of his studies and deportment in school, see that he is decently clothed, see that he does not contract any bad habits, keep an eye on the company he keeps, see that he is home nights at a reasonable time, etc. Well, my honest opinion, after a few months' experience, is that I am a rather poor hand at guardianship. Perhaps somebody else who is undertaking the office of guardian may feel something as I do about it. I have talked quite a little, and I have scolded some; but so far it does not seem to amount to very much. Neither the boy *nor* I am making much progress. We are good friends right along, and I thank the Lord for that; but we do not seem to see things alike; and perhaps one ought not to expect a boy of 17 and a man of 67 to have tastes and sympathies along the same line. Sometimes I think I am, perhaps, expecting a little too much of a boy in his teens. And then, again, on the other hand, when I hear of the boy's shortcomings I begin to think I have not been strict enough. May God help me to choose the golden mean. Yes, that has been an *oft-repeated* prayer. I know the promise in our text; but I did not have the care of that boy until he was pretty well along in his teens. In fact, he was born and brought up, until recently, more than a thousand miles away.

Very often we expect too much of a boy. Years ago, when I used to run a market-wagon, it was thought advisable to take along a boy to deliver goods from the wagon, as he could save steps for the man in charge, and thus get over more territory. This special boy did not seem to have any idea of business. He was looking around, and wasting his time when he ought to have been busy; and, more than that, in spite of all we could do he would help himself from the heaping boxes of strawberries and other fruits. Now, it was not the value of the strawberries, mind you; but how it looks to offer a customer a box of berries with the box not quite full instead of being rounded up as we usually do! I remonstrated and scolded; but for all that, when no one was looking the boy would make a quick motion

and put some of the fruit in his mouth. He and I did not get along well together; and I confess that, from my point of view, I did not suppose he would ever amount to much. His mother was dead, and his father did not seem to have a faculty for making him mind very well. Now, I hope none of his relatives and friends will feel hurt by what I have been saying, for it brings out a great and grand truth. Shall I tell you why? Day before yesterday I heard from that boy after many long years. He has just married, and he has a position as designer or draftsman in a great machine-shop where he gets fifty cents an hour. Was I glad to hear it? Why, to be sure I was. It was one of my happy surprises. May God be praised that there is at least something better under the surface, perhaps away back out of sight, with these thoughtless heedless boys than we oftentimes give them credit for. Yes, I have seen more cases of that kind. I have seen boys with whom I was thoroughly disgusted turn around and make themselves of value and consequence in this busy hustling world.

Now, if I should stop right here the moral of the point I have made might induce some parent to think it is not worth while to be so *very* strict. Our text tells us we must train up a child in the way he should go. If we can not make of the boy exactly what we want him to be, let us come as near it as possible. Never let up. But please do not think it is necessary to be having a jangle with the boy all the while. Get his good will. Bend down as much as you can, not only to his stature, but to a level with his boyish ideas. Do not be discouraged, even if his whole thought and aim seem to be baseball or football or college pranks. I have not much sympathy with the latter, but very likely there are good and wise professors in our colleges who feel differently about it. May God help us all to do our duty by the boys.

So far I have not said a word about saloons and their influence over the boys. Medina is a dry town. We have had no saloons here for twenty years; but recent events I have mentioned have shown us that we have had speakeasies that did a trade amounting to several thousand dollars a year. I do not know exactly who their patrons were; but very possibly there were many boys there still in their teens. We have billiard-rooms in our town, and once in a while it comes to my notice that some of our young boys are spending quite a lot of their money in the billiard-hall. Boys who earn only a little more than enough to pay their board are spending their money in such places; and they are being out nights to such an extent that they do not get the sleep a growing boy needs. Sometimes a foreman reports that a boy is late in getting to work, and does not show any interest in his business after he gets there. He is not making any progress. Investigation almost invariably shows that such a boy is up late nights. Robbing a boy of his sleep is a seri-

ous matter; and when cigarettes and intoxicants go along with it, it is a terrible thing. How can any parent vote for open saloons, or encourage his boy in the use of tobacco, to say nothing of cigarettes? Sometimes when boys get to be at that critical age, say sixteen or seventeen, they suddenly turn about and turn over a new leaf. I know of a few such cases. God grant that they may become more common. George Müller, that great friend of the orphans, and the founder of that wonderful institution that will make his name almost immortal, was a vicious boy. While in his teens he was almost, if not quite, one of the hopeless sort, and guilty of almost every thing that was bad. Through God's providence he got a glimpse of what the gospel of Jesus Christ was doing and might do for a sinful world, and all at once he became a great reformer.

In order that every parent, especially every parent of boys in their teens, may be induced to look after that boy a little more closely, I want to tell you something about one boy whom I knew. I hope he has reached the turning-point, and broken away from his evil associates and bad habits. I want you to pray for him. This boy, unfortunately, lost his father when he was, perhaps, twelve years old or less. He had Christian parents, and for a time bid fair to follow in their footsteps. But he got in with a bad crowd. He got to using tobacco and then cigarettes. I think he went to the billiard-hall—at least he got a fashion of being out late nights. He was not only irregular in being on hand with his work, but he did not seem interested in it. As a consequence he lost his place and then got another. But it was the same old story. Although at work most of the time, he never seemed to have any money to help pay his good mother for his board and lodging.

Here is another error that many parents fall into. Parents often consult me in regard to their boys, and ask my advice. Of late I usually commence by asking this question:

"Your boy is now earning wages; but does he pay you something for his board and lodging every Saturday night?"

The answer is, almost invariably, "Why, no, Mr. Root, we have not yet ever asked him to pay for board and lodging in his own home. We always expect our children to be welcome to the home roof; and don't you think it seems a little tough to ask them to pay something out of their scanty earnings?"

After having it put that way I have sometimes agreed with them. Perhaps I was right and they wrong; but when it turns out that giving this boy all the money he earns only lets him have so much more for cigarettes and tobacco, to say nothing of drinks. I have come to the conclusion that every boy who is earning wages should take a part of his money to pay for his keeping. It teaches him to be manly. While a boy is going to school, of course that is a different matter. Some parents—I hope only a few, however—receive all the boy's wages every Saturday

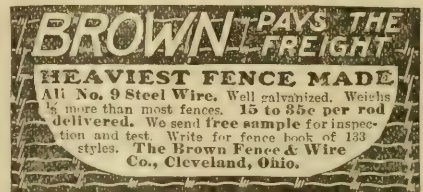
night and pay his money out for him. Now, I do not like that way. May be it is best under certain circumstances; but I have concluded to let my ward draw his pay; but I did insist that he should get a memorandum-book and put down every copper he paid out. Pretty soon I found some items for candy. May be you will think me a little rough on the boy; but I told him that, inasmuch as he paid \$4.00 a week for board (and I found out that he was having good fare) he should get every thing he wanted to eat at his daily meals, three times a day. I told him if he wanted apples or fruit there was an abundance over at our place near his work, and he could help himself at any time. Buying candy leads to patronizing soda-fountains; and even if these soft drinks are harmless it takes money that many of its patrons can ill afford. I am often pained to see boys—yes, and girls too—spending their nickels at soda-fountains when I know the wages they receive do not warrant any such expenditure. Besides, our best physicians are pretty well agreed that many of the modern diseases are largely the result of the excessive use of sugar; and sugar between meals is certainly worse than when it is taken along with the other food. May be you will think me a little severe again if I suggest that patronizing soda-fountains is very apt to pave the way to intoxicating drinks. Our boys who are striving to get an education, to learn a trade, or get a little something ahead, certainly can not afford these luxuries.

In closing I wish to tell you of a recent event that makes me shudder every time I think of it. The thing was so horrible and so incredible here in our own neighborhood of respectable people that I took pains to see the guilty party to talk with him about it. It was a boy only seventeen years old. While he talked, his breath smelled of tobacco, and I should guess cigarettes, and perhaps some other drug I am not very well acquainted with. It is bad enough to find an old man with a breath so unpleasant on account of drugs and narcotics that one can hardly talk with him in the open air; but never before in all my experience had I talked with a young boy when I was obliged to stand out of the way so the breeze would not blow the fumes from his breath into my face. Well, this boy is reported to have made an attempt that might have cost him his life had he been a colored boy instead of a white one.*

Now in regard to this lynching business, the opinion seems to be prevailing that the colored men who have been lynched were almost if not all of them under the influence of drink when they committed their outrages. In our great cities we are horrified by attacks on women or good-looking girls by a

class of people whom the people are pleased to call "mashers." Right in broad daylight some vagabond grabs hold of a respectable woman and undertakes to kiss her. How does it come about? What does it mean that men shall risk their lives in such stupid folly? I think it is the outcome of the saloon business—perhaps more often smoking cigarettes; and even *they* are the product or outcome of saloons, and stimulating drugs that are fostered and encouraged by the saloon business. Just now we are told that San Francisco is confronted with such a reign of terror that public meetings are being held to decide what to do with the criminals. One of the W. C. T. U women was bold enough to suggest that they had none of that work previous to the opening of the saloons, and that it would stop immediately if the saloons were closed once more. The mayor replied meekly that he did not believe the saloons were *altogether* to blame. Well, suppose the saloons were only *partly* to blame; why in God's name can't they shut them up *again*? They got along very well during the first two or three months after the fire, without saloons. What is to hinder trying the same thing again?

Now to get back to our subject and text. My impression is that the reason why so many boys are going hopelessly to the bad while they are in their teens is that we as parents and guardians are not heeding the injunction of our text. A good farmer looks after his horses, cattle, pigs, and chickens. He studies them, not only daily but hourly. He knows *all* about them. Why not study this growing boy daily and hourly? Ask him to keep a memorandum-book and let you see what he does with every copper he earns. Let him handle his own money; and if he makes a "fool" investment now and then, do not scold. It may be money well invested, to acquire lessons that can be learned only by experience. Make that boy your hobby, your study, both day and night, and great shall be your reward when you see him turn from boyhood to a noble manhood.



BROWN PAYS THE FREIGHT

HEAVIEST FENCE MADE

All No. 9 Steel Wire, Well galvanized. Weighs 16 more than most fences. 15 to 35c per rod delivered. We send free sample for inspection and test. Write for fence book of 133 styles. The Brown Fence & Wire Co., Cleveland, Ohio.

* My impression is that cigarettes, drink, or some drug, prompted the act. A boy of seventeen is "almost a man," and even a little *spark* of "manhood" should prompt him to be the *protector* of any little girl whom duty called on an errand off by herself. Is it possible that an American boy, of average intelligence, in his right mind, should assail such a child just as drunken colored vagabonds have been doing in the South?



FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 3 styles and heights of farm and poultry fence. It's free. Buy direct. Write today.

COILED SPRING FENCE CO.
Box 101 WINCHESTER, INDIANA



We make fence better and better. Why.

Tell you why.

The manufacturer that makes any article better than anyone else, sooner or later will enjoy the biggest trade in that article.

If he is wise, he will strive always to improve on the best, to *keep* it the best—to keep it the *biggest seller* in his line.

And because of his greater volume of sales, he can make improvements at less cost per gross, or ton, or rod, as the case may be.

Eighty per cent of all the wire fence made and sold is

AMERICAN FENCE

The reason is—*better* fence. The best fence brains in the world are constantly at work striving to make American Fence better, stronger longer-lived—to *keep* it best. Recent improvement—better galvanizing—adds to the life of the fence, decreases its cost per rod per year.

Drop me a postal and tell me how much fence you will need this year.

I will write you a personal letter about American Fence and send you this combination key-ring, screw-driver and bottle-opener.

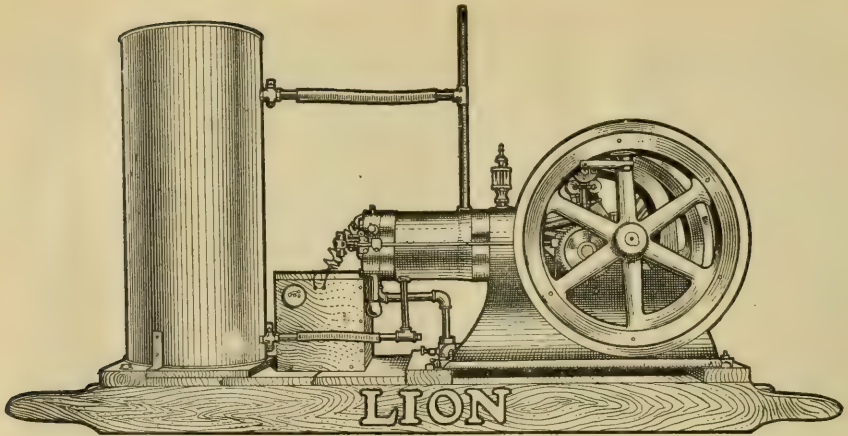
NOTE—I want to send you the combination key-ring, shown in the corner, with our compliments, as a continual reminder of American Fence. We register your name and number on our books, and return keys, without cost, if found and sent us.

FRANK BAACKES

Vice-President and General Sales Agent
American Steel & Wire Co.
Chicago, U. S. A.

SENT
TO YOU
FREE

3762
IF FOUND RETURN TO
AMERICAN STEEL & WIRE CO.
CHICAGO, AND RECEIVE REWARD.



IT'S READY TO OPERATE

There's no firing-up—no waiting for steam with a **Lion** Gasoline Engine. It is **always ready to operate**. Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

The Lion Engine

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

We sell direct from factory to buyer, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion** engine and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion** engine. It is free if you mention this paper when you write.

Lyons Engine Company
LYONS, MICHIGAN



To Be Given Away Free

Read Every Word of This Advertisement Carefully



OUR
CHRISTMAS
GIFT TO
YOU.

Illustration
Shows Spoons
One-half full
Size.

For advertising purposes we have arranged to give away absolutely free of cost to the users of Mary Elizabeth's Baking Powder, one thousand or more sets of six Louisiana Purchase Exposition Souvenir Spoons (full tea size) on certain very easy conditions.

These are the same make of spoons sold on the World's Fair Grounds in St. Louis, at \$1.00 and \$1.25 each, and we propose to make every lady reader of "Gleanings in Bee Culture" a present of a full set of six for which thousands of visitors paid \$7.50 on the World's Fair Grounds.

Send No Money---Just Write a Letter Like This:

Mary Elizabeth's Baking Powder Co., Shelbyville, Ind.

Please send me the box containing eight cans Mary Elizabeth's Baking Powder and one set, six (all different) Louisiana Purchase Exposition Souvenir Spoons as advertised in "Gleanings in Bee Culture," for which I agree to pay you \$2.00 on receipt of the goods if they are found (after examination) to be as advertised.

Name _____

State _____

Town _____

P. O. Box or Street No. _____

The Illustration but Faintly Portrays the Beauty of the Spoons.

The handle of each spoon is embellished with the head of President Jefferson, a French and an American flag and other cabalistic designs commemorative of the Louisiana Purchase.

In the bowl of each spoon is embossed a reproduction of one of the principal exposition buildings. Each spoon shows a different building, viz.: Electricity, Mines and Metallurgy, Liberal Arts, Machinery, Horticultural and the United States Government Buildings.

The workmanship on these spoons and materials used are vouched for by one of the largest manufacturing silversmiths in the United States.

The Historic Value of the Spoons.

The great Louisiana Purchase Exposition, the most stupendous collection of the works of modern man and the relics of his savage ancestors is a thing of the past—the glories of the Exposition but a memory.

Already your friends and your children look with eager interest on every memento of what in all probability will be the last of the Great World's Fairs. Recognizing this, we have purchased from one of the largest manufacturing silversmiths in the world a large supply of the official souvenir spoons (full tea size) which we propose to distribute (in sets of six) absolutely free to the users of Mary Elizabeth's Baking Powder.

These Spoons are not for Sale Separately at any Price.

They are obtainable only in connection with Mary Elizabeth's Baking Powder.

Mary Elizabeth's Baking Powder can not be purchased at stores; is sold only direct from factory to user, and conforms strictly to all requirements of the new Pure-Food Laws recently enacted by Congress.

Mary Elizabeth's Baking Powder is not made by a trust, but you can put your trust in this brand. If you want a dependable powder this brand will never disappoint you.

MARY ELIZABETH'S BAKING POWDER CO., Shelbyville, Ind.



We grow our Hardy "Blizzard Belt" Evergreens in ten million lots. To prove they are healthy, well rooted and vigorous we offer to send **Four Fine Sample Trees**, 3 years old **Free** to a limited number of property owners. Mailing expense 5 cts which send or not as you please. A postal will bring them. Our Catalogue containing 64 colored plates of our Hardy "Blizzard Belt" Fruits, Evergreens, Ornamentals, etc., with a mine of valuable information for fruit growers, free for the asking. Write to-day.

THE GARDNER NURSERY COMPANY, Box 748, Osage, Iowa.

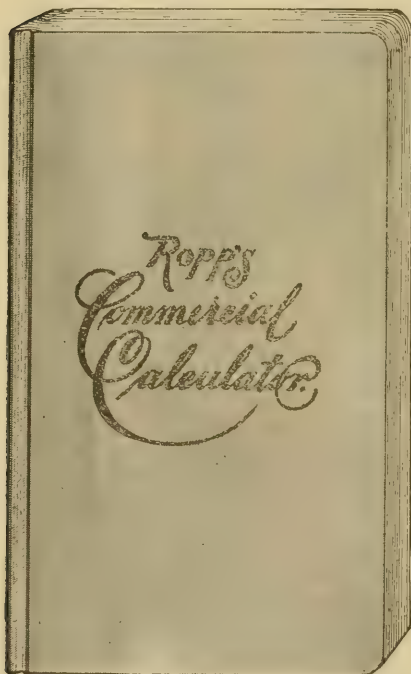
YOU NEED THIS BOOK

The publishers of the Agricultural Epitomist, Spencer, Indiana, (the only agricultural paper that is edited and printed on a farm) have made arrangements by which they can offer with each three years' subscription to their paper at 50 cents, a copy of

ROPP'S COMMERCIAL CALCULATOR

absolutely free, postage prepaid. You should not overlook this opportunity to secure one of the foremost farm monthlies in the country, together with this valuable book at the price of the paper alone.

WHAT THE CALCULATOR IS



Size 6¼x3¾ inches.

A READY CALCULATOR, BUSINESS ARITHMETIC and REFERENCE BOOK COMBINED.

This is unquestionably the most complete and convenient work on Figures for PRACTICAL USE ever published. It contains nearly all the Short Cuts known; hundreds of Simple Rules and Original Methods for "Easy and Rapid Calculation," and Millions of Accurate Answers to Business Examples and to Practical Problems.

It Sifts and Simplifies the whole science of Arithmetic, retaining only the Cream in a nutshell, as it were. Its Tables, Rules and Methods are extremely simple, eminently useful practical, and fully abreast with the age of steam and electricity.

Everyone who prefers to take the Simplest the Shortest and the Easiest way for doing his work should possess a copy of this useful and convenient Pocket Manual. It will enable everybody to become Prompt and Quick in Figures; and to many a young person it may prove to be a stepping stone to a successful business career.

IT WILL SHOW AT A GLANCE, WITHOUT THE USE OF PENCIL, PEN OR PAPER

The number of bushels and pounds in a load of Wheat, Corn, Rye, Oats, or Barley, and the correct amount for same at any price per bushel.

The exact amount for a lot of hogs or cattle, from 1 lb. to a carload, at any price per cwt.

The correct amount for a load of Hay, Straw, Coal or Coke, from 25 cents to \$20.00 per ton.

The correct amount for articles sold by the Bushel, Pound, Yard or Dozen from ¼c to \$1.

The exact wages for any time, at various rates per month, per week and per day.

The equivalent of wheat in flour, when exchanging same, from 25 to 40 lbs. to the bushel.

The only correct Rule and Table for estimating the exact contents of logs of all sizes.

The exact contents of Lumber, Cisterns, Bins, Wagon Beds, Corn Cribbs, Cord-wood and Carpenters', Plasterers' and Bricklayers' work.

The exact interest on any sum, for any time, at any practical rate per cent.

The Day of the Week, for any date in 300 years, besides hundreds of other very useful things.

It gives all the Latest and Shortest methods known, besides many published for the first time; viz: An Easy and Unerring process for "Adding Long Columns," "Short Cuts in Multiplication and Division," Problems in Fractions, Interest, Percentage, Mensuration, etc., are usually solved with less than one-third the figures and labor required by ordinary methods.

Handsomely and attractively bound in cloth, with round corners and just the right size to fit the pocket. A copy of this useful and practical work should be in the hands of every farmer, mechanic, or business man.

FILL OUT THIS COUPON

Enclose 50 cents and mail at once to

Epitomist Publishing Co.
Dept. 29 SPENCER, IND.

COUPON

EPITOMIST PUBLISHING CO., SPENCER, INDIANA.

Gentlemen:—Enclosed find 50 cents for which send the EPITOMIST for three years from date. Send me as a premium postpaid a copy of ROPP'S COMMERCIAL CALCULATOR.

Name

Address

Let Me Quote You a Price on a CHATHAM Before You Buy an Incubator

It will take
one penny
for a postal,
and a min-
ute of your

time, to write for Special Prices on 1907 Chatham Incubators and Brooders. No matter what kind of a machine you have in mind—no matter where you intended buying, or when—**TODAY** you should send me a postal and get my catalog and prices.

My book will tell you how good Incubators are made—will tell you what you ought to know about poultry business—will tell you about brooders—will post you on the best way to make money out of poultry—and my prices on Chatham Incubators and Brooders will show you how to start in the poultry business for a small amount of money.

Chatham Incubators Sold on 84 Days FREE Trial

freight prepaid—guaranteed 5 years. That's the story of the celebrated Chatham Incubator. We sell them on trial, pay the freight, and guarantee them for 5 years. With proper care, they last a lifetime. I am going after the Incubator business of the country this season, and I intend to get it—on great, big value in the machine and a very low price. Chatham Incubators are the best possible to make. They are tested, and known to produce the largest percentage of strong, healthy chickens. We have two immense factories—one in Canada and one in the United States—and run our own experimental station where a battery of Chatham machines are in operation every day in the year, under the care of expert poultry men.

If you are most ready to buy a machine now, put it off for a day or two, until you can get my prices and catalog—then decide on what to buy.

We have warehouses in all the leading trade centers—

where Chatham Incubators and Brooders are kept in stock—insuring prompt delivery. Depend on this:—With the immense amount of money—\$500,000—that we have invested in the Incubator manufacturing business, we are sure to give our customers every improvement worth having in the Chatham Incubator. We can afford it, because that is what brings us the largest business in the world. That is all I can say in an advertisement. I invite you to write for my prices and book. Address me personally.

MANSON CAMPBELL

President Manson Campbell Co., Ltd.
1 Wesson Avenue, DETROIT, MICH.
If you live west of the Mississippi River,
address me Box 1, Topeka, Kan.



Guaranteed
Five Years

PEACH TREES

Fine, stocky, hardy, grown on the bank of Lake Erie; two miles from any peach orchard, free of borers and all diseases. Large stock of Apple, Peach, Pear, Plum, Cherry, Etc. Headquarters for ORNAMENTAL TREES, Shrubs, Roses, Plants, Vines, Bulbs, Seeds. Over 40 acres of Hardy Roses, none better grown. 44 greenhouses of Everblooming Roses, Palms, Ferns, Ficus, Geraniums, Etc. Mail size postpaid, safe arrival and satisfaction guaranteed, larger by express or freight. Direct deal will insure you the best and save you money. Try it. Valuable 168-page catalogue free. Correspondence solicited. 53 years 1200 acres. **THE STORRS & HARRISON CO., BOX 277, PAINESVILLE, OHIO**

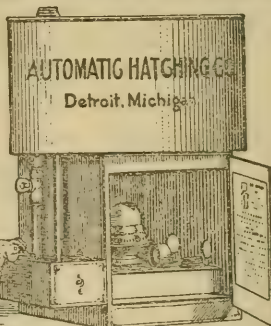


WARM WATER MAKES HENS LAY

Your hens are the little live gold mines on your farm. They bring you ten times more money, according to their value, trouble and expense, than any live stock you keep, and yet many farmers and poultrymen furnish their stock with water regularly and the hens compelled to go without, and eat snow. How can you expect your hens to lay unless you give them plenty of pure warm water during the winter months and pure cool water during the summer. Our Automatic Non-Freezing, Self-Feeding Poultry Drinking Fountain furnishes fresh warm water for fowls and make them lay during cold weather when eggs bring high price. It takes the chill from the hen house. Costs only about five cents a week for oil. Only warm water fountain made. Water cup fills itself automatically. Water always fresh and pure. Nothing to get out of order. Guaranteed absolutely safe. You have only to keep the water tank and lamp filled. It absolutely cares for itself. The lamp warms the water in the winter and without the use of the lamp the same fountain supplies pure cool water in summer.

Let us send you our Automatic Poultry Fountain, and let you try it for 15 days, and if it is not perfectly satisfactory you can return it to us, and we will not ask you any questions. You don't have to send any cash or make any deposit. You simply tell us to ship you a fountain and that if it is as represented, you will, within 15 days pay for it. Remember, we place our goods in your hands and trust you to either return them or pay at the end of 15 days.

AUTOMATIC HATCHING CO., - Detroit, Mich.
We also manufacture the best Poultry Brooder ever made.



You Can Get More Eggs — And Save Feed Bills —

EVERY atom that hens use in making eggs, comes from the food they eat. They can't get it anywhere else.

That being true, you must, if you expect eggs in abundance, feed foods rich in egg-making materials.

Analysis shows that not only eggs, but the bones, the lean meat and the feathers of fowls are all made up of what the professors call "protein."

Hence, fowls must have protein if they are to give you the best results.

But protein is found only in small quantities in most grains and vegetables, but in large quantities in animal food.

That's why all fowls crave worms and bugs. Instinct teaches them that they need such food.

Of course, they can't catch "the early worm" in winter or when they are yarded, so you must give them this protein in some other form.

The best substitute is fresh-cut, raw, green bones—the trimmings from the meat market, with meat and gristle adhering to them.

In its raw state it contains exactly the same food elements as the worms and bugs. It contains over four times as much protein as grain, and is

rich in lime and other egg-making materials.

That's why fowls like it so well and why it doubles the egg-yield, increases fertility, makes larger hatchings and stronger chicks, develops earlier broilers and layers and makes heavier market fowls—

Because it "balances the ration" by supplying what is most scarce in grains. You can't get the best results without it.

Green bone is easily and quickly prepared, with

MANN'S LATEST MODEL BONE CUTTER

We want you to try this machine. You don't have to buy it—just try it first.

To prove to you what it will do, we will send you any one you may select from our catalogue on

10 Days Free Trial
(No Money in Advance.)

It cuts all bone with all adhering meat and gristle, never clogging and wasting nothing.

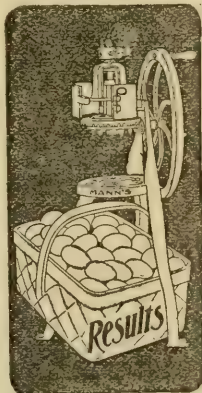
It automatically adapts itself to your strength, so that any one can use it.

It is strong, durable and does not get out of order.

But try it!

Send today for catalogue—select the machine you want to try—we'll do the rest.

**F. W. MANN COMPANY,
Box 37 Milford, Mass.**



**Try This Free
No Money in Advance**

240-EGG \$11.75 Incubator

120 Egg Size, \$9.00
60 Egg Size, \$7.50

Brooders equally low. Not cheap

machines but the famous "Ideal"

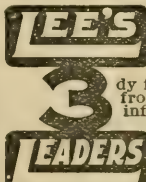
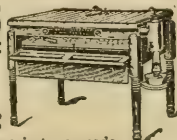
—guaranteed to be the surest and easiest ever made.

Why not save from \$5 to \$10? Get our big 123-page, illustrated

poultry book

FREE.

J.W. Miller Co., Box 48, Freeport, Ill.



Egg Maker—An egg producer—helps hens lay lots of eggs—a profit maker.

Germozone—Best remedy for winter ills—colds, roup, frosted combs, swelled head, inflammation of the throat.

Lice Killer—liquid—kills every louse in the house. No trouble. Free books. Write.
Geo. H. Lee Co., Omaha, Neb.

Hatch and Brood

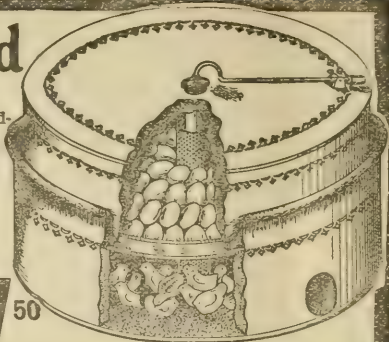
AT SAME TIME

Here's a new thing—a complete hatcher and brooder, one machine that performs both of these operations at the same time and does both well. The

METAL MOTHER Brooder-Hatcher

is a long step ahead of all others—the most remarkable invention in the poultry world. With it 2 qts. of oil hatches 50 eggs and broods the chicks—brood one batch while you make another hatch. Our nest system enables you to do this. A time-saving, labor-saving, oil-saving machine \$7.50 complete for \$7.50. Free catalog—tells how it works. Regular Cycle Hatchers and Brooders at \$5 each are great favorites. Write today.

CYCLE HATCHER CO., BOX 223, ELMIRA, NEW YORK



GET BIGGER HATCHES

Whether you are a beginner or an expert at Poultry Raising, you can secure Bigger Hatches, aided by the patented and exclusive labor saving, automatic features of the Latest Patents

CYPHERS INCUBATORS

can find poultry profit in raising Broilers, Roasters and Capons, and become successful in Chick Rearing and secure profitable results in Egg Farming. Cyphers Incubators and Brooders are in use and recommended by leading Agricultural Experiment Stations the world over.

Our new 24 page Guide to Poultry Profit tells you how to become a successful poultryman.—FREE if you name this paper and send addresses of two acquaintances interested in poultry keeping.

CYPHERS
INCUBATOR
COMPANY

Address nearest Office:
BUFFALO
NEW YORK
BOSTON
CHICAGO
KANSAS CITY
OAKLAND, CAL.



\$5

NO MONEY IN ADVANCE

The "Dandy" is the easiest operated, best built, fastest cutting green bone cutter made. Sold on 15 days free trial with a broad guarantee. If it suits keep it, if not, send it back. Free catalog.

AND UP

Stratton Mfg. Co. Box 54, Erie, Pa.



2 HATCHES FREE

And a 5 Year Guarantee Most liberal offer ever made. Wholesale price in effect for short time. Gem Incubators and Brooders handiest to use. Proven success by thousands. Catalog explains all. Worth dollars to you. Sent free.

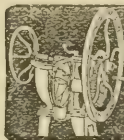
THE GEM INCUBATOR CO., Box 53, Trotwood, Ohio.



Send for free Catalogue.

Hatch Chickens by Steam with the EXCELSIOR INCUBATOR Or WOODEN HEN

Simple, perfect, self-regulating. Hatch every fertile egg. Lowest priced first-class hatches made. GEO. H. STAHL, Quincy, Ill.



MORE EGGS—LESS FEED OPEN HOPPER. Humphrey Green Bone and Vegetable Cutter

will double your egg yield and cut your feed bill in half. Guarant to cut easier and faster than any other. Trial offer and catalogue free. Humphrey, Mine St. Factory, Joliet, Ill.

You Need It.

If you have only a few chickens;
If you are at all interested in poultry;
If you are breeding for fancy points;
If you cater to the market trade;
If you are in the business on large scale, you need

American Poultryman

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts.

AT HALF PRICE for a short time to introduce it to readers of Gleanings. Send 25 cts. and get it a year; or if you send us \$1 for a year's subscription to Gleanings in Bee Culture we will send you American Poultryman for a year free. Address American Poultryman, Dept. 14, Dayton, Ohio.

\$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size 8x 11 1/4 inches) of valuable poultry, pigeon, and pet-stock reading, costing us thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

Poultry Item, Sellersville, Bucks Co., Pennsylvania

POULTRY DISEASES

25c Book Free

Conkey's book on poultry diseases contains just the information you need to keep your flock strong and healthy—and that means to **Get Paying Results**. The regular price of this valuable book is 25c, but we are offering it free for a limited time to those who will send 4 cents for postage and give us the names and addresses of two other poultry raisers. Write for it today.

THE G. E. CONKEY CO., 315 Ottawa Bldg., Cleveland, Ohio.

HOW TO MAKE POULTRY PAY

is the greatest book published on Poultry and is attracting attention. It contains 116 pages also 9 beautiful color plate reproductions from oil paintings. 500 black and white illustrations representing over 90 different breeds.

You can get it FREE.

Address INLAND POULTRY JOURNAL, 15 Cord Bldg, Indianapolis, Ind



A Four-Per-Cent Investment

WITH the money absolutely safe and always available is an ideal disposition of individual savings.

This bank accepts deposits in any amount, and pays four per cent interest—compounded every six months.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system. Write for the booklet to-day.

Assets over One-half Million



MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.



SAVE HALF YOUR FUEL

BY USING THE

Rochester Radiator

Fits any Stove or Furnace.
Guaranteed to do all we claim
or money refunded.
Write for booklet on heating homes.

Rochester Radiator Co.,
50 Furnace St., Rochester, N. Y.

Price from
\$2.00 to
\$12.00

For hard or
soft coal,
wood or gas.

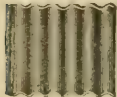
THE BEST LIGHT

The only 100 Candle Power Light that burns its own gas and gives absolute satisfaction during a long life of efficient service.

No Grease, Smoke, Dirt or Odor.
Brighter than electricity or acetylene, cheaper than kerosene over 100 styles. Every lamp warranted. The Best Light Co., 306 E. 5th St., Canton, O.



Steel Roofing, \$1.50 Per 100 Sq. Ft.



New, painted both sides, most durable and economical roof covering for Houses, Barns, Sheds etc. **FREIGHT PAID TO ALL POINTS EAST OF COLORADO**, except Oklahoma, Indian Territory and Texas. Prices to other points on application. At this price, we furnish our No. 15 Flat Sheets, 2 ft. x 2 ft. At \$1.60, we furnish the same in corrugated like illustration. We can also furnish this roofing in 6 ft. and 8 ft. lengths at an advance of 25c per square. Ask for our **FREE Illustrated 500-Page Catalog No. B. F. 688** on Lumber, Roofing, Wire Fencing, Hardware, Furniture, Clothing and General Stocks from 'Sheriff's' and 'Reverend's' Sales. We bought the Fifty Million Dollar St. Louis World's Fair. Chicago House Wrecking Co., 35th & Iron Sts., Chicago.

NEW ZEALAND

IS THE LAND FOR
THE TRAVELLER,
THE HEALTH SEEKER,
THE HOME SEEKER,

A Beautiful Fertile Country Down in the South Seas,
Sixteen Days' Steam from San Francisco.

There is room in New Zealand for Thousands of Settlers. Rich Soil, Temperate Climate, Abundance of Water—THE IDEAL LAND FOR THE FARMER.

A pleasant country winter and summer. No snow-bound winters. No droughts.

As an Agricultural, Meat-raising and Dairying Country, New Zealand has no superior. Its Farm Produce commands the Highest Prices on the world's markets.

Cheap Transit for Farmers' Produce, Government-owned railways.

Government land is obtainable on easy terms; principal form of tenure, long leasehold. Government loans to new settlers at low rate of interest.

Government and municipal ownership of public utilities. Government telegraphs, insurance, savings banks, government trust offices, etc. etc. Government Sanatoria and Hot Mineral Water SPAS.

New Zealand's death rate is the LOWEST in the world. Its wealth per head of population is the HIGHEST in the world.

A country of strange and beautiful scenery. Marvelous geysers, Hot Lakes. Lovely Rivers. Magnificent Mountain Lakes. Grand Alpine Scenery. A splendid resort for Americans who wish to escape the winter of North America.

When it is Winter in the United States it is Summer in New Zealand. Summer-time is cool and pleasant for travel in New Zealand.

Excellent trout fishing and deer stalking. New Zealand's fishing waters, thousands of miles in extent, carry the largest trout known to anglers.

NOW is the time to visit this new and interesting country. The New Zealand International Exhibition, in the city of Christchurch, is now open, and will remain open until April, 1907. Good hotels. Cheap Transportation Rates.

Mail steamers from San Francisco to Auckland, New Zealand, every three weeks.

Write for information and free literature concerning the Colony. Address **T. E. DONNE**, Superintendent Government Department of Tourist and Health Resorts, Wellington, New Zealand.

High Grade Door ONLY 80c

2-0 x 6-0, All White Pine. Regular Price, \$2.00.



If you have any use for doors, windows, screen sash, moulding, porch brackets, columns and millwork, for your own buildings, or as contractor, don't buy elsewhere at any price or under any circumstances until you get the Grand Millwork Catalog which makes a clean saving of 60% on any dealer's prices. It makes no difference where you live. If you intend to build, or if you need millwork for any purpose, do not think of buying until you get our estimate. Our goods are high grade as well as wonderfully low in price. Our lumber is first air-dried and then, as an extra precaution, is put through a scientific drying process. Joints are made with heavy hardwood dowel pins, glued with imported glue, pressed together by heavy steam power press. There is no "come apart" to our work.

Door panels have a heavy raise on both sides. The panels are sandpapered on a special machine of our own invention before the door is put together, and the entire is then smoothed with fine-grained sandpaper. We guarantee our goods to be strictly up to the official grade adopted by the Sash, Door & Blind Manufacturers' Association of the Northwest.

We operate the largest mill in the world—163,000 feet of floor space, four acres—have been in business since 1885—own our timber land, sawmills and lumber yards. We carry a large stock and can therefore ship promptly. We have no traveling men—sell only for cash. We are the only large manufacturers of sash, doors and blinds selling direct to the consumer. Our prices will astonish you. Don't buy anything in our line until you get our catalog, the grandest woodwork catalog published. It's Free—write for it today. Address

CORDON VAN TINE & CO.
Station 4d3 Davenport, Iowa

9th Year of Success. THE "SUN" OUTSHINES THEM ALL.
Makes its own gas. No greasy wicks; no smoky chimneys; no odor; no bother.

The SUN

**INCANDESCENT
HYDRO-CARBON LAMP**

Strong, brilliant light, indispensable to all who use the eyes. Conforms to insurance underwriters' rules. Get up and get it at a discount. Liberal commission to agents. Get catalog.
SUN VAPOR LIGHT CO., BOX 111, CANTON, OHIO.
Licensee of the Campbell patent.

Order Now for Future Delivery The Only Way to be Sure of Getting a Detroit Tongueless Disc Harrow When You Want It

This is to notify farmers everywhere that we are now accepting orders on our Celebrated Detroit Tongueless Disc Harrow for future delivery. And that this is the only way we guarantee to make shipment of Harrows at the time they are wanted.

The Detroit Tongueless Disc Harrow (the only original patented Tongueless Disc)

Let Us Quote You a Special Price on the Detroit Tongueless Disc Harrow

We sell direct to the user. We'll save you all the middleman's profits.

Our Harrows are not for sale by Dealers anywhere. Be sure to remember that. No dealer can sell you a Detroit Tongueless Disc Harrow.

We Allow 30 Days Field Test FREE

on every Harrow to prove that they are exactly as represented.

We pay all freight to your station.

Write at once for our FREE book and other valuable information.

Let us quote you a price on this Harrow.

We give extra dating on advance orders.

The DETROIT TONGUELESS Disc Harrow is the most valuable improvement of the age

sold like wild fire everywhere last year—it's first year on the market. So much so that we were returning orders every day, unable to supply enough machines.

Indications are that we will have even a bigger trade this year, and that we will have to refuse many orders in the rush of the season.

But—to all who send us advance orders we guarantee to make shipment at time requested, until further notice.

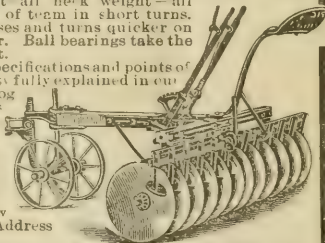
in an agricultural implement.

Front truck takes the weight of frame and controls movement of harrow. Double levers make easy handling.

Doing away with the Tongue does away with all side draft—all neck weight—all crowding of team in short turns. Saves horses and turns quicker on the corner. Ball bearings take the end thrust.

Other specifications and points of superiority fully explained in our free catalog.

Write us a postal to day and get full information in regard to this wonderful new Harrow. Address



American Harrow Co., 4643 Hastings St., Detroit, Mich.

COILED SPRING



FENCE

Closely Woven. Can not Sag. Every wire and every twist is a brace to all other wires and twists full height of the fence. Horse-high, Bull-strong, Pig-tight. Every rod guaranteed **30 DAYS FREE TRIAL** and sold direct to farmer, freight prepaid, at lowest factory price. Our Catalogue tells how Wire is made—how it is galvanized—why some is good and some is bad. Its brimful of fence facts. You should have this information. Write for it today. Its Free **KITSELMAN BROS.,** Box 21 MUNCIE, INDIANA.

PATENTS

No attorney's fee until patent is allowed. Write for "Inventor's Guide."

FRANKLIN H. ROUGH, Atlantic Bldg., Washington, D.C.

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"



The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers Pump. Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro., Ashland, Ohio.



"If Goods are wanted quick, send to"

Established 1889

Bee-Keepers' Supplies

Distributor of Root's Goods from the best shipping-point in the Country. My prices are at all times identical with those of The A. I. Root Company, and I can save you money by way of transportation charges.

Special Notice!

During this month (December) I am offering a special discount of four (4) per cent for cash orders for Bee-supplies for next season's use. After January 1st the discount will be 3 per cent.

New Metal-spaced
Hoffman Frames
are Here in Stock



Headquarters for the
Danzenbaker
Hive

**Dovetailed Hives, Section Honey-boxes,
Weed-process Comb Foundation,
Honey and Wax Extractors, Bee-smokers,
Bee-veils, Pouder Honey-jars, and,
in fact, Every Thing used by Bee-keepers.**

BEESWAX WANTED!

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight. Always be sure to attach name to package.

If you wish to secure finest grades of Honey with which to supply your neighbors, write for my market Quotations of the Indianapolis honey market, free.

Catalog Free

Walter S. Pouder
513-5 Massachusetts Av., Indianapolis, Ind.

Root's Goods

Stand for

Reliability

Uniform excellence
. always maintained.

Popularity

Everywhere in high favor.

Quality

Material and workman-
. ship unexcelled.



In Other Words-----It's Root Quality



We Sell the Root
Quality Goods in
MICHIGAN



Write for prices and discount on
your list of goods for the
coming season.

“Where Quality Counts, We Win.”

M. H. HUNT & SON

Bell Branch, Wayne Co., Michigan

8 per cent Discount During December!

In order to liven up business during the dull months we will give eight per cent off all supplies, in the catalog, wholesale or retail, during December for goods for next year.

Jobbers for

Central : Pennsylvania
— for —

ROOT'S GOODS

Now's the time to save money on goods for next season. Send for catalog. Best shipping facilities in the State.



Frank W. Prothero
Dubois, : : : Pennsylvania

Dittmer's Foundation

is the best foundation for you to use because it is tough, transparent, will not sag, and has the odor of pure beeswax.



Working Wax for
Cash a Specialty

This is the cheapest way for you to secure your foundation



Beeswax Always Wanted!



Our warehouse is well filled with all kinds of bee-keepers' supplies. Four per cent discount during December.



Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

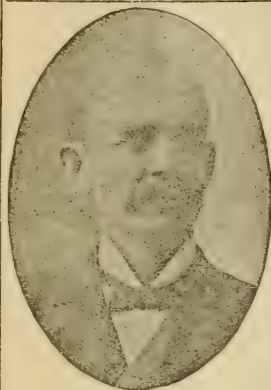
We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

Kretschmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trester Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.



Established 1881

YES!

Same Place 1906

THIS IS THE MAN WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year. ♡ ♡ ♡ ♡ ♡

Geo. E. Hilton, - Fremont, Mich.

SPECIAL BARGAINS

In dovetailed **HIVES**, plain and beeway **SECTIONS**, Hoffman **BROOD-FRAMES**,
Section-holders, Separators, etc.

We are enlarging our **FACTORY**, and all of these goods have to be moved. If you want any thing in your apiary, you will do well by writing us at once, and we will make you **DELIVERED PRICES** that will surprise you. Our stock is all new and up-to-date. We do not keep poor or second-grade goods. Our sizes are standard. Quality and finish can not be surpassed by any one. We make any thing used in the apiary, and can save you money and delay at any time of the season. Give us a trial and be convinced. We aim to please our customers, and guarantee all our goods to give entire satisfaction or refund the money.

MINNESOTA BEE-KEEPERS SUPPLY COMPANY,
NICOLETT ISLAND NO. 20. John Doll & Son, Proprietors. **MINNEAPOLIS, MINN.**

BEE - SUPPLIES

Best of every thing needed.
Big Discount from now to
April 1st. Catalog free.

C. M. Scott & Co., Indianapolis, Ind.
1004 East Washington Street

PATENTS.

Twenty-five Years' Practice.

PRINDLE & WILLIAMSON,

Second Nat'l Bank Bldg., Washington, D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.

BINGHAM

• Original
Direct Draft
CLEAN
Bee Smokers



Pat'd 1878, '92, '93 & 1903

Long Advertising

Twenty-seven years ago the first patent bee-smoker surprised bee-keepers. The Bingham Smoker patented improvements are dated 1878, 1882, 1892, and 1903. They always please; they always sell. For October orders we discount 6 per cent; any number, any size, delivered any time.

T. F. Bingham - **Farwell, Mich.**

North Texas . .

. . Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of **ROOT'S GOODS IN STOCK**, and sell them at the Factory Prices. Don't forget that we can furnish anything in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1906 free on application. Mention **GLEANINGS** when you write.

Texas Seed

and : Floral : Company
Dallas, : : : : Texas

Swarthmore Books!

BABY NUCLEI (2d ed.)—The second edition of this popular treatise is off the press. This book thoroughly covers the field of small mating under management. The experience of twenty years in mating young queens in baby nuclei is given. A delightful little book—good printing, enjoyable reading, and easy understanding. Price 25 cts. postpaid.

SIMPLIFIED QUEEN-REARING.—A revised edition of this book just out. It tells the honey-producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just an effective and economical plan for the bee-keeper who works for profit. Price 25 cts. postpaid.

INCREASE.—Don't depend entirely upon swarming for your increase. It's too slow and uncertain. Swarthmore tells of a way in his delightful little book entitled "Increase"—a natural way, simple and safe, no labor, little trouble. Colonies formed on this plan will work like prime swarms, and store a surplus. Price 25 cts. a copy postpaid.

CELL-GETTING.—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life. Price, postpaid, 50 cts.

SWARTHMORE QUEEN-REARING TOOLS.—Complete outfits or separate parts. Write for price list.

FOR SALE BY

The A. I. Root Company

ALL BRANCHES AND AGENCIES

HONEY-JARS

No. 25, with burnished cap, heavy clear glass, per gross, \$5.00; 3 gross, \$13.50.
11-ounce nickel-cap jar, gross, \$4.00; 3 gross, \$11.00.
1-lb. square jar with cork, gross, \$5.00.
Heavy cartons, \$5.50 per M.
Italian queens, 75c. Catalog free.

I. J. Stringham

105 Park Place, N. Y. City

Apiaries at Glen Cove, L. I.

Northeastern and New England BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

When a Thing Needs Doing

NO is the time to do it. How about those worthless queens? Will you tolerate them for another season, when the best of stock can be obtained so readily? Laws' bees and queens are bringing the best of reports. I could fill many pages of testimonials, but give you only one. Mr. T. P. Robinson, of Bartlett Texas, says:

"Dear Sir.—The car of bees shipped June 20th are now all safely landed, and I have overhauled the entire lot. The bees are from 25 to 40 per cent better than contract, and you ought to hear my wife's exclamations of delight at seeing those fine yellow bees so quietly nestle between the combs at the very approach of smoke. I can certainly recommend you."

Leather and Golden Italians, Holy Lands, and Carniolans—single queen, \$1.00; six for \$5.00. Quantity lots, prices on application.

I also manufacture the Hoffman frames, both new and old style, at \$16.00 per M; single-story eight frame hive complete, 75c; 1½-story for extractor, \$1.00. Price list on application.

W. H. Laws, Beeville, Bee Co., Tex.

Queens from 50 Cents Up!

Bred from Root's Imported Italians.
Write for prices, stating wants.

C. M. Church, Arnold, Pa.

Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest one-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements.

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and
only Reliable goods sold. 10 cents brings
sample jar by mail.

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy-Lands, Italians.

The JENNIE ATCHLEY CO.,

Box 18, Beeville, Bee Co., Tex

Yellow from Tip to Tip!!!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce Golden queens and beautiful bees; non-swarmlers, very gentle, and hustlers for honey. Single queen, \$1.00; three queens, \$2.50; six, \$4.50, or \$8.00 per dozen. Large select breeding queen, \$2.00 each. Every thing guaranteed.

H. ALLEY, - - Wenham, Mass.

Boston Headquarters

— FOR —

Bees-Queens-Supplies

H. H. Jepson, - 182 Friend St.

A. H. REEVES & CO.

DISTRIBUTORS OF

"ROOT'S QUALITY" BEE-SUPPLIES

Cash paid for beeswax. Send for
catalog and price list.

17 Morrison Street, Watertown, New York
Phone 1296

TRAINLOAD OF BEE SUPPLIES
ENROUTE TO
A. G. WOODMAN CO.
GRAND RAPIDS, MICH.

SEND US LIST OF GOODS WANTED AND LET US QUOTE PRICES

LOW PRICES ON BEE HIVES WRITE US

G. B. LEWIS CO., DARTMOUTH & SONS, CHICAGO

Fire Sale Bee and Poultry Supplies

Come or send, and save 25 to 50 per cent on slightly damaged goods. NEW LEWIS GOODS at factory prices by return freight. Honey and beeswax wanted. State lowest price and particulars.

Honey in 5 gal. cans for sale.

Four per cent Discount for December Orders

H. M. Arnd, Propr. York Honey & Bee Supply Co. (Not Inc.)

Long Distance Telephone, North 1559.

191 and 193 Superior St., Chicago, Ills

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Help Wanted.

WANTED.—To correspond with a young man who wishes to work on fruit and bee ranch next April.
F. G. GAUSE, Jolon, Monterey Co., Cal.

WANTED.—Manager for small-fruit and poultry farm of 30 acres. Must understand fruit, poultry, underdraining, etc. State salary expected, age, experience, references, etc.
Box A, GLEANINGS.

WANTED.—A man who wants a permanent position to do all kinds of work on a small farm, to help with bees and an extensive honey business. Write wages wanted, and particulars.
H. C. AHLERS,
Tel. 829, ring 4. R. F. D. 1, West Bend, Wis.

For Sale.

FOR SALE.—4000 ferrets; some trained. Prices and book mailed free.
N. A. KNAPP, Rochester, Ohio.

FOR SALE.—Smith Premier, Hammond, and Oliver typewriters. Prices from \$25 up. Will exchange for wax or honey.
THE A. I. ROOT CO., Medina, O.

FOR SALE.—100-egg "Old Trusty" incubator and two brooders, used but little; good condition.
W. H. LEWIS, Dry Ridge, Ky.

FOR SALE.—Fine O. I. C. pigs; the famous L. B. Silver strain; pedigree free.
WM. H. BRUBAKER, Briggs, Clarke Co., Va.

FOR SALE.—Scotch Collies. The most beautiful and intelligent of all dogs. Blue-blooded puppies from champion prize-winning stock. Pedigree and photos on application. Address
M. G. VIGLINI, Route 20, St. Matthews, Ky.

FOR SALE.—Sixty-pound honey-cans, used but once, emptied without steam or water being used, therefore perfectly clean and bright. Price, ten-cash lots or more, 35 cts. per case of two.
E. R. PAHL & Co.,
Honey Dealers, Milwaukee, Wis.

FOR SALE.—In Baker County, Oregon (north half of Sec. 3), 13 miles from Baker, 323 acres of pine with some fir. There are estimated to be 4,250,000 feet of lumber. Good wagon-road leading to the property. A snap for somebody, as \$3500 will secure it, or \$1800 for half.
F. J. ROOT, 90 W. B'dway, New York.

FOR SALE.—One Stevens rifle (25-25) and reloading tools. \$20; one violin, \$15; one chest of carpenter tools, all new, cost \$82, will take \$60; ten stands of bees and eight empty ten-frame hives, for \$35 at the yard.
CHAS. S. KINZIE,
416 Indiana Ave., Riverside, Cal.

FOR SALE.—Will sell my valuable ten acres of fruit and truck farm for one-half what it is really worth. One mile to center of good town of 7000; best market known for fruit, truck, and honey. Write for price and description. Great bargain here.
J. B. DOUGLAS, Mena, Arkansas.

FOR SALE.—I offer for sale my 40-barrel water-power roller mill with established trade; double circular saw-mill; stone dam; stone-quarry; good 10-room house, with hot water and bath room; good barn and carriage house; 16 acres of land; 5000-bushel elevator. This property is situated at the head of the Little Miami River, with 25-foot fall, located at Clifton, Greene Co., Ohio, 8 miles south of Springfield. For further particulars call on address
G. H. ARMSTRONG, Clifton, Ohio.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to
FRANK S. STEPHENS,
Paden City, W. Va.

FOR SALE.—Till Jan. 1, best Wisconsin sections per 1000, \$4.00; No. 2, \$3.40; plain, 25c less. Big discount on Danz. hives and other Root's goods; also berry-boxes.
H. S. DUBY, St. Anne, Ill.

FOR SALE.—A Florida home is offered cheap, owing to old age and infirmities. Six acres of land, all cleared, and fronting on a fine lake. A good two-story house on cement foundations; a few bearing orange-trees and grape-fruit, guavas, and grapes in great abundance. A good chance for a bee-man. Twelve stands of bees in frame hives, on cement and iron. An excellent honey-extractor; ¼ mile to church and school; ½ mile to store and postoffice. Call on or write to me.
J. A. BARBER, Chuluota, Orange Co., Fla.

Bees and Queens.

FOR SALE.—400 colonies pure Italian bees in lots to suit. Write for prices.
F. A. GRAY,
Redwood Falls, Minn.

FOR SALE.—Twenty-five colonies of bees, all good strong swarms in new hives, with straight combs; will sell cheap.
JOS. BALDWIN, Sandy Creek, N. Y.

FOR SALE.—Two apiaries—one of 100 stands of bees close to Pomona, Cal., and the other containing 150 stands near Etiwanda, Cal. Will sell both or either one. For particulars address, enclosing stamp,
M. R. KUEHNE, 263 East 3d St., Pomona, Cal.

Poultry Offers.

FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free.
A. H. DUFF, Larned, Kan.

FOR SALE.—Closing out. Buff Wyandottes, White Rocks, and Pekin ducks, \$1.00; 52 poultry electro-types that cost \$25.00, for \$13.50 cash.
ORVIL KIGER, Burlington, Ia.

FOR SALE.—Barred Plymouth Rock cockerels and one cock, bought at New York show last winter. Fine birds bred from good laying strain.
EDWARD TRENT, Butler, N. J.

Wants and Exchange.

WANTED.—Early American and foreign books on bee-keeping.
A. L. BOYDEN, Medina, Ohio.

WANTED.—A location for a custom feed and saw-mill.
4432 South Grand Ave., St. Louis, Mo.

WANTED.—To exchange modern firearms for incubators and bone-mills. Address
4432 South Grand Ave., St. Louis, Mo.

WANTED.—Bee supplies in exchange for 300 colonies bees. Ad. elsewhere. Manufacturers write if interested.
LEO F. HANEGAN, Glenwood, Wis.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—Australasian readers to know that Root's publications, Root's strain of Italian bees, and Root's world-famed goods are all obtainable from
H. L. JONES, Goodna, Queensland, Australia.

The New Food Law Takes Effect January 1, 1907

BEE-KEEPERS, BEWARE!

EVEN that gathered from your own bees is not sure to pass inspection if it is near a city, or honey-dew localities, or you feed your bees syrup in the fall. I will analyze your honey at the following rates:

\$3.00 for a single sample.
\$5.00 for two samples.

I will also sell fine basswood and clover mixed, two 60-pound cans to the case, at 9½ cts. per pound. My bottled honey, trade-marked "Blossom Nectar," packed two dozen in a case:

Large size..... 25c retail; \$2.50 per doz.
Medium size..... 15c " 1.35 " "

Lunch 10c " .90 "

Quantity price given on application.

A written guarantee and certificate of analysis with every purchase.

Wm A. Selser

Philadelphia :: Pennsylvania
8 Vine Street

A Sewing-machine Would Be A Practical Gift.

If you, dear sir, believe in being practical in all things, even in the matter of Christmas gifts, why not present to your wife a new Sewing-machine? We sell, with the positive guarantee that it is the best low-priced machine on the market, a machine, by name,

The Clarendon With Automatic Drop-head. **\$22.50.**
With Regular Head . . . **\$14.75.**

Built of good quality oak with high front, four side and one center drawer. The sewing head is of good size, fitted with Automatic Bobbin-winder, Stitch-regulator for throwing machine out of gear, Improved Spring-tension, Double Positive-feed and Self-threading Shuttle.

The attachments consist of Ruffler, Tucker, Braider, Binder, Feller, four Hemmers, Cloth-guide, and all necessary accessories.

Compare these prices with those offered by ordinary machine agents, and remember, if you please, that our machine is guaranteed for 10 years.

Every one of the 80 departments making up this establishment is ready for Christmas. Write our Mail-order Department for any thing that you require.

Joseph Horne Co., Pittsburg, Pa.



LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address **COILED SPRING FENCE CO., Box 448 Winchester, Ind.**

Make More Money on Fruit Crops

Everyone who grows fruit, whether a large commercial grower, or one who has only a few fruit trees, a berry patch or a garden, should be interested in knowing how to get the most profit from his crops.

THE FRUIT-GROWER

ST. JOSEPH, MISSOURI

is the only magazine in America which is devoted exclusively to the interest of those who grow fruit. It is handsomely illustrated, and contains from 35 to 75 pages each month. It tells all about fruit of all kinds—and nothing but fruit—how to market, how to pack, fertilize, spray, prune, how to MAKE MONEY from your crops. Sample copy sent free. Regular price is a dollar a year, and each subscriber is entitled to a choice of any one of our series of ten Brother Jonathan Fruit Books—the best in existence.



Three Months Free

We are so confident The Fruit-Grower will please you that we will send it to you three months absolutely free! If, after three months, you like the paper, we will make you a special offer for twelve months more. If you don't like it, notify us and we will take your name off the list. The three months will cost you nothing. We offer cash prizes for new subscribers—write for particulars. Write your name and address in blanks below; mail to **The Fruit-Grower Co., Box 10, St. Joseph, Mo.**

I accept your FREE three month's trial offer. At end of three months I will either pay for a year's subscription or notify you to stop paper. In either event there is to be NO charge for the three month's trial.

Name _____

Route or P. O. Box No. _____

Town _____ State _____

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it six months on trial. Sample free.

The Southern Fruit Grower, Box 1, Chattanooga, Tenn.

Convention Notices.

We have just decided to hold the Michigan State bee-keepers' convention, Dec. 25 and 26, at Big Rapids. There will be reduced rates on the railroads at that time. Particulars will be given in Dec. 15th GLEANINGS.

W. Z. HUTCHINSON.

The eighteenth annual meeting of the Minnesota Bee-keepers' Association will be held in Minneapolis, at the same time that the Minnesota State Horticultural Society will hold its exhibition of fruit. The sessions will be held Wednesday, Thursday, and Friday, December 5, 6, and 7, 1906, in the First Unitarian Church, Corner of Eighth Street and Mary Place. It is believed that our program will prove to be a helpful one, and a cordial invitation is extended to all bee-keepers to attend.

CHAS. D. BLAKER, Sec.

THE BIGGLE POULTRY BOOK

Farm Journal



is the leading farm paper in America, with more subscribers than any other farm paper in the world. It is a monthly, thirty years young, taken and appreciated everywhere, from Maine to California. Thousands in your state already take it. Your neighbor knows all about it. It is full of sunshine and gumption, is edited by practical farmers who know whereof they write. It has no ax to grind, prints no long-winded articles by theoretical specialists, but aims to give in season, and just when wanted, advice and timely help such as you, a busy farmer, need. **Farm Journal** has departments for the stockraiser, the orchardist, the dairyman, the trucker, the general farmer, the poultryman and the women folks, with many short cuts, recipes and hints, many of which, our readers often write, are worth the cost of the paper. **Farm Journal** is 75 cents for five years, sixty numbers.

Biggle Poultry Book

More copies of Biggle Poultry Book have been sold than any similar book ever published. We have no hesitation in saying it is the most up-to-date, helpful poultry book ever written. It is concise, practical and to the point. Tells the whole story from the egg to the roasting pan. Seventeen chapters, sixteen colored plates, each printed in ten colors, showing birds true to life. Over one hundred other illustrations. Printed on enamel paper, bound in cloth. A novice can take Biggle Poultry Book and succeed in the business, and an expert will find lots in it that will be helpful to him. Price, by mail, 50 cents.

There are eight other Biggle Books, one each on the Horse, Cow, Hog, Sheep, Health, Pets, Orchard and Berries. All built on the same plan as the Poultry Book, and bound uniformly with it. Price of each, 50 cents. So popular are the Biggle Books that over 175,000 have already been sold. Nothing nicer for a Christmas gift.

The Roosevelt Family Calendar

is a high art calendar for the year 1907, showing a family group of President and Mrs. Roosevelt and their six children. It contains no advertising matter whatever, but it is a beautiful and artistic production, such as anyone will be glad to hang in parlor, sittingroom or office, and preserve forever as a historic souvenir. Or it will make a valued, attractive Christmas gift for some relative or friend.

For **\$1 Farm Journal** for 5 years, (60 issues) and Biggle Poultry Book and include the Roosevelt Family Calendar, if your order is received before Jan. 1st. (Any other of the Biggle Books may be substituted for the Poultry Book.) Safe delivery of Book and calendar guaranteed.

For **\$1 Farm Journal** to one address for 10 years, or to two addresses for 5 years each, provided at least one of these subscriptions is a new one; if both are new so much the better. A Roosevelt Family Calendar as a free gift for promptness to each subscriber if subscriptions are received by Jan. 1st.

For 25 cents **Farm Journal** on trial two full years, and a copy of the Roosevelt Family Calendar. This offer for new subscribers. Calendar offer is good only to Jan. 1st. Send coin or stamps at once; your money back gladly if not satisfied with any of these offers. Agents wanted on salary.

FARM JOURNAL, 1057 Race Street, Philadelphia, Pa.

A New Factory

and also a new firm name,
but in the same place with
the same management. We
have just put in a complete

Weed Process Comb Foundation Factory

of the very latest type, and
we are now ready to work
up wax for western bee-
keepers at low prices. . . .
We want several thousand
pounds of beeswax at once,
and will pay top market
price for same. Let us hear
from any one having wax
to offer.

Buck & Wilson, Augusta, Kan.

Butler County

Y
O
U

C
A
N

M
A
K
E

I
T

P
A
Y

By sending for our
forty-page catalog.
It gives full partic-
ulars about scores
of different hive-
combinations and
other supplies that
we always keep in
stock. We have
handled

ROOT'S GOODS
for twenty years.
They are the best.
Don't fail to write
us about your
wants for next
season's use.

**John Nebel & Son
Supply : Company**

High Hill, Missouri
Montgomery : County

MR. TEXAS BEE-KEEPER

I would like to talk to you *personally*.

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's *better* in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you supplies with the utmost promptness.

Then, too, I have installed a complete Weed-Process Foundation factory. I can turn out 500-lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when at San Antonio. You are *always* welcome. I have fitted up my office with plenty of desks and chairs, with writing material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein - San Antonio, Texas

1322 South Flores Street

Gloves for Handling Bees

Something New. Something You Want.

Our specially prepared Gloves soften the hands, and prevent and cure chapped hands. The fabric contains a preparation which prevents the gloves from becoming hard and stiff. We furnish them without armlets or sleeves for using in sweeping, gardening, or general housework, driving, or outdoor work. They are just the thing for driving in the rain, as they are absolutely waterproof. If worn at night they keep the hands soft and white. All their points of excellence can not be here enumerated, but they never fail to give the greatest satisfaction. To introduce them, we will send by mail or with other goods at the following low prices:

Bee-gloves—long arms, fleece-lined in two sizes—large for men, small for ladies.....	35 cents
Men's gauntlets, fleece lined	35 cents
Ladies' gauntlets, fleece lined.....	35 cents
Ladies' unlined for wearing at night or doing light housework.....	40 cents

Early-order discounts on bee-supplies (excepting above and a few other articles) as follows:
 4% for cash with order before January 1st 3% for cash with order before February 1st

If you haven't our 1906 catalog send for one and a free copy of The American Bee-keeper (50c a year).

The W. T. Falconer Manufacturing Co., Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 124 West Liberty St., Savannah, Ga.

Dadant's Foundation

We guarantee it absolutely satisfactory every way.

Ask any dealer who handles our make along with any other, and he will say, "Of course, Dadant's is the best." Ask a bee-keeper who has used our make and he will tell you the same thing. WHY? Because we make the manufacture of foundation our SPECIALTY. We devote our time and energies to making THE VERY BEST COMB FOUNDATION that CAN BE MADE.

It will cost you no more than any other make. Send for free catalog and prices. Early-order discounts on all kinds of goods for the bee-keeper now.

We work beeswax into foundation.

We buy beeswax at all times.

Prices sent on application.

Dadant & Sons, Hamilton, Ills.

Root Goods

for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

Jos. Nysewander, Des Moines, Iowa

565, 567 West Seventh Street

VOL. 34

NO. 24

GLEANINGS

BEE CULTURE

DECEMBER 15, 1906



*Home, sweet home of the busy and the blest!
Sleep, beloved, sleep; well earned thy rest.
Winter hovers, bringing slumber and repose:
Thou art almighty—awaken with the rose*

SPECIAL

CHRISTMAS

NUMBER

BEE-KEEPERS

We carry the largest stock of goods in the Middle West. The low freight rates from

Toledo

will save you money. We will buy your HONEY and beeswax, and pay highest market price. It will pay you to correspond with us when your crop is ready to market. No shipment is too large for us. Carloads a specialty.

Queens! Queens!

We have a yard at Toledo with 100 colonies and over, which we use for queen-rearing only; besides several out-yards which we run for honey, also for extra bees and brood, and queens are mailed same day order is received.

Our 70-page Catalog

is sent free to any one asking for it. No matter whether you keep one colony or five hundred. We also handle a large line of poultry supplies, and sell eggs for hatching. Our 1906 mailing list is sent with every catalog. Don't buy until you have seen it.

Griggs Brothers

523 Monroe St. : Toledo, Ohio

European Bee-keepers!

Save Time and Expense

by sending direct all your orders and correspondence to our exclusive agent for the European continent and its colonies. . .

EMILE BONDONNEAU

142 FAUBOURG - ST. DENIS, PARIS

Prompt Service
and Satisfaction
Guaranteed. . .

The A. I. Root Company

CENTRAL AND NORTHERN PENNSYLVANIA

Distributor of Root's Goods from the
Best Shipping - point in this State.
WHOLESALE - AND - RETAIL

I sell at catalog prices, and, with the low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also rear Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

E. E. PRESSLER, WILLIAMSPORT, PENN.

Headquarters for

Bee - Supplies.

"Root's Goods at Root's Factory Prices."

If you want to purchase bee-supplies, THE BEST MADE, order from Cincinnati, as you will save the freight charges and time it takes for goods to be shipped from Medina to Cincinnati. Cincinnati is one of the best shipping-points, particularly for the South. I keep all the time a large stock on hand and can ship promptly on receipt of order.

A Special Discount  
   **on Early Orders**

Will buy or sell **HONEY** extracted or comb

If you have honey to sell describe quality or mail sample with lowest price delivered Cincinnati. If in need, state quality and quantity wanted and we will cheerfully quote you prices.

Beeswax Wanted!

We all the time pay highest market price on delivery of goods.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
 Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Markets.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain, or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CINCINNATI.—The honey market is in a healthy condition, particularly extracted honey, the demand being better than one year ago. This is probably due to the excitement among those holders who are trying to inflate prices. Quote amber extracted honey in barrels at 6 to 7, according to the quality; fancy table honey in barrels and 60-lb. cans, 8 to 9. The demand for comb honey has decreased somewhat, owing to the season of the year, when the sale of that article suffers. Offer fancy white comb honey in a wholesale way at 15 to 16. The above are our selling prices. For choice yellow beeswax we are paying 30 delivered here.

Dec. 7.

THE FRED W. MUTH CO.,
51 Walnut St.

TOLEDO.—The market on comb honey remains firm. Prices have not advanced any to speak of. Fancy brings 16; extra fancy, 17; No. 1, 15. The demands are equal to the receipts. Extracted honey in barrels brings 6½ to 7; cans, the same. Very little is offered, and stock seems to be well cleaned up. Beeswax is more plentiful, and brings 27 cash, 28 trade. The weather is now getting cold, and we do not look for very many offers on comb honey.

Dec. 8.

THE GRIGGS BROS. & NICHOLS CO.

CINCINNATI.—The market on comb honey seems to be a little quiet. No. 1 sells wholesale for 14½; retail by the case, 16 per lb.; extracted, firm; light amber, in barrels, 6; in cans, 7. White-clover extracted, 8½ per lb. Beeswax, 30.

Dec. 8.

C. H. W. WEBER,
2146-2148 Central Av.

ZANESVILLE.—The demand for honey is a little lighter than at time of last report. Ruling prices about \$4 for fancy white comb and \$3.75 for No. 1 in 24-section cases. There is not the demand for either comb or extracted that would naturally be expected at this season. For beeswax, jobbers are paying 27 to 30.

Dec. 10.

E. W. PIERCE, 136 W. Main St.

Honey and Wax Wanted and For Sale. See Classified Ads. on pages 1614-'15.

CHICAGO.—There is the usual dullness in the honey trade at this time, owing to most of the retailers having stocked up sufficiently to carry them over the holidays; but the stocks in the hand of the trade generally are below the normal, hence prices are firm at 15 to 16 for No. 1 fancy; white comb honey, with off grades, 1 to 2c less; amber grades dull at 10 to 12; extracted white, firm at 8 for clover and basswood; ambers 6½ to 7½. Beeswax, 30. R. A. BURNETT,
199 So. Water St.

Dec. 7.

ST. LOUIS.—The receipts of comb honey have not increased sufficiently to meet the urgent demand for the article. The market is very firm for fancy white comb at 16c; No. 1 at 15c; light amber 14 to 15c; broken and inferior less. Extracted honey is not as scarce as the comb honey, but there is a good demand for light amber California at 7 to 7½c; Spanish-needle at 7½c. The receipts are also very small, especially of white-clover honey. Barrel honey is in good demand at 5½ to 6c for choice Southern. Beeswax firm at 29½ to 30c. All impure and inferior less. R. HARTMAN & Co.,
14 So. Second St., St. Louis, Mo.

Dec. 8.

BUFFALO.—Comb honey is selling slow here. Prices are steady, but will be easy soon if demand does not improve. Buckwheat and mixed moving slower than white. Fancy white comb, 15 to 16; A No. 1 white comb, 15 to 16; No. 1 white comb, 14 to 15; No. 2 white comb, 12 to 13; No. 1 buckwheat, 11 to 12; No. 2 buckwheat, 10 to 11; No. 1 white extracted, 7 to 8; amber extracted, 6 to 6¼; dark extracted, 6 to 6½.

Dec. 10.

W. C. TOWNSEND.

NEW YORK.—Comb honey in good demand, and No. 1 and fancy white stock seems to be pretty well exhausted. Buckwheat in sufficient supply, also off grades of white, to meet all demands, but there is no overstock as yet. We quote fancy white at 15; No. 1 at 13 to 14; No. 2 at 12; buckwheat and amber at 11, according to quality and style of package. Extracted firm at unchanged prices. California white sage, 8c; light amber at 7 to 7½; buckwheat, 6 to 6½. Beeswax steady at 30.

Dec. 8.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

SCHENECTADY.—As is usually the case, the holiday trade has set in and the demand for honey has fallen off at once. However, the stock on hand is not as large as usual at this time of year, and prices are not apt to advance with a decreasing demand. We quote same as in last issue. We have call for 60-lb. cans, extracted, both light and dark.

Dec. 10.

CHAS. MACCULLOCH.

KANSAS CITY.—The demand for comb and extracted honey is good, receipts light. We quote fancy white comb, 24 sections, per case, \$3.25; No. 1 white comb, 24 sections, per case, \$3.00; No. 2 white comb and amber, 24 sections, per case, \$2.75; extracted white per lb., 7 to 7½; extracted amber, 6½ to 7. Beeswax, 27.

Dec. 6.

C. C. CLEMONS & Co.

To Our Friends and Patrons:

We wish you Merry Christmas and a Happy and Prosperous New Year.

The Fred W. Muth Co., Cincinnati.

Line-bred Three-banded ITALIAN : QUEENS

Mated to Select Drones

I have spared neither time nor expense to have the finest honey-gatherers in existence. I guarantee safe arrival, satisfaction, and superior honey-gatherers.
W. M. Parrish, Rt. 8, Lawrence, Ks.

Brazos Valley Apiary

will sell you as good Italian queens or nuclei or full colonies of bees at reasonable prices. We have the best stock. No better. We also keep bee-supplies. Give us a trial order. Cut this out—you may need our bees.

C. S. Phillips, Prop'r, Waco, Texas

Chas. Israel & Brothers

486-490 Canal St., New York

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments Solicited. Established 1875.

FOR SALE.--Extracted honey, strictly pure, buckwheat, 6½c; clover mixed, 7c in 60-lb. cans and 150-lb. kegs. This State production; best flavor.

H. R. WRIGHT,

Wholesale Commission, Albany, N. Y.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

A GOLD MEDAL

at the World's Fair,
St. Louis, 1904.



D. 20th CENTURY

**BEST,
COOLEST,
CLEANEST,
STRONGEST.
CHEAPEST.**

Largest Smoker Sold for a Dollar.

We Send Direct from Factory to Buyer when the Nearest Supply-dealer Does not Keep it.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke I find it all you claim. In the spring I shall want several. I always want the best.

N. E. FRANCE, Platteville, Wis.

Price \$1.00; three for \$2.50.

By mail add 25 cents for postage.

Send for circular giving fuller details.

F. DANZENBAKER, MIAMI, FLORIDA

WE WILL BUY

New crop honey, comb and extracted, in any quantity. If you have a crop to dispose of, write us fully as to quality, quantity, style of package, etc., and you will have our answer by return mail. If we should fail to come to an understanding as to price, we may arrange to handle your crop on consignment, feeling confident that we can do you justice in every respect.

WE WILL SELL

to Bee-keepers whose crop is not large enough to supply their trade, various grades of honey. Let us know your wants and we will do our best to satisfy you.

BEESWAX. We are in the market to buy beeswax at any time of the year. Write us when you have any to sell.

HILDRETH & SEGELKEN,

265-267 Greenwich St.,

NEW YORK, N. Y.

Established 1873
Circulation 30,000

64 pages, semi-monthly
\$1.00 per year

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager
A. L. BOYDEN, Advertising Manager

POSTAGE IS PREPAID by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

DISCONTINUANCES.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

HOW TO REMIT. Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by Registered Letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

PARIS, FRANCE. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 7½ fr.*

GOODNA, QUEENSLAND. H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 5/6.*

DUNEDIN, NEW ZEALAND. ALLIANCE BOX CO., 24 Castle St. *Per year, postpaid, 6/.*

SPECIAL OFFERS.

The Whole Family Group.

Gleanings in Bee Culture
Delineator
McClure's Magazine
World's Work

Regular price, \$7.00.

Our price for all the above,
one year, - - - \$3.75

Review of Reviews Special Club.

Gleanings in Bee Culture
Review of Reviews
Woman's Home Companion
Success Magazine

Regular price for all the above, \$6.00

Our price for all, one year, - \$3.60

Country Life
Gleanings in Bee Culture
Both for - - - \$3.50

Farming
Gleanings in Bee Culture \$1.50

Gleanings in Bee Culture one
year, and one copy How to
Keep Bees, - - - \$1.50

THE A. I. ROOT CO., Medina, Ohio.

Find enclosed.....for which please send me Gleanings in Bee
Culture.....months, and.....as per offer.....

Please continue sending Gleanings until otherwise ordered.

Name.....

Postoffice.....

County..... State.....

Date..... If you want Gleanings discontin-
ued at expiration, check here()

TWO YEARS FOR \$1.00



AFTER a man succeeds in publishing a good journal, the next step is that of getting it into the hands of the people, of getting them to reading it, and becoming acquainted with its merits. This can be done by advertising, sending out sample copies, circulars, etc. All this costs money.

I think I am safe in saying that, for every new subscriber I have received,

I have paid \$2.00 in advertising; hence, I have always said that a publisher of a good journal could afford to send his paper one year free for the sake of getting it into new hands. It would cost no more than other

forms of advertising, and would be more effective; but, for obvious reasons, this plan could not be put into practice; but I am going to come as near to it as I can. I have between 200 and 300 complete sets of back numbers for the present year; and as long as the supply holds out I will send a complete set, and the rest of this year free, to any one who will send me \$1.00 for the Review for 1907.

Back numbers of the Review are different from those of newspapers and some journals. The information that they contain is just as valuable now as when first published. In an advertisement like this it is impossible to give much description, but I will mention one or two features of each issue of

THE REVIEW FOR 1906

JANUARY.—The keynote of the Review for 1906 is "**THE CONTROL OF INCREASE**;" and Mr. Gill, of Colorado, starts off by telling how he completely and *profitably* controls the increase of 1000 colonies run for comb honey.

FEBRUARY.—R. C. Aikin shows how, with a **knowledge of principles**, increase can be controlled; but perhaps the most valuable contribution to this issue is from R. F. Holtermann, of Canada, describing "Some Short Cuts in the Production of Extracted Honey."

MARCH.—In this issue is illustrated and described the only really successful **non-swarming** hive that has yet been invented. Its inventor, Mr. L. A. Aspinwall, secured an average of 140 pounds of comb honey the past season from fifty colonies, and had no swarms.

APRIL.—The most valuable article in this issue is from C. A. Olmstead, of New York, in which he illustrates and describes a method of **foretelling swarming** without opening the hive.

MAY.—In this issue is begun a series of the most delightfully and beautifully **illustrated sketches** that have ever appeared in the Review—that of the editor's experience in locating and managing three out-apiaries in the wild, picturesque, raspberry region of Northern Michigan.

JUNE.—The article this month on "Control of Increase," is by that veteran, J. E. Crane, of Vermont, and shows how to do the work when the **harvest comes early**. This issue also gives the editor's experience in moving his 400 colonies into Northern Michigan—illustrated with four engravings.

JULY.—This issue has a beautiful full-page illustration of the Review apiary here at Flint (105 colonies), and the editor gives a resume of his work in this apiary for the first six months of the year—showing **where he failed** and why he succeeded.

AUGUST.—In this number the editor tells of "Reaping the Harvest in Northern Michigan," and gives pictures of the different apiaries, some at old **abandoned lumber-camps**, one with a tent for a honey-house, while the reading-matter has an actual flavor of the wild northern woods.

SEPTEMBER.—Of all the articles in this year's Review I doubt if any one is more really helpful than the one in this issue by the editor, entitled "Conveniences in the Production of Extracted Honey." It has several illustrations, and shows how to use bee-escapes without the **back-aching work** of lifting the hives by hand; how to make a honey-knife cut as "slick as a razor;" how to make an uncapping-can for ten cents; how to arrange a cheap automatic strainer, and run the honey directly into the cans; and how to arrange an electric bell, at a cost of 60 cts., that will ring when the can is full.

Instead of mentioning some of the special features for October, November, and December, let me use the space to say that **one of the good things** that will appear in the Review for 1907 will be a series of articles from E. D. Townsend, Michigan's foremost bee-keeper. All of his writings in the past have been fragmentary, a glimpse here and there, and they have been scattered here and there in different journals. Now he is going to write in a consecutive manner, starting at the beginning of the season and going through the year—just as though he were writing a book. It will give his system of management.

ADVANCED BEE CULTURE

This is a book of 230 pages, beautifully printed, bound, and illustrated, that discusses bee-keeping from a money point of view—shows how to make a pleasant and

profitable **BUSINESS** out of bee-keeping. Price \$1.20; or, the Review for 1907 (and all of the back numbers of this year free) for only \$2.00.

W. Z. Hutchinson. Flint, Mich.

Gleanings in Bee Culture

E. R. ROOT
Editor

A. I. ROOT
Editor Home Department

H. H. ROOT
Ass't Editor

Department Editors—DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE, LOUIS H. SCHOLL,
G. M. DOOLITTLE, R. F. HOLTERMANN, "STENOG."

CONTENTS OF DECEMBER 15, 1906

MARKETS.....	1542	Wax-production.....	1576
STRAY STRAWS.....	1555	Bee-keeper, Youngest in Pennsylvania.....	1577
EDITORIAL.....	1557	Foundation, Fastening.....	1578
Advance in Prices of Food Stuff.....	1557	Bee Demonstration in Medina.....	1579
Advance in Price of California Honey.....	1558	Cartons, Need of Better.....	1583
Shutting Bees in Winter Repository.....	1559	Bee-journals, Reading.....	1586
What the Gov't is doing for Bee-keeping.....	1560	Psalm from Farm Life.....	1587
CONVERSATIONS WITH DOOLITTLE.....	1562	HEADS OF GRAIN.....	1588
PICKINGS.....	1564	Transferring by a Beginner.....	1588
BEE-KEEPING IN THE SOUTHWEST.....	1565	Colonies, Building up Weak.....	1588
POINTERS BY THE JAY.....	1567	Uniting Without Fighting.....	1578
Tent, Queen-fertilizing.....	1568	Eggs Transferred.....	1589
Caucasians vs. Banats.....	1590, 1586, 1589	Concrete for hive-bottoms.....	1589
Entrance, Large, in Summer.....	1571	Alexander Plan a Success.....	1589
Apiary, Alexander's.....	1573	OUR HOMES.....	1590
		HIGH-PRESSURE GARDENING.....	1595

INDEX TO ADVERTISEMENTS.

Banking by Mail.		Leininger, Fred.....	1612	Miller Co., J. W.....	1605
Savings Deposit Bank Co.....	1599	Lawmaster & Sons.....	1610	Sheer Co., H. M.....	1605
Bee-books.		McCain, R. B.....	1612	Stahl, George H.....	1605
Swarthmore.....	1600	Parker, Jr., H. M.....	1612	Stratton Mfg. Co.....	1605
Bee-smokers.		Parrish, W. M.....	1543	Reliable Incubator Co.....	1905
Bingham, T. F.....	1610	Classified Advertisements.		Machinery.	
Danzenbaker, F.....	1543	Bee-keepers' Directory.....	1616	American Harrow Co.....	1604
Bee Supplies.		Bees and Queens.....	1614	Barnes Co., W. F. & Jno.....	1620
Blanke & Hauk.....	1547	For Sale.....	1614	Electric Wheel Co.....	1606
Cook, J. H. M.....	1611	Honey and Wax Wanted.....	1615	Gibson Mfg. Co.....	1620
Falconer Mfg. Co., back cover.	1611	Honey and Wax for Sale.....	1615	Lyons Engine Co.....	1601
Hilton, Geo. E.....	1609	Help Wanted.....	1614	Myers & Bros., F. E.....	1602
Hunt & Son, M. H.....	1608	Poultry Offers.....	1615	Miscellaneous.	
Jepson, H. H.....	1611	Wants and Exchange.....	1615	Aultfather, H. H.....	1299
Kretschmer Mfg. Co.....	1609	Comb Foundation.		Doone, T. E.....	1603
Lewis Co., G. B.....	1554	Dadant & Son, back cover.		Gordon Van Tine Co.....	1603
Mason, J. B.....	1610	Dittmer Gus.....	1608	Hough, F. H.....	1606
Mees, H.....	1612	Fences		National Legal Bureau.....	1599
Minnesota Bee Supply Co.....	1609	American Steel and Wire Co.....	1603	Prindle & Williamson.....	1609
Muth Co., F. W.....	1542	Brown Fence and Wire Co.....	1602	Selser, W. A.....	1599
Nysegander, J., back cover.		Coiled Spring Fence Co.....	1602-1603	Sheboygan Fruit-box Co.....	1606
Pierce, E. W.....	1610	Kitselman Brothers.....	1602	Publishers, Agricultural-paper.	
Pouder, Walter S.....	1607	Honey for Sale.		Southern Fruit Grower.....	1620
Prothero, Frank W.....	1608	Wright, H. R.....	1543	Poultry Supplies.	
Reeves, A. H.....	1611	Household Specialties.		Conkey, G. E. & Co.....	1620
Root Co., Syracuse.....	1547	Best Light Co.....	1620	Humphrey.....	1605
Root Co., St. Paul.....	1547	Bird & Son, F. D.....	1620	Lee, Geo. H.....	1605
Scott & Co., C. M.....	1609	Horne Co., Joseph.....	1602	Mann Co., F. W.....	1606
Smith, N. H.....	1610	Mary Eliz. B. P. Co.....	1597	Neupert, R. F.....	1606
Soper, W. D.....	1616	Oak Park Novelty Co.....	1602	Publishers, Bee-Journal	
Stringham, I. J.....	1610	Wright, M. T.....	1604	Falconer Mfg. Co.....	Back Cover
Texas Seed and Floral Co.....	1610	Rio Vista Trading Co.....	1594	Hutchinson, W. Z.....	1545
Weber, C. H. W.....	1541	Rochester Radiator Co.....	1602	Root Co., The A. I.....	1544
Woodman, A. C. Co.....	1611	Stromberg-Carlson Tel. Co.....	1549	York & Co., Geo. W.....	1549
York Honey & Bee Supply Co.....	1611	Sun Vapor Light Co.....	1604	Publishers, Poultry-paper.	
Bees and Queens.		Honey-buyers.		American Poultry Journal.....	1606
Alley, H.....	1611	Hildreth & Segelken.....	1543	Poultry Item.....	1606
Atchley Co., The Jennie.....	1611	Israel, Charles, & Bros.....	1543	Seeds and Trees.	
Blocher, D. J.....	1612	Incubators.		Gardner Nursery Co.....	1620
Church, C. M.....	1611	Banta Bender Co.....	1606	Jewell Nursery Co.....	1603
Collins, Dele.....	1612	Buckeye Incubator Co.....	1605	Storrs & Harrison Co.....	1602
Kanagy, A. H.....	1612	Cyphers Incubator Co.....	1605		
Laws, W. H.....	1611	Ertel Co., Geo.....	1605		

At St. Louis

On a  Line

to all points in the South and Middle West.

Send for our free illustrated catalog of

Root's Bee-supplies

We sell at factory prices, and are allowing a four per cent cash discount during December. Send us a trial order.

Beeswax Wanted.

Blanke & Hauk Supply Co.

DEPT. B,

202-204 Market St., **St. Louis, Mo.**

Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

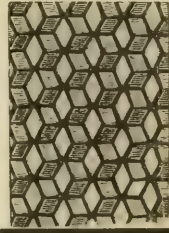
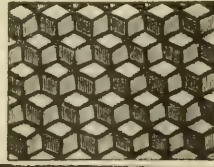
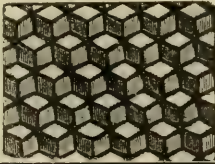
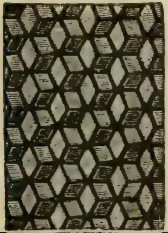
Secure a catalog at once.

BEEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company

H. G. ACKLIN, MANAGER

1024 Mississippi Street, St. Paul, Minn.



They

Balance



Every inch of our foundation is equal to every other inch. Why not secure your foundation now for next season? On all orders for December there is a discount of 4 per cent.

THE A. I. ROOT COMPANY, Syracuse, N. Y.

A Page with Our Readers and Advertisers.

"A SQUARE DEAL"

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. Neither will we be responsible for the debts of honest bankrupts sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

READ IT AGAIN

The above guarantee. Do you know just what it means? GLEANINGS always pursued the policy of accepting only the very best and most reliable advertisements, and has turned away many thousands of dollars' worth of business because it did not come quite up to its standard. Now we go a step further; and when we make an error in judgment, and our subscriber suffers, we will make good if conditions named above are filled. Doesn't this give you renewed confidence in the advertisements that appear in this number? Why not sit down right now and write to those advertisers who interest you, and buy their goods if you can?

A VALUABLE BOOK FOR FARMERS AND POULTRY-MEN FREE.

A 48-page book called "Practical Farm Buildings" has just been published by F. W. Bird & Son, East Walpole, Mass. It is full of valuable plans and specifications for all kinds of farm and poultry buildings, and every one of our readers should take advantage of the exceptional offer they are making to send it to any one free who sends four cents in stamps to pay postage. The book would ordinarily sell for \$1.00, and it is worth every cent of it.

The first few pages describe the best location, shape, etc., for poultry-buildings, and a dozen or more pages are given to plans and specifications of the latest and most practical types of poultry and colony houses. Twenty pages are given to dairy farms, stables, hog-houses, sheep-sheds, and other buildings on the farm.

It is one of the best pieces of advertising matter put out, and only half a dozen pages in the rear of the book are reserved for the story about paroid and Neponset roofings. On these pages may be found cuts of the Plant Industry Building at Washington; colony and chicken-houses on the farm of Prof. C. M. Cowell, of the Maine Experiment Station, at Orono, Maine; the largest stock-farm in Minnesota; buildings on the largest duck-farm in the world; birdseye view of W. Barry Owen's plant at Vineyard Haven, Mass.; sheds of D. J. Lambert, Apponaug, R. I.; and many other buildings owned by leading poultrymen.

Our readers should send for this book at once, because the edition is limited, and it will also pay you to get get samples of paroid and Neponset if you do not know about the kind of work they will do.

MISSING NUMBERS.

Mr. Root:—Please send me GLEANINGS for Aug. 15, which I did not get. It is overdue by two weeks. It must have got lost, and I must have every number of that paper, for there are too many good things in it to be lost. ADOLPH SUKSDORF.

Spangle, Wash., Sept. 1.

With the increasing circulation of GLEANINGS, and consequent new help employed in this department, it happens that papers will occasionally be sent wrong. Changes in addresses, and new rural routes, also contribute to the number of missing copies. We are glad to replace on request any that may be lost from any cause. By the first of the year we hope to be in our new office and publishing house, and have our subscription work in the best of shape. In the meantime please bear with us and call our attention to any mistakes.

USERS OF DISC HARROWS. TAKE NOTICE.

One of our big advertisers, the American Harrow Company, of Detroit, Michigan, is using our columns earlier this season than ever with announcements advising our readers who wish to be sure of having a disc harrow to use at the season of the year they need it; to place their orders earlier, because they can not guarantee to fill all orders in their rush season.

This company has had a remarkable sale on their tongueless disc harrows, and last spring their books showed that they had to return 1463 orders for these implements that it was impossible for them to fill on account of their factory not being able to turn out enough harrows to go round.

This phenomenal sale was brought about on account of the merit of their patented tongueless disc harrow, which has many points of advantage over the old-style disc harrows so generally used.

We can easily understand the points of superiority of the tongueless disc harrows over any disc having a tongue. By doing away with a tongue, and using a forward truck, both horses pull alike at all times, either on straight-away pulls or short turns—the truck doing away with all side thrash and neck weight, which has "bumped up" so many horses just at the season of the year when they are most needed.

To any of our readers who are not familiar with the Detroit tongueless disc harrow, we advise that they write to the American Harrow Company for their catalog and other printed matter; and if they decide to buy one of these harrows, we see a good reason why they should place their order early to be sure of getting their implement just when they need it.

A postal card addressed to the American Harrow Company, Detroit, Michigan, will bring you full information.

ADVERTISING - RATES

Twenty cents per agate line flat.

Classified columns—bona-fide exchange or want ads.—20c a line.

Discount for cash in advance, 5%; if paid in 10 days, 2%.

No objectionable advertising accepted.

Forms close 10th and 25th of each month.

Guaranteed circulation per issue, 30,000.

GLEANINGS IN BEE CULTURE
MEDINA, OHIO



A Bee-keepers' SOUVENIR POSTAL CARD

(IN FOUR COLORS)

**Sent Free to New Sub-
scribers**

— TO THE —

Weekly American Bee Journal

which is better than ever these days. Every reader of GLEANINGS should have it.

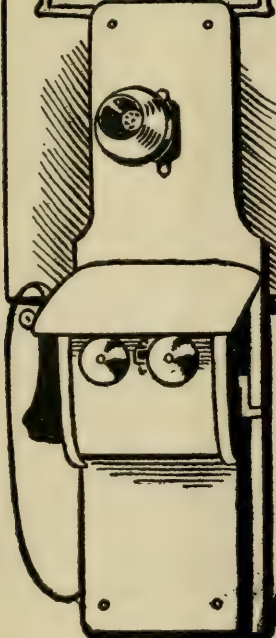
(Both Gleanings and the Weekly American Bee Journal, one year, for only \$1.60)

PRICES, postpaid: 1 card, 5 cents; 3 for 10 cents (stamps or silver); 10 for 25 cents. There is a blank space on the card about 2x2½ inches in size for writing.

Or we will send to a new subscriber 10 of these Souvenir Postal Cards and the Weekly American Bee Journal from the time the order is received to the end of 1907, for only \$1.00. This is a great chance to get some of these Postal Cards and also the only weekly bee-paper in America. Or a "trial trip" of 3 months and 2 souvenir cards for 20 cents. Sample of the Bee Journal FREE on request. Address

334 Dearborn St. **GEORGE W. YORK & CO.** Chicago, Ill.

HOW THE TELEPHONE HELPS THE FARMER



You Want This Free Book

Of course you need a telephone. You need it for business, for the family, in sickness, in case of fire, or in danger of any kind. The question is—how can you get one on your farm? This little book which we send free the same day we get your request answers the question perfectly and tells you how to get the greatest convenience of the twentieth century so easily and cheaply that it becomes a positive saving and a money-maker, instead of an expense. It tells all about

Stromberg-Carlson Telephones

which are made in the largest independent telephone plant in the world. These are the best instruments for farmers' lines, because they have been constructed by experts for this particular purpose. They are described in detail in the booklet, together with full information on the organization of farmers' lines, the manner in which they are built, cost of material, etc. You want this book, F30 "How the Telephone Helps the Farmer." Write for it today.

**Stromberg-Carlson
Telephone Mfg. Company**
ROCHESTER, N. Y. CHICAGO, ILL.

GLEANINGS PLANS FOR 1907.

We do not think it a good practice to outline our plans in advance, for often circumstances arise which hinder carrying them out exactly as we have planned. Nevertheless we want to bring to the attention of our readers in a general way some things relative to GLEANINGS for the coming year.

Advertising.

Beginning with the present issue we call your attention to the offer made on page 1546, under the heading "A Square Deal." We have always taken extreme care to admit none but reliable advertisers in our paper, and we know this has been appreciated by our readers. Going to the expense we do to see that none but reliable parties are found in our advertising columns, we want to ask our readers to mention GLEANINGS whenever writing, and to patronize our advertisers whenever it is possible to do so. Just to-day a prominent advertiser who has used GLEANINGS in connection with a number of other papers, both magazines and agricultural papers, remarked that, all things considered, GLEANINGS IN BEE CULTURE is undoubtedly better than any other paper he uses.

New Equipment.

Mention has already been made of the new facilities we have for printing this number being printed entirely in our new press-room, and largely on our new press. With these increased facilities it naturally follows that we expect to make GLEANINGS very much better typographically than ever before; and if you have been pleased with GLEANINGS in the past in this respect, we are sure you will be in the year to come.

Earlier Mailing.

It has been an annoyance to some subscribers, when they have waited until the usual time for GLEANINGS, not to receive it, and to have to send a postal-card request for a certain issue. These late mailings have been occasioned by the overcrowding of our old rooms, and we hope that this number is the last one that will come out so late. At the same time, it has been rather pleasing to us to know that GLEANINGS is of so much value that it is missed when it fails to reach a subscriber promptly.

The same applies to missing numbers. We can not, of course, be sure that every number mailed will reach the party addressed, and yet we frequently have a card from a subscriber saying that he had not missed a number in many years. We are always glad to supply missing numbers if the stock has not been exhausted when the request reaches us.

Sample Copies.

During the past year many subscribers have given us the names of one or two of their friends to whom they wished sample copies sent, many times asking for a certain issue containing an article in which their friends would be interested. We are always glad to send such samples on request if the remaining stock is sufficient. Of many numbers through the early part of the season we are no longer able to supply samples, as the demand was unusual for these after the regular numbers were sent out. When you want sample copies sent to any of your friends, do not hesitate to give us their names. We send any reasonable number without charge.

Circulation.

We think it will be a matter of interest, to many of our older readers especially, to know that the average circulation for the past year has been a little over 30,000 per issue. The actual number on the mailing list now is 26,428. The remaining numbers are used for sample-copy requests, distribution at fairs, bee and poultry shows, bound volumes, etc. It has been only by the coöperation of our subscribers that we have been able to increase the circulation so much during the last few years, and we appreciate very much the part that our subscribers have had in this work.

Premium Offers.

Very many times a subscriber desires to send in the name of a bee-keeping friend for a six months' or a yearly subscription when sending in his own. To those who are interested in rates for this purpose, we refer to our special offers on page 1551.

Clubbing Offers.

It is very much the fashion nowadays to send in orders for all the papers desired by the family to one publisher, securing thereby some of the best bargains. In this issue you will find our GLEANINGS clubbing

offers on page 1552. If you do not see just what you want on this page, you may make up your own clubs from the list on page 1553. If not interested in either of these, perhaps the premium offers on page 1551 will appeal to you.

Bound Volumes.

At this season of the year many are making inquiry with reference to the price of a bound volume of GLEANINGS. We furnish complete bound volumes for 1906 at \$1.50 each, postage 50 cts. If you return complete 1906 volumes to this office, we will furnish you a bound volume in exchange for 50 cts., postage 50 cts. extra. A sheet giving prices of former volumes will be furnished on application.

Illustrations.

During the past season, and earlier, we have secured a large number of very interesting photographs relating to some phase of bee culture from all parts of this and other countries; and, while a large number of these have been shown during the past year, we have at this time many more which will appear during the coming year, in many cases with descriptive articles, so that GLEANINGS will be fully illustrated as usual.

Photo Contests.

The interest in these has been such that we are warranted in announcing a contest for 1907, which will be found in the January 1st issue. This will probably be divided into several classes, similar to the ones announced during the past year.

Contributors.

In addition to the regular department editors, whose names are well known, and are found on page 1546, we have a large number of well-known correspondents who will send in contributions from time to time. Among these we mention Anna Botsford Comstock, Dr. Edward F. Bigelow, Allen Latham, E. W. Alexander, E. F. Atwater, J. E. Chambers, M. A. Gill, C. A. Hatch, W. K. Morrison, Dr. D. E. Lyon, Sam'l Simmins, L. Stachelhausen, E. D. Townsend, Wm. M. Whitney, and a host of others, many of them as well known as the foregoing writers.

Honey Market.

Plans are under way for materially changing the form in which quotations of the various honey markets appear in GLEANINGS, and by which we hope to render our subscribers a still more valuable service. We shall appreciate it very much if we can have brief letters from our subscribers, telling just what they would like to see in the way of reports on the honey market.

Reports of the Honey Crop.

Criticism was recently noticed of the honey-crop reports found in GLEANINGS the past year, which is mentioned editorially in this issue. We believe that, in spite of some omissions or inaccuracies, no other paper of any class has ever given such reliable reports of the actual crop in this country as has GLEANINGS, and yet we expect the coming season to be able to report the crop still earlier and better than ever before, and we ask the coöperation of our subscribers in this also. Suggestions early in the season as to the form in which reports should be given will be appreciated, whether it is desired to have reports from a large number of individuals in same issue of the paper or whether a general survey of the crop conditions by States would be sufficient.

Service Department.

It frequently happens that, with our correspondents in various large cities of the United States, we can render valuable service to some subscriber in a distant part of the country. For instance, a few months ago a subscriber made a shipment of honey to a well-known buyer in one of the large cities of the East. On arrival the car was refused, having been damaged in transit. The shipper was at least two thousand miles away from the car, and charges would be accumulating rapidly on the same; besides, the honey was leaking badly and needed attention. He wired us, asking us to look after his interests. We were able to do this without difficulty, and the following is a report we received from him a few days later: "We wish to assure you that we appreciate fully your prompt action in this matter. Somehow, we were glad you were near at hand when we were advised of the wrecked condition of the car of honey. We felt that there was some one near that we could depend upon, and we are not disappointed. That was the best of it all. Thank you again."

When we can be of service to you in any way in any part of the country where we have offices or facilities for helping you, we shall be glad to have you call on us.

Gleanings in Bee Culture PREMIUM OFFERS

CONDITIONS

The following offers are self-explanatory in most cases. The purpose of these is to induce both present and prospective subscribers to interest others in GLEANINGS IN BEE CULTURE. A few general rules may be of service in using these offers.

1. Trial subscriptions are offered only for the uniform time of six months, and must be in each case a new name—that is, the name of some one who has not been a subscriber to GLEANINGS during the preceding year.

2. Any one may send in subscription orders, claiming any of the following premiums, whether a subscriber or not. If he desires to send his own subscription, it will count the same as the name of any other subscriber he may send.

3. Please note that our premiums are divided into three classes, as follows: For six months' trial (new) subscriptions; for yearly subscriptions (new); for yearly subscriptions (renewal).

4. Premiums should be claimed when the orders are sent, if convenient. They may be claimed later on if mention is made, when sending the subscription, that it will be claimed later.

5. These premium offers supersede all former offers, which are canceled at this date.

For New Six Months' Trial Subscriptions.

ANY one of the following premiums may be selected for each trial subscription sent us with 25 cts. As many premiums may be claimed as you send subscriptions. If a subscription to one of the papers is selected, it will apply to either new or renewal subscriptions to that paper.

Premium A. For one trial subscriber we will advance your own subscription three months.

Premium B. One year's subscription to Farm News with Prof. Holden's Corn Book, postpaid.

Premium C. One year's subscription to Greene's Fruit Grower.

Premium D. One year's subscription to Poultry Success.

Premium E. Two years' subscription to the Apple Specialist.

Premium F. Two years' subscription to the Farm Journal, Philadelphia.

Premium G. Any one of the Swarthmore books or Modern Queen-rearing, by Phillips, postpaid.

Premium H. One copy Reliable Poultry Remedies, 84 pages 6 in. x 9 in., publisher's price 25c.

Premium I. One copy Tomato Culture, 150 pages.

Premium J. One copy Tile Drainage, by W. I. Chamberlain.

Premium K. One copy Winter Care of Horses and Cattle, by T. B. Terry.

Premium L. One Perfect pamphlet preserver for GLEANINGS. Postage, 7 cts. extra.

For New Yearly Subscriptions.

ANY one of the following premiums may be selected for each new yearly subscription sent us with \$1. As many premiums may be claimed as you send subscriptions. If a subscription to one of the papers is selected, it will apply to either new or renewal subscriptions to that paper.

Premium 1. For one new yearly subscription we will send GLEANINGS one year to your own address; or one Style D GLEANINGS binder, postage 15 cts. extra.

Premium 2. One year's subscription to the Strawberry; publisher's price, \$1.00.

Premium 3. One year's subscription to Photographic Times; publisher's price, \$1.00.

Premium 4. One A B C of Bee Culture, cloth bound, postage 20 cts. extra.

Premium 5. One How to Keep Bees, cloth bound, by Anna B. Comstock, postage 10 cts. extra.

Premium 6. One Doolittle's Queen-rearing, cloth bound, postage 10 cts.

Premium 7. One Langstroth on the Honey-bee, revised, postage 15 cts.

Premium 8. One Forty Years Among the Bees, by Dr. C. C. Miller, postage 10 cts.

Premium 9. One Standard Root Smoker, postage 25 cts.

Premium 10. One F. F. Fountain Pen No. 2, postpaid.

Premium 11. One untested Italian queen, Root strain, golden or leather color, sent at our convenience in May, June, or July.

Premium 12. Four Swarthmore books, postpaid.

For Renewal Yearly Subscriptions.

ANY one of the following premiums may be selected for each renewal yearly subscription sent us with \$1. As many premiums may be claimed as you send subscriptions. If a subscription to one of the papers is selected, it will apply to either new or renewal subscriptions to that paper.

Premium N. One copy of any of the following books, the publisher's price of which is 50 cts.: Poultry House and Fixtures; Artificial Incubating and Brooding; The Chick Book; Eggs and Egg Farming; Plymouth Rocks, Leghorns, Asiatics; Ducks and Geese, Turkeys, Bantam Fowls.

Premium O. Either of the following books, described in our book catalog: The A B C of Strawberry Culture, The ABC of Potato Culture.

Premium P. One untested Italian queen, either golden or leather colored, in June or July when we have a surplus.

Premium R. For a renewal yearly subscription we will advance your own subscription six months; or send you a Style C GLEANINGS binder, postage 10 cts. extra.

Premium S. One Junior Root Smoker; postage 20 cts. extra.

Premium T. One pair cloth bee-gloves, with or without fingers, postage 7 cts.

Premium U. One Porter honey-house escape, postpaid.

Premium V. One year's subscription to the American Poultry Journal.

Premium W. For three renewal or two new yearly subscriptions to GLEANINGS at \$1.00, we will send, postpaid, one No. 602 bee-keepers' pocket tool-kit. See page 972, July 15th GLEANINGS.

Send all subscriptions to

The A. I. ROOT COMPANY MEDINA, OHIO

Gleanings in Bee Culture Clubbing Offers

ALL OF THE FOLLOWING OFFERS INCLUDE *GLEANINGS* ONE YEAR.

		Our Price with <i>GLEANINGS</i>
Delineator	1 yr.	\$1 00
McClure's Magazine.....	"	1 00
World's Work	"	3 00
		\$3 75

Review of Reviews.....	1 yr.	\$3 00
Success Magazine.....	"	1 00
Woman's Home Companion.....	"	1 00
Or any class A magazine.		
		\$3 60

Cosmopolitan or Success.....	1 yr.	\$1 00
Yachting, or any class B.....	"	3 00
Field and Stream.....	"	4 00
Or any class 4 magazine.		
		\$4 00

American Boy.....	1 yr.	\$1 00
Cassell's Little Folks.....	"	1 50
Metropolitan Magazine.....	"	1 00
Any class A may be substituted.		
		\$3 30

Recreation or Appleton's.....	1 yr.	\$1 50
Metropolitan Magazine.....	"	1 50
Review of Reviews.....	"	3 00
Woman's Home Companion.....	"	1 00
Or any class A magazine.		
		\$4 65

Scribner's Magazine.....	1 yr.	\$3 00
Suburban Life.....	"	1 50
House and Garden.....	"	3 00
Any class 3 may be substituted.		
		\$6 65

Independent.....	1 yr.	\$2 00
Recreation or Appleton's.....	"	1 50
Outing or Reader Magazine.....	"	3 00
Or any class B magazine.		
		\$4 70

Lippincott's.....	1 yr.	\$2 50
Cassell's or Recreation.....	"	1 50
Cosmopolitan.....	"	1 00
Or any one of class A.		
		\$4 15

Ainslee's Magazine.....	1 yr.	\$1 80
Metropolitan Magazine.....	"	1 80
Outing Magazine.....	"	3 00
Or any Class B Magazine.		
		\$4 50

Outing Magazine.....	1 yr.	\$3 00
Metropolitan Magazine.....	"	1 80
Harper's or Leslie's Weekly.....	"	5 00
Or Scribner's or Kermatic Studio.		
		\$6 40

American Boy.....	1 yr.	\$1 00
Pearson's Magazine.....	"	1 50
Pictorial Review.....	"	1 00
Or any class A magazine.		
		\$3 30

American Inventor.....	1 yr.	\$1 00
Scientific American.....	"	3 00
Automobile Magazine.....	"	2 00
Or any class A magazine.		
		\$4 80

World To-day.....	1 yr.	\$1 50
Etude (for music lovers).....	"	1 50
Recreation or Pearson's.....	"	1 50
Or any class 4 magazine.		
		\$3 65

Century Magazine.....	1 yr.	\$4 00
Current Literature.....	"	3 00
Cassell's or Appleton's.....	"	1 50
Or any class 4 magazine.		
		\$7 65

Putnam's Magazine.....	1 yr.	\$3 00
Country Life in America.....	"	4 00
Good Housekeeping.....	"	1 00
Or any class A magazine.		
		\$7 15

Children's Magazine.....	1 yr.	\$1 00
Etude (for music lovers).....	"	1 50
Appleton's or Pearson's.....	"	1 50
Or any class 4 magazine.		
		\$3 65

Harper's Magazine or Weekly.....	1 yr.	\$4 00
Reader or Outing.....	"	3 00
Lippincott's Magazine.....	"	2 50
Or any class 6 magazine.		
		\$7 40

		Our Price with <i>GLEANINGS</i>
Outing Magazine.....	1 yr.	\$3 00
World To-day.....	"	1 00
Ainslee's Magazine.....	"	1 80
		\$4 15

Home Needlework Magazine.....	1 yr.	\$0 75
Pictorial Review.....	"	1 00
Modern Priscilla.....	"	50
Or any class C magazine.		
		\$2 65

Good Housekeeping.....	1 yr.	\$1 00
Cassell's or Recreation.....	"	1 50
Ladies' World.....	"	50
Or any class 2 magazine.		
		\$3 00

Independent.....	1 yr.	\$2 00
Musician.....	"	1 50
Outing magazine.....	"	3 00
Or any class B magazine.		
		\$4 70

Outdoor News (illustrated).....	1 yr.	\$2 00
Worr McIntosh.....	"	3 00
Woman's Home Companion.....	"	1 00
Or any class A magazine.		
		\$5 00

Little Folks (new subscriber).....	1 yr.	\$1 00
Woman's Home Companion.....	"	1 00
Modern Priscilla.....	"	50
Or any class C magazine.		
		\$2 65

World To-day.....	1 yr.	\$1 50
Recreation or Pearson's.....	"	1 50
Woman's Home Companion.....	"	1 00
Or any magazine in class A.		
		\$3 30

Musician or Etude.....	1 yr.	\$1 50
Home Magazine.....	"	1 00
McCall's Magazine.....	"	50
Or Housekeeper or any class C.		
		\$3 00

The Reader or any class B.....	1 yr.	\$3 00
Keith's or any class 4.....	"	1 50
Success Magazine.....	"	1 00
Or any class A magazine.		
		\$4 00

What To Eat.....	1 yr.	\$1 00
Harper's Bazar.....	"	1 00
Pictorial Review.....	"	1 00
Or any class A magazine.		
		\$2 95

American Boy.....	1 yr.	\$1 00
National Magazine.....	"	1 00
Cassell's Little Folks.....	"	1 50
Or any class B magazine.		
		\$3 40

Cassell's or Quiver.....	1 yr.	\$1 50
American Magazine.....	"	1 00
Broadway Magazine.....	"	1 50
Or any class 4 magazine.		
		\$3 65

Children's Magazine.....	1 yr.	\$1 00
Home Needlework Magazine.....	"	75
Or any class A magazine.		
		\$2 30

Burr-McIntosh.....	1 yr.	\$3 00
Scribner's Magazine.....	"	3 00
Metropolitan Magazine.....	"	1 80
Or any class E magazine.		
		\$6 65

Suburban Life.....	1 yr.	\$1 50
McClure's.....	"	1 00
Delineator.....	"	1 00
World's Work.....	"	3 00
		\$4 30

Suburban Life.....	1 yr.	\$1 50
Woman's Home Companion.....	"	1 00
Review of Reviews.....	"	3 00
		\$3 65

Suburban Life.....	1 yr.	\$1 50
World To-day.....	"	1 50
Cosmopolitan.....	"	1 00
		\$2 95

Suburban Life.....	1 yr.	\$1 50
Woman's Home Companion.....	"	1 00
Cosmopolitan, American Magazine, Harper's Bazar, or Success may be substituted.		
		\$2 30

ALL OF THE ABOVE OFFERS INCLUDE *GLEANINGS* ONE YEAR.

SEND ALL ORDERS TO THE A. I. ROOT CO., MEDINA, O.

Make Up Your Own Subscription - Combinations - for - 1907

For the Convenience of Those who do not Find Such a Club as They Want on Page 1552.

Class A

American Agriculturist	\$1 00
American Boy	1 00
American Inventor	1 00
American Magazine	1 00
American Primary Teacher	1 00
Automobile Magazine	2 00
Baby	1 00
Boston Cooking School	1 00
Browning's Indust'l Magazine	1 00
Business Man's Magazine	1 00
Camera Craft	1 00
Children's Magazine	1 00
Cosmopolitan	1 00
Cycle and Auto Trade Journal	1 00
Educational Gazette	1 00
Engineering Review	1 00
Farming (Doubleday-Page)	1 00
Garden Magazine (Dou.-Page)	1 00
Gleanings in Bee Culture	1 00
Good Health	1 00
Good Housekeeping	1 00
Health	1 00
Health Culture	1 00
Hints	1 00
Home Magazine	1 00
Home Needlework (bi-m)	75
Interior Decoration	1 00
Inventor	1 00
Kindergarten Magazine	1 00
Kindergarten Review	1 00
Little Folks, Salem	1 00
Metropolitan	1 50
National Magazine	1 00
Ohio Farmer	75
Orange Judd Farmer	1 00
Out Doors	1 00
Pacific Monthly	1 00
Philistine	1 00
Photo American	1 00
Photo Beacon	1 00
Photo Era	1 50
Photographic Times	1 00
Physical Culture	1 00
Pictorial Review (with pattern)	1 00
Pilgrim	1 00
Popular Educator	1 00
Primary Plans	1 00
Primary Education	1 00
School Arts Book	1 00
Strawberry	1 00
Style and Amer. Dressmaker	1 00
Suburban Life	1 50
Success	1 00
Suggestion	1 00
Sunset Magazine	1 00
After Jan. 1 add 35 cts.	
Table Talk	1 00
Technical World	1 00
Teacher's World	1 00
Times Magazine	1 50
Travel Magazine	1 00
Waverly	1 00
What To Eat	1 00
Woman's Home Companion	1 00
World's Review	1 00
World To-day	1 50
Young's Magazine	1 50
Youth	1 00

Class B

Amer. Monthly Rev. of Reviews	3 00
Automobile	2 00
Independent	2 00
Motor Way	2 00
Out Door News	2 00
Outing	3 00
Printer's Ink	2 00
Reader Magazine	3 00
Review of Reviews	3 00
Short Stories	1 00
Trained Nurse	2 80
Yachting	3 00

Any two Class A

Any three Class A

Any four Class A

Any one Class A, one Class C

Any one Class A, two Class C

Any two Class A, one Class C

Any two Class A, two Class C

Any two Class A, one Class B

Any one Class A, one Class 3

Any one Class A, two Class 3

Any two Class A, one Class 3

Any one Class A, one Class 4

Any one Class A, two Class 4

Any two Class A, one Class 4

Any two Class A, two Class 4

Any one Class A, one Class 5

Any one Class A, two Class 5

Any two Class A, one Class 5

Any two Class A, two Class 5

Any two Class A, one Class 7

Any two Class A, two Class 7

Any one Class A, one Class 8

Any two Class A, one Class 8

Any two Class A, two Class 8

Any two Class 3

Any three Class 3

Any one Class 3, one Class C

Any one Class 3, one Class A

Any one Class 3, one Class 4

Any one Class 3, one Class 5

Any two Class 3, one Class B

Any two Class 4

Any three Class 4

Any four Class 4

Any one Class 4, one Class C

Any one Class 4, one Class A

Any one Class 4, one Class 5

Any two Class 4, one Class B

Any two Class 5

Any one Class 5, one Class C

Any one Class 5, one Class A

Any one Class 5, one Class 3

Any one Class 5, one Class 4

Any one Class 5, one Class B

Any two Class B

Any three Class B

Any four Class B

Any one Class B, two Class A

Any one Class B, two Class 3

Any one Class B, two Class 4

Any one Class B, one Class 5

Any one Class B, one Class 7

Any one Class B, one Class 8

Any one Class B, one Class C

Any two Class B, two Class C

Any two Class B, one Class A

Any two Class B, two Class A

Any two Class B, one Class 3

Any two Class B, two Class 4

Any two Class B, one Class 4

Any two Class B, two Class 4

Any two Class B, one Class 5

Any two Class B, one Class 7

Any two Class B, two Class 8

Any two Class 7

Any three Class 7

Any two Class 8

Any three Class 8

Any one A

Any one B

Any one 4

\$3.35

Class C

American Poultry Journal	\$0 50
Housekeeper	60
Ladies' World	50
McCall's and Pattern	50
Modern Women	50
Modern Priscilla	50
New Idea Woman's Magazine	50
Vick's Magazine	50
World's Events	50

Class 3

American Education	1 00
Bob Taylor's	1 00
Carpenter and Building	1 00
Pathfinder	1 00
Red Book	1 00
Teachers' Magazine	1 00
Technical World	1 00

Class 4

American Botanist	1 00
Appleton's Magazine	1 50
Cassell's Magazine	1 50
Cassell's Little Folks	1 50
Cassell's Quiver	1 50
Breeder's Gazette	2 00
Broadway Magazine	1 50
Etude	1 50
Humorist	2 00
Keith's Magazine	1 50
Little Chronicle	1 50
Musican	1 50
Our Times (52 weeks)	1 20
Overland Monthly	1 55
Pearson's Magazine	1 50
Ram's Horn	1 50
Recreation	1 50
School and Home Education	1 25
Table Talk with Cook Book	2 00
Watson's Magazine	1 50

Class 5

Journal of Geography (10 mos.)	1 50
Journal of Pedagogy	1 50
Junior Toilettes	1 50
Our Day	2 00
Out Door Life	1 50
Pennsylvania School Journal	1 60

Class 7

Current Literature	3 00
Out West	2 00
School Science	2 00

Class 8

Burr McIntosh	3 00
House and Garden	3 00
Indoors and Out	3 00
Journal of Education	3 50
School Journal	2 50

You May Add to Any Club

Ladies' Home Journal. (1 yr.)	1 50
Saturday Evening Post	1 50
Century	3 75
St. Nicholas	2 65
Harper's Weekly or	
Monthly	3 35
Leslie's Weekly	3 35
Atlantic Monthly	3 35
Scribner's Magazine	3 00
McClure's Magazine	1 00
Delineator	1 00
Gleanings in Bee Culture (if not selected as a Class A paper)	1 00

Send All
Orders to

The A. I. Root Co., Medina, O.

Mr. Beeman, what do you get for your money?

That's the question to consider when buying your bee-supplies.

Simply because you have bought from some other firm for years and years, and because you perhaps think that you are satisfied is no reason why you should not look around to see if you can't buy from a better firm.

You don't know what satisfaction is until you get it.

By a better firm we mean a firm selling better goods in better packages, giving better service; a firm who can and will do not only better by you than the concern you have been doing business with, but who will do the best of them all.

"I bought fifty Lewis hives from a fellow in our town last year, and I never saw nicer, whiter, better-fitting bee-hives in all my life. I have always bought my supplies from ————— so I had no idea you made such fine goods until I stumbled on to them by mistake. Now I want Lewis Beeware and nothing else."

The above is only a sample of what bee-keepers think and have to say about Lewis goods. Thousands of our customers come to us in just this way.

They come to stay.

Now, we are going to ask you to buy just five Lewis hives and five hundred Lewis sections—even less, if you do not care to run that risk—just to see what they are. We leave the decision entirely with you. If after getting a sample you are not convinced that Lewis goods are the goods for you—we don't ask your business. That's fair, isn't it?

AGENTS EVERYWHERE.

G. B. Lewis Company, Watertown, Wisconsin.

GLEANINGS

IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

DEC. 15, 1906.

No 24



"FEWER PAPERS were read this year than last" at the National, p. 1486. Sensible. The drift is steadily toward giving the question-box the right of way at bee conventions. I am just home from the Chicago Northwestern, where there wasn't a paper, and their conventions are tip-top.

TO QUIET BEES on a journey, F. Meier, in *Schweiz. Bienenzeitung*, advises the use of water—much water. If they crowd the ventilating openings, don't drive them back with smoke. Spray them strongly with water. That drives them back so the fresh air can enter; it cools them off, and it gives them drink. [This is good advice. I have tested it myself.—Ed.]

TEXAS claims first place as a honey-producing State. But Louis H. Scholl reports in *American Bee Journal* "that many carloads of mostly extracted honey are shipped in from Colorado and other western places." Looks strange that the greatest producer can not produce enough honey for its own consumption; or is it that Texans eat so much more honey than other people?

EDITOR HILL questioned my saying that Cuba was not going to be annexed, and I relied upon Uncle Sam's promise it shouldn't be annexed. Do you know what that man Hill has done? He has gone and written a strong article in the *Havana Post*, showing the Cubans that, if they are sane, they will want to be annexed. Now if we are flooded with Cuban honey it will be Harry's fault.

"IN REGARD to our buckwheat extracted honey, these dealers preferred it at the same price to clover," page 1496. Quotations, pp. 1474 and 1475, make buckwheat the lowest. What is the explanation? [The quotations on buckwheat vary considerably for the different markets, and even the same dealer in the same market often has a larger outlet for that honey, and offers a better price.—Ed.]

REPLYING to A. I. Root's question, p. 1515, I am sure it would suit the bees well to have an opening so that they could be able to alight directly on the combs on entering the hive, and I should have little fear of robbers; but it might be troublesome to arrange it with the frames. I have had colonies with a two-inch space under the bottom-bars, and it was a pretty sight to see the bees sail in and alight directly on the bottom-bars or cluster without ever touching the bottom-board. But unless this space were at least partly closed during the harvest the bees would build combs below the bottom-bars.

AUTHORITIES have held that a queen does her best work in her second year, and not until lately, I think, has the statement appeared that her first year is her best. Is there any ground for a change of belief? The matter is important; for if it be true that the first year's work is the best, some will think it advisable to allow no queen to continue in her second year, necessitating an annual slaughter of queens, since queens are not generally superseded until they are much more than a year old. In my own experience I have seen no evidence that queens generally fall off in the second year. Indeed, I have had many queens that did excellent work in their third year. I believe this is one of the cases in which the traditions of the fathers are correct; and if any one has a desire to start a new tradition he should have it well supported by facts and figures. [I was not aware that any one held that a queen did her best work in her second year.

I do know this, that quite a number of good bee-keepers requeen every two years, and some say they prefer a queen one year old, not because her bees will do any better work in the supers, but because they will be less inclined to swarm.—ED.]

GRANT STANLEY writes that, for four years, he has been using with satisfaction a hive-stand made like mine, only he uses 2×4 stuff "for the bottom, standing them on edge. This makes a stand 5 inches high." If he means he lays a floor on the 2×4's for the bottom-board to stand on, I don't like it. If the hive stands directly on the edges of the 2×4's it's better than mine. I am thoroughly convinced that it is a bad thing for a bottom-board to stand flat upon a considerable surface. The water gets between the two surfaces, and stays there very much as in a sponge, to rot the bottom-board. A good thing might be to have the hive rest upon two rather sharp edges covered with tin to eliminate the sponge business. Or the two edges might be of cement.

"IS IT TRUE that these off seasons of clover are coming with more painful frequency than formerly?" p. 1484. I didn't say they were coming with more painful frequency. I do not know that they are any more frequent now than they were 45 years ago. You say, Mr. Editor, "We are almost forced to conclude that clover per heads yields as much nectar as ever." I quite agree with you; I am not almost but altogether forced to that conclusion. "Is it not rather true that there is less of clover owing to intensive agriculture than 20 or 30 years ago?" It is not true in this locality: clover is as plentiful or more so than ever. There are no more bees than formerly. Your talk about changes has no bearing on the question. All through my bee-keeping life seasons have occurred with painful frequency when the clover blooms and blooms and blooms, all right in appearance, but the bees just don't get any honey; and I wish some one could tell us what the trouble is. [It is true that you do not claim in that particular Straw that those off seasons of clover were coming more frequently; but this Straw, taken in connection with some of your others, and some conversation I had with you at one time when we discussed the question why clover did not yield as it used to do in old times, led me to take up the question in a general way—especially so as not a few have claimed that clover did not yield now as it did formerly. If I misunderstood you in your position, then I stand corrected.—ED.]

FIGURES in that New Zealand article, page 1488, seem to need some doctoring. One statement is that 100,000 colonies in a poor season would produce over 20,000 tons of honey, returning \$300,000. Another statement is that 8 tons from 220 colonies was a cautious estimate for a normal season, and that \$200 a ton profit was reckoned on. By the first statement the average per colony is 400 lbs. in a poor season; by the second statement it is 73 lbs. for a normal season. By

the first statement honey is $\frac{1}{4}$ cent a pound; by the second statement, 10 cents. All this doubtless refers to extracted honey, and $\frac{1}{4}$ cent seems very low and 10 cents very high. But I don't know how to doctor it. [Yes, there is evidently a mistake here somewhere, for the two sets of figures are not consistent. Since the writer of the article is, for the most part, telling what Mr. Hopkins has said, it is quite likely that, somewhere or other, he has made an error. For instance, when he speaks of the 20,000 tons of honey from 100,000 colonies, it is quite probable that he meant 2000 tons (English tons). The amount per colony would then be about 45 pounds, and the price per pound over $6\frac{1}{2}$ cents. Without doubt he means that the \$300,000 is the net gain after all expenses are paid. This would make the selling price of honey very high; but Mr. W. K. Morrison says that the price of New Zealand extracted honey is high, and that it is not unusual for it to bring 10 or even 12 cents a pound. The second set of figures refers to a specific case, and gives as a result 81 pounds per colony at about 8 cents a pound, taking the English ton of 2240 lbs. It looks as though this 8 cents were the net price after the expenses for selling had been deducted.—ED.]

WHERE DID you get your information, Mr. Editor, that comb honey sells in England for 48 cts., p. 1483? The highest I can find in *British Bee Journal* is only half that. [I obtained my information from Mr. W. K. Morrison, who has made a study of honey markets the world over, for the statement in question. Referring to the *British Bee Journal*, page 166, April 26, I find this statement: "Scottish bee-keepers state that last season they had no difficulty in obtaining 1 shilling 4 pence (32 cts.) to 1 shilling 6 pence (36 cts.) per lb. for Scotch heather honey, and 7 to 8 pence (14 to 16 cts.) per lb. for clover honey." The preceding quotation was from a letter from Shaw Bro., commission men of London, and referred to extracted honey. Then, again, on page 202 of the same journal for May 24, we find this: "Bee-keepers in Scotland can easily obtain from 1 shilling 4 pence (32 cts.) to 1 shilling 10 pence (44 cts.) per lb." This also referred to extracted and to what the bee-keeper obtained, and not what the honey was selling for in London or other principal markets. After it gets there it would retail for 48 cts. at least. If it had been comb honey the price would have been even higher.

You will note that there is a difference in price between the ordinary clover and heather honey, for the former seems to be very highly prized in London, if the quotations mean any thing.

In regard to clover selling at a lower price, Mr. Morrison says the English clover is apt to be mixed with other less desirable flavors, and hence it is lower quality.

Again, on page 194, May 17, *British Bee Journal*, I find this: "A bulky barrelful of the past season's Scottish heather honey would have been worth more than a barrelful of good Scotch whisky. Although honey

production is with me mainly a hobby, I have never at any time retailed it at less than 1 shilling 3 pence (30 cts.) per lb. During the past season I have produced barrellfuls of Scotch honey, and bottled it at 1 shilling 6 pence (36 cts.) per lb., and 1 shilling (24 cts.) per lb. wholesale; and, mark you, not heather honey, but clover honey." This is extracted also, you will note. On page 123 of the same journal Mr. D. M. MacDonald writes: "Heather honey sold readily at 1 shilling 3 pence (30 cts.) per lb., upward, and I had any number of orders which I was quite unable to fill after making extensive inquiries, although several customers offered 1 shilling 6 pence (36 cts.) per lb. Pure clover honey sold readily at 10 pence (20 cts.) per lb." On page 146 Mr. R. Steele, a supply-dealer and honey-merchant, says, "We do a big business both in buying and selling Scotch honey, and last year gave 1 shilling 4 pence (32 cts.) per lb. for heather honey in the comb, and could not meet the demand, as the supply was very limited." Note that he was buying chunk honey to sell again. You can readily see that this honey, when it got into the big markets, would retail for 48 cts. or more of our money.

You will find honey offered in the advertising columns of the *British Bee Journal* for less than these figures; but from quoted references it is plain to see that such honey is either of a job lot or is not the best, for that is what we were talking about. Some little time ago Prof. Cook, who was then in Germany, said that very inferior chunk honey was retailing for 25 cts. per lb.—ED.]



By the time this journal reaches our readers we shall have our printing-plant in our new building. This moving will account for the delay in getting out this issue.

THE Canadian Pacific Railway has under construction in Alberta an irrigation scheme calculated to reclaim 3,000,000 acres of land, which is equal to the total irrigated area of several States in this country. Uncle Sam is constructing several big ditches himself in the arid region, but this Canadian venture completely dwarfs our Uncle's efforts in this line. Bee-keepers will take great interest in all these enterprises, as an irrigated region is generally good for bee-keeping.

LARGE quantities of garbanzos, or chick peas, are grown in Sonora by irrigation, and transported via the Southern Pacific Rail-

way and New Orleans to Cuba, Porto Rico, and Spain. As these are honey-yielding plants, why not grow these peas in this country and capture a good trade? It is true, labor is cheap in old Mexico; but mechanical labor is cheaper, and freight rates would be less. Oh, my! but lots of good things require to be introduced into this country yet, and, worst of all, many of these are excellent bee-plants and soil-improvers.

THE little republic of Switzerland has 32 experiment stations for bee culture, with a force of 35 experimenters. A beautiful annual report of about 50 pages is gotten out, in which is a condensed report of the work done the previous year. Maps and diagrams are used to elucidate the text, together with beautiful half-tones of the flowers treated of in connection with the work of the bees. One experimenter has been with the government in this work for 21 years. If a country about the size of Connecticut can do work like this, what can the United States do?

MR. HANNEMANN, the inventor of the queen-excluder, is still alive and contributes to the Brazilian bee paper published in Rio Grande do Sul, E. U. de Brazil. The paper is published by an old friend of GLEANINGS, Mr. Schenk, long resident of South America. It is not published in Portuguese, the language of that country, but in German, because the principal bee-keepers in that far-away part of the world are natives of Germany. Mr. Hannemann's method of using the excluder has never been practiced in this country to our knowledge. He united several swarms in one, and ran the same into a hive several stories high, but having a queen-excluder above the lowest story.

HIGHER PRICES ON HONEY.

COMB honey is retailing in some of the fancy stores in the cities at from 25 to 30 cents a pound, and extracted in proportion. The fact is, the practical working of the new pure-food is so near at hand that the merchant does not dare to buy adulterated or misbranded goods. Indeed, it is not safe for him to get any thing but pure food stuffs. For these he has to pay a higher price, and consequently has to sell for more. "But," you say, "it comes out of the consumer." True. But he gets more value for his honey—more bone and muscle and strength, and fewer doctors' bills. Paste this last in your hat.

THE POSSIBLE ADVANCE IN THE PRICE OF FOOD STUFFS.

It will take some months before the general public begins to comprehend just what the enactment of the new national pure-food law means. While prices on food stuffs may be higher, they will be of a far better quality, and be labeled for just what they are. No consumer can object to paying a higher price for his butter, his sugar, his molasses,

his canned goods, his cereal foods, or his honey, if you please, if he at the same time secures a proportionate increase in value. In some instances, at least, he will actually get more for his money than formerly.

THE MARKED ADVANCE IN THE PRICE OF CALIFORNIA SAGE HONEY.

A COMPARISON of the markets on California honey of a year ago in New York, and the same markets this year, shows an advance of approximately 2 cts., or nearly 33½ per cent. There was a short crop both years in California, but we can hardly account for the difference in price by the difference in supply. The probabilities are that the new pure-food law has scared out the would-be adulterators in New York and elsewhere, so they dare not piece out this honey with glucose, making a little go a good way.

It will be noted, also, that prices are stiffening right along the line on all grades of honey. Early this season the market was uncertain; but instead of weakening, as it usually does, the market is even stronger.

CAUCASIAN BEES.

In the October number of *Irrigation* Mr. Frank Rauffuss, of Colorado, sums up our present knowledge of the Caucasian bees, adding his own experience, which is not small, seeing he has owned several colonies of this race for six years. He says they are undoubtedly gentler than any other race yet discovered.

They have longer tongues than any other bee yet tried in this country.

They are quiet under manipulation.

They are not inclined to store in the brood-chamber.

They raise a great many queens when deprived of their leader.

They contract their hive-entrance in the fall with a grayish propolis.

They winter very well out of doors.

Their queens are not of uniform color. Some are grayish black, and some are rust-colored (rufous).

The queens are very prolific layers.

The drones are generally of a grayish black.

The workers are apparently smaller than Carniolans or Italians. In color they are not uniform. Some are grayish black all over, with white hairs on the abdomen. Others are rufous on the first ring of the abdomen.

Thus far they have not equaled Italians as honey-getters, but this is probably due to the negligence of the breeders in the Caucasus.

PRICE OF SAGE AND CUBAN HONEY IN THE NEW YORK MARKETS.

MR. W. K. MORRISON, after reading the article by Mr. E. W. Alexander, in our issue for Dec. 1, stating that choice California sage honey was selling at from 4½ to 5½ cents in the city of New York, felt very sure that our correspondent had been misinformed as to

the facts. As he has very recently come from New York, and having spent several months in that city, making a special study of the honey situation, he feels very positive that the prices on honey are very much higher than those that were quoted to Mr. Alexander. I requested him to prepare a statement, which he has done as follows:

Mr. Alexander quotes choice California sage honey as selling for 3½ to 4½ cents F. O. B., which would make the price in New York 4½ to 5½ cents. Now, I do not hesitate to say Mr. Alexander or his informant is entirely wrong in quoting such prices. If any man can import honey from California at the present time, and land it in his warehouse for less than 7 cents per pound, he is doing wonders, for no one else is doing it. My experience in New York was quite different from Mr. Alexander's, and I was there four months this summer. When I left, comb honey was selling on Fulton St., Brooklyn, for 30 cents per ideal section. This was in the dairy stores, where butter, eggs, and milk are sold, and extracted honey (tupelo) was 25 cents per 1-lb. bottle. In fact, my impression of the New York market was exactly the opposite of Mr. Alexander's—that is, the market for honey was good and getting better, and I think I know something about New York, having kept bees there on a roof years ago, and selling my honey for \$5.00 per 24-section case, and I could do as well (if not better) to-day.

I took pains to find out how things stood in Brooklyn; and in all that vast city (over a million) there was not a single honey-store. Even the great department stores, most of them, did not have honey in stock (they were "going" to get it). Brooklyn is probably the best place in the whole world to sell honey, because its inhabitants are largely New York business men, the richest in the world.

As to the Cuban honey, we need not worry about it, because in England, where there is absolute free trade, honey is much dearer than it is with us. Quotations of heather honey in Scotland, in the *British Bee Journal* of a recent date, say the price is from 30 to 44 cents per lb. California sage honey brings at the very lowest 9 cents in large lots, in London, and it costs but little more to send it to London than it does to New York.

After the first of the year glucose syrup will no longer masquerade as honey, and prices ought to be considerably stiffer for all grades of honey. A good deal of molasses, too, will be ousted because most of it is entirely unfit for human consumption. A good proportion of granulated sugar will also come under the scrutiny of the pure-food inspector because it contains glucose and sulphites. I am not a pessimist. Now is the time to stick out for higher prices.

We have not been able to get any thing like 4½ and 5 cents on sage honey at Medina. In fact, we have not been able to obtain any thing better than 7 cents delivered here, and we are over 600 miles nearer California than New York is. The quotations on sage honey in the New York markets are 7½ and 8 cts.

It is possibly and probably true that the honey-salesmen in New York, that Mr. Alexander approached, desired to give him the impression that they could buy mountain sage and Cuban honey at ridiculously low prices, with the view of jewing him down on his buckwheat. That is an old trick, and very often serves his purpose. But Mr. Alexander had sold his honey, so no harm was done.

A FAIR ANSWER TO A FAIR QUESTION; HONEY-CROP REPORT IN GLEANINGS.

THE following item appeared in *Irrigation*, an excellent monthly published at Denver, Col.:

I have been reading with interest the honey-crop reports which we have been receiving during the season, and especially those we have received from a cer-

tain prominent bee journal. Those reports came regularly twice a month, when they suddenly ceased at a time when the bee-keepers of the United States needed them most. If a bee journal can not give the bee-keepers the desired information at the right time, of what interest is it to them?

This is a fair question, and deserves a fair answer. In the first place, I may say that we began giving the honey-crop prospects as early as June of this year, asking for postal-card reports. As these came in they were summarized and placed at the disposal of our readers in subsequent issues until Aug. 15. At that time all the information that was available had been obtained, and thereafter, until about Oct. 1, we were unable to get any thing authentic about crop conditions, and consequently did not publish any thing.

In our issue for July 15 a summary was made by us after all the reports had been gathered, and after the main honey-flow from the Northern States was over, saying that "the crop of Western honey in car lots will be light. The Mississippi Valley south of the Wisconsin line and north of Missouri will have from a fourth to a third of a crop. Michigan, Ohio, and Kentucky, fair; Missouri and Nebraska, good; Eastern States, half to a full crop. There will not be much Western honey on the market except some from California." August 1, again, we stated that "there is very little to add to what has already been given, except to say there will be some shrinkage from early estimates as to the amount of honey there would be from the Eastern States." After that we were unable to get hold of any definite information that we thought would be authentic, and so we finally decided to wait until the honey began to be marketed.

During the middle of September we began to get reports again; and in our October 1st issue we stated that buyers everywhere were trying to get honey; that the crops had been short, and that "conditions now seem to show that the crop is even lighter this year than last;" further, "there is some honey in Colorado and California." This item was published a month before the quoted item in *Irrigation*; but it is possible that Mr. Francis, the writer of it, had not seen our issue for October 1st, wherein the missing information he sought was given.

There were other items in *GLEANINGS*, all tending to show that the crop was light, so I do not think our readers really lacked for information when we were able to give any that was considered reliable.

Possibly the writer of the item thought we held back the crop reports seeing there was going to be a scarcity, in order that we might buy up in the mean time all the honey we could get hold of. But if that had been our intention we should have been very foolish, from a business point of view at least, to state in August, before the honey was ready to market, that there was a shortage. If we had had any such desire to take advantage of the market we would have held back this last piece of information, bought up the honey, got a big slice, then came out with flaming statements that the crop was short, in

order to advance the price and thus make a good profit.

As a matter of fact, what little honey we did get was after October 1st, and after we had stated in that issue that the crop for this season was lighter than it had ever been before. This would have the effect, if any thing, to advance prices, compelling us to pay the advanced figure.

SHUTTING THE BEES WITHIN THE HIVES, BOTH IN THE WINTER REPOSITORY AND OUTDOORS.

I HAVE been making some experiments during the last few weeks; and while I do not yet definitely know what the results will be, yet they are of such a nature that our readers should know what they are, and be given an opportunity to try the same experiments and report next spring.

On p. 1367, Nov. 1, it will be remembered that Mr. O. L. Hershisser advanced some forcible arguments in favor of shutting bees inside of the hives in the winter repository during winter. He argued that many bees fly out of their hives on to the cellar bottom that are perfectly healthy; but when once out they are unable to return, and, of course, perish. If these bees had been confined within the hive they would, after leaving the cluster, soon join it again, adding their body heat to that of the general cluster. Mr. Hershisser was careful to stipulate that the bees so confined should have a large amount of ventilation—that is to say, large openings covered with wire cloth.

He uses a special hive-stand and bottom-board combined, the sides of which are cut away, and covered with wire cloth. This gives practically an area of ventilation equal to the whole bottom of the hive. The effect of this is to reduce the temperature within the hive, keeping the cluster more quiet, even when the temperature rises a little high in the cellar itself. But Mr. Hershisser urges another point—that is, that the cellar need not be darkened when the bees are shut in.

Our Mr. Calvert called on him, looked over his cellar, and was surprised to see how nice and quiet the bees were, and how few dead bees were in the hive-bottoms; for if they died at all they would have to die within a few inches of the cluster, as they could not get out of the hive.

It has generally been considered bad practice to shut bees within the hive for either indoor or outdoor wintering. With the ordinary hive-entrance this would be true. The amount of ventilation provided by an opening $\frac{1}{2}$ deep by the width of the hive is very scant for cellar wintering. If this narrow opening be covered with wire cloth it will not be long before this space will be covered with dead bees, and the ventilation practically shut off. This, of course, means death to that colony within a short time. Mr. Hershisser, however, provides a ventilating space so ample that the bees can never want for air at any time. Those that would die anyway, and seek to get away from the cluster, would

be shut within the hive and not litter the cellar bottom all up.

We have been testing lately various widths of openings, some narrow and some wide, covered with wire cloth. The narrow openings soon cause an uneasiness on the part of the bees. The internal temperature of the hive would get so high that the bees would cluster out in the little space covered with wire cloth, and seek escape, making a general buzzing of discontent. But where a larger opening was provided, entire quietness prevailed.

How do we provide a larger opening? We made some special rims all the way from 3 to 5 inches deep, without top or bottom, of the same width and length as the hive. The sides of these were left open, and covered with wire cloth. The bottom-board of the hive was pried loose, when one of these rims was interposed between the hive and the bottom. The entrance space was closed up with a cleat. This rim with wire-cloth sides would leave a space anywhere from 3 to 5 inches under the frames. (It is proper to explain right here that some of these rims were 3 inches deep, and others 5, the deeper rims being used on the stronger colonies.)

So far we note that, when the temperature in the cellar rises to 50 degrees or higher, these bees that have these special ventilating rims under them, providing a large amount of ventilation, remain perfectly quiet, while those with the ordinary hive-entrance become uneasy.

Right here I ought to explain that the ordinary entrances were not covered with a mere strip of wire cloth, but with a sort of wire-cloth cage as long as the entrance is wide, the ends being made of wood and 3 inches square. Such a cage provides a clustering-space in case the bees should come out, and at the same time shuts them in the hive.

Well, these devices proved to be so unsatisfactory that we abandoned them almost as soon as we put them on the hive. But we found an excellent use for them for the outdoor bees. And this reminds me that a cage to slip over every one of the outdoor bees, of the kind described, will prevent all such bees from flying out on chilly days when the sun shines bright, saving a tremendous loss.

I asked Mr. Vernon Burt one day how many bees he thought he lost by their flying out on bright days when it was too chilly for them to get back. "Bushels and bushels of them," he said. Observing that many of our bees were dying in the grass in the late fall, having been allured by a deceiving sunshine, I finally decided to make up a lot of cages of galvanized wire cloth. These, as I explained, were 3 inches square and the length of the entrance, one side open to fit against the hive, the bottom and ends made of wood to hold the wire cloth in shape after being nailed on. This left two long sides covered with wire cloth.

We now have something like 200 of these cages attached to our hives—about half of the whole number. Two days ago we had one

of those deceiving bright days that drew out a great many bees from the entrances not closed with the cages. These bees appeared to be in every way healthy; but hundreds of them could be counted in the grass, and the aggregate number would amount to a good many thousand. It was interesting to note that the bees in closed entrances came out into the cages; but after finding they could not fly, and that the air was chilly, they would crawl back into the hive and join the cluster. These bees, I positively know, we saved. So well pleased am I with the results thus far secured that I think we shall attach cages to all our outdoor colonies.

"But," you ask, "how are you going to give the bees a cleansing flight and keep them shut in? Will you not thereby induce dysentery if you do not let the bees fly on a day when the weather is suitable?" This is all easy enough. When the weather warms up so it is perfectly balmy we shall go around and pull off all the cages, laying them on top of the hives temporarily. At night put every one of them back in its place. So you see there is nothing in the cage plan that will prevent the bees from having a cleansing flight *when such flights can be had without actually chilling them to death.*

I shall have some illustrations showing both the form of this outdoor cage as well as the wire-cloth ventilating rim; but as I conclude that many of our readers would like to save some pecks, or I might say bushels, of their bees, I thought best to give a general description, letting each bee-keeper work out the details for himself.

WHAT THE UNITED STATES GOVERNMENT IS DOING FOR BEE-KEEPERS IN THE MATTER OF BEE DISEASES.

OUR readers know, of course, that Uncle Sam has taken an active interest in the general subject of bees. He has now several salaried employees who devote all their time to apiculture. Dr. Phillips, in charge of apiculture, during the absence of Mr. Benton, in the Orient, has taken a great deal of interest in the subject of bee diseases—a subject that sorely needed the attention and co-operation of the general government. He has made several visits to disease-infected districts, and had many conferences with foul-brood inspectors from all over the United States. In addition to this he has called to his aid a skilled bacteriologist in the person of Dr. G. F. White, formerly at Cornell University. Dr. White, be it remembered, while at Cornell, had, on behalf of the bee-keepers of New York, done considerable work in the investigation of bee diseases, and from the very first he identified the microbe of the so-called black brood as the *Bacillus alvei* of Cheyne and Cheshire. Since he has been employed by the general government he has continued his investigations, examining a large number of samples of infected brood, both of the old foul brood and of black brood. Not only that, he has given his attention to all forms of maladies

affecting bees, including bee paralysis and pickled brood, so called.

As a result of all this work, there is just being published two important bulletins—one by Dr. White, Technical Series No. 14, of the United States Department of Agriculture, entitled "Bacteria of the Apiary." This relates to a technical discussion of the general subject of bacteriology and its relation to the diseases of bees.

The other bulletin, Circular No. 79, of the United States Department of Agriculture, is by Dr. E. F. Phillips, entitled, "The Brood Diseases of Bees." This seems to be somewhat supplementary to the bulletin by Dr. White, and deals with practical considerations, fully describing the various diseases and then entering into their treatment.

I do not hesitate to state that these documents are two of the most important that have ever been put out by the Department on apiculture, for they relate to the very foundation of the whole business. There is no use trying to disguise the fact that bee diseases in many parts have been getting the upper hand of us, and now the authorities at Washington are giving us material aid; but Dr. Phillips and Dr. White have gone even further. They called a convention of foul-brood inspectors from all parts of the United States, the same being held soon after the big convention of the National Bee-keepers' Association that was held at San Antonio. A report of this is given in our next issue.

Referring again to the bulletin by Dr. White, I may state that the average bee-keeper will not be able to make very much out of the technical part of this paper. At the same time, the amount of material placed at the disposal of scientific men generally will be of immense value in stimulating further investigation.

Coming down to practical considerations, Dr. White finds that there are two distinct brood diseases, one more destructive than the other. For some years back the bee inspectors in some parts of the country have noted the same fact. In Europe it has been repeatedly stated that there were two diseases—one a mild and one a virulent form.

The problem that devolved on Dr. White was to discover the microbe of each disease. His work was rendered more complicated, not to say embarrassing, by the fact that, after repeated investigations, he could not confirm some of the work done by some of the other bacteriologists. Dr. J. J. Mackenzie and Dr. Harrison, both of Canada, reported that they found *Bacillus alvei* in the diseased matter of ordinary foul brood. Dr. Howard, of Texas, claimed to have discovered the real microbe of black brood, calling the same *Bacillus milii*; but, strangely enough, Dr. White, who has given this subject more attention and study, probably, than all the rest of the investigators put together, was unable to discover *Bacillus milii* in so-called black brood; but he did find, and that, too, repeatedly, the *Bacillus alvei* of Cheshire.

When he announced his findings, in 1902, it produced more or less consternation in all circles. But Dr. White continued his studies the next year, only to confirm his previous work. Since he has been in the employ of the general government he has gone all over his work again, and still finds the *Bacillus alvei* in black brood, but not in foul brood as we have known it in the United States. In this latter he finds a new microbe which he designates as *Bacillus larvæ*. Having, therefore, found the germs of the two diseases, the question then came up, "What names shall he use?" The opinion of the leading bee-keepers and foul-brood inspectors was sought by Dr. Phillips, and it was finally decided to call black brood "European" foul brood; and the ordinary foul brood, with which we are best acquainted, "American" foul brood. These were not so named because of geographical considerations, for both diseases are found in both countries. But the disease caused by *Bacillus alvei* was named *European* foul brood because the microbe of that disease was first discovered in Europe. The ordinary foul brood was named *American* because the microbe of that disease was first discovered in America.

The question might arise, "Why not have retained the old names, black and foul brood?" In the first place, black brood was an old disease with an adopted name that did not belong to it. The authorities "thought best to call both diseases foul brood, which they really are, because to call them any thing else would result in complicating the laws now in force which control the infectious diseases of bees, and would serve no good purpose." It will be understood, then, that these names, American and European foul brood, have no reference to geographical distribution of the diseases.

Dr. White has not yet located the microbe of the so-called pickled brood nor of bee paralysis. These will doubtless be the subject of further investigation.

This bulletin can be obtained by applying to the Superintendent of Documents, Washington, D. C., on the payment of ten cents. Stamps will not be accepted. A ten-cent piece can be slipped in a hole in a piece of cardboard and sent safely. The other document, the one that will be of the most practical value to the ordinary layman bee-keeper, Circular 79, by Dr. Phillips, will be sent free, probably.

BROOD DISEASES OF BEES, BY DR. E. F. PHILLIPS.

This is a pamphlet of five pages of matter. While it does not pretend to be an extended treatment of the general subject, it gives all that is necessary to know. In the description of the distinctive symptoms of the two diseases, American and European foul brood, I can not do better than to quote direct from the bulletin.

AMERICAN FOUL BROOD.

American foul brood (often called simply "foul brood") is distributed through all parts of the United States, and from the symptoms published in *European*

journals and texts one is led to believe that it is also the prevalent brood disease in Europe. Although it is found in almost all sections of the United States, there are many localities entirely free from disease of any kind.

The adult bees of an infected colony are usually rather inactive, and do little toward cleaning out infected material. When the larvæ are first affected they turn to a light chocolate color, and in the advanced stages of decay they become darker, resembling roasted coffee in color. Usually the larvæ are attacked at about the time of capping, and most of the cells containing infected larvæ are capped. As decay proceeds these cappings become sunken and perforated, and, as the healthy brood emerges, the comb shows the scattered cells containing larvæ which have died of disease, still capped. The most noticeable characteristic of this infection is the fact that when a small stick is inserted in a larva which has died of the disease, and slowly removed, the broken-down tissues adhere to it and will often stretch out for several inches before breaking. When the larva dries it forms a tightly adhering scale of very dark brown color, which can best be observed when the comb is held so that a bright light strikes the lower side wall. Decaying larvæ which have died of this disease have a very characteristic odor which resembles a poor quality of glue. This disease seldom attacks drone or queen larvæ. It appears to be much more virulent in the western part of the United States than in the East.

EUROPEAN FOUL BROOD.

European foul brood (often called "black brood") is not nearly as widespread in the United States as is American foul brood, but in certain parts of the country it has caused enormous losses. It is steadily on the increase and is constantly being reported from new localities. It is therefore desirable that beekeepers be on the watch for it.

Adult bees in infected colonies are not very active, but do succeed in cleaning out some of the dried scales. This disease attacks larvæ earlier than does American foul brood, and a comparatively small percentage of the diseased brood is ever capped. The diseased larvæ which are capped over have sunken and perforated cappings. The larvæ when first attacked show a small yellow spot on the body near the head and move uneasily in the cell. When death occurs they turn yellow, then brown, and finally almost black. Decaying larvæ which have died of this disease do not usually stretch out in a long thread when a small stick is inserted and slowly removed. Occasionally there is a very slight "ropiness," but this is never very marked. The thoroughly dried larvæ form irregular scales which are not strongly adherent to the lower side wall of the cell. There is very little odor from decaying larvæ which have died from this disease, and when an odor is noticeable it is not the "glue-pot" odor of the American foul brood, but more nearly resembles that of soured dead brood. This disease attacks drone and queen larvæ very soon after the colony is infected. It is, as a rule, much more infectious than American foul brood and spreads more rapidly. On the other hand, it sometimes happens that the disease will disappear of its own accord, a thing which the author never knew to occur in a genuine case of American foul brood. European foul brood is most destructive during the spring and early summer, often almost disappearing in late summer and autumn.

This differentiation, from what I have been able to discover, is accurate, and one who will follow it carefully will be able to distinguish pretty unerringly between the two diseases, which, though very much alike, yet in some important respects are very dissimilar. Pickled brood, Dr. Phillips describes as being "characterized by a swollen watery appearance of the larva, usually accompanied by black color of the head. The larvæ usually lie on their backs in the cell, and the head points upward. The color gradually changes from light yellow to brown after the larva dies. There is no ropiness, and the only odor is that of sour decaying matter, not at all like that of American foul brood."

Personally I have had more trouble in distinguishing between pickled and European foul brood, because at some stages the dis-

tinguishing symptoms do not appear. In that case the only thing to be done, probably, is to send a sample to Dr. Phillips.

The treatment for the European and American foul brood is the McEvoy, shaking on to foundation. In the case of American foul brood, Dr. Phillips advocates that the hives be disinfected by burning out the inside of the hives. He does not appear to urge this, however, in the case of European foul brood.



EMBRYO QUEEN-CELLS; FINDING EGGS, ETC.

"Say, Doolittle, I want to ask you a lot of questions."

"All right, Mr. Smith. I'll do the best at answering that I can. What is first on the program?"

"The books tell me that, when I find queen-cells in any hive, the bees are making preparations to swarm. Is this always the case?"

"No. Perhaps the books do not go into the minutiae, or do not sufficiently explain so that a novice may understand. What part of the matter is bothering you?"

"Last summer I hived a prime swarm in a hive, the frames of which were filled two-thirds full of comb foundation, as I did not have foundation enough to fill all the frames full. In about a week I looked into the hive, and I found on two of the combs, built from the foundation, near the bottom of the comb, quite a number of queen-cells built, and I watched that hive for days and weeks, expecting it would swarm, as the books said, but it never swarmed at all."

"What do you mean by queen-cells?"

"Just what any fool would mean. A queen-cell is a queen-cell, is it not?"

"Well, perhaps so, to a fool or a novice; but when the bees first start a queen-cell it is only in the embryo state; and when in that state I call them queen-cups, or embryo queen-cells. These embryo queen-cells, resembling an acorn, cradle, or saucer, as they are sometimes called, are found in each colony, so far as my experience goes; and new swarms, as you say, build them almost invariably during the first two or three weeks after hiving; but such cups, not more than from $\frac{1}{4}$ to $\frac{3}{8}$ inch deep, are no sign of swarming at all, as they are found at all times of the year, and in all or nearly all colonies, be the same weak or strong."

"Then why do not the books explain?"

"I suppose they think that we should be familiar enough with the inside of the hive to know about these things."

"That is a strange supposition. What do

I want of a bee-book but to tell me the things I do not know? Had they told me about these queen-cell cups I would not have wasted all the time I did in watching that colony. What kind of queen-cells are those which denote swarming?"

"They are such as are lengthened out till they are from $\frac{1}{2}$ to $\frac{3}{4}$ inch deep, and in which you can see eggs or larvæ with royal jelly in. When you find such as these, and from this stage on to the completed or sealed queen-cell, then you may know that the bees either intend to swarm soon, or else that they are calculating to supersede their old queen. If you find such as these during the swarming season you will naturally expect swarming, as very few colonies supersede their queens during the swarming season."

"When do they do their superseding?"

"Mainly after the swarming season is over, or at the close of the white-honey harvest, though quite a few will be superseded before the swarming season has fully arrived. But my experience is that five queens will be superseded between July 20 and August 20, in this locality, to where one is at any other time of the year, and the dates given are for the time which usually comes between the basswood flow and that from buckwheat."

"Well, that helps me out a little. But I think the books ought to mention the matter that no swarms need be expected from the finding of queen-cups."

"I think that such mentioning in a prominent way might be a good idea, and help the novice to understand matters rather more fully."

"A moment or two ago you spoke of finding eggs in queen-cells. Now I want you to tell me how I can find eggs, not only in queen-cells, but in any of the cells in the hive. I am often puzzled in this matter, as my eyesight is not very good."

"In hunting for eggs it is best to do it on a sunny day, and always turn the back to the sun, or toward the brightest part of the sky when the sun does not shine. No person, no matter how good the eyesight may be, can well see the eggs of the queen-bee in the bottoms of the cells when he stands facing the sun and holds up the comb so that the cells containing the eggs are in the shade. Turn your back to the light, and hold the comb so that the rays of the sun can strike the bottoms of the cells you are looking into, when you will see the little eggs, about a sixteenth of an inch long, and as large around as a fine sewing-needle, attached to the bottoms of the cells."

"Well, I guess I see my mistake; but I may not be able to see so small a thing, even then."

"A pair of quite strong spectacles can be used profitably, as a sort of magnifying-glass, for such and similar examinations. Formerly I did not use such; but since my eyes began to fail I do not try to see eggs or small larvæ, without glasses. With glasses, and turning your back to the light, and allowing

the light to shine in the bottom of the cells, I do not think you will have any further trouble along this line."

"Thank you. Now another question: In handling bees it often happens that I get honey on my fingers, and then I am sticking to every thing I touch. I have tried to wipe the sticky stuff off on the grass, but it does little good. What do you do when you get daubed with honey in such a way?"

"Every well-regulated apiary, no matter if it does not contain more than five colonies, should have water standing or running in it, and a towel near by, for just the purpose of washing the hands, and the tools used during the manipulation of bees, for the operator is liable at almost any time to get either his hands or the tools used daubed with honey; and I know of nothing more annoying than to try to work further with the bees when any thing that must be used is daubed with honey. As soon as you get through with that which is necessary to have honey on it for the time being, wash the hands, tools, etc., and wipe them, and your trouble is all over."

"What do you keep standing water in for this purpose?"

"The nicest thing I know of is a length or joint of glazed water-pipe, such as is used for bridges or sluices to carry water under the highways of our country roads, and for sewers, etc."

"How do you fix one of these so it will hold water?"

"Take three parts of sand and one of Portland cement; stir well together while dry, so as to mix thoroughly. Now dig a hole of suitable size in the ground in a handy place, when you will wet the sand and cement till of the consistency of mortar for using, then you will pour it into the hole you have dug, and then set one end of the glazed water-pipe in the concrete and leave it to harden. When fully set or hardened, you will have something which will hold water like a cistern, will not rust or corrode, and you can empty it at any time you desire by tipping it over, as the concrete will stick to the pipe rather than to the dirt of the hole."

"Would not an earthen jar do as well?"

"It would be the next best thing to what I have described. The only disadvantage would be that a jar of the same capacity would cost much more, and, being so much lighter, it would be more liable to get broken. Either one should be made free from water during the freezing period of the year, as the action of frost in forming the water into ice would break either."

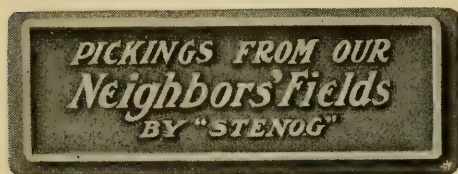
"One more question and I will be going. You say the farmer at your out-apiary uses his cellar during winter, while your bees are in the cellar, just as he pleases. How about the light, when the doors and windows are used? Do you partition off the part of the cellar in which the bees are, so the light can not reach them?"

"No. I pay no attention to the light, further than to set the hives so that the entrances face the rear cellar wall. The door leading into the cellar is in the front wall, together

with one window; and there is a window in the center of each side wall, but none in the back wall. These three windows are not darkened in any way, and the door is open at all times when the farmer is getting produce either in or out from the cellar; but with the hives set with the entrances near and facing the wall at the rear, the bees are, in a sort of semi-darkness; or, in other words, the light does not directly strike the bees in any way unless they crawl out at the entrance and around on the side of the hives. If they do this the light can strike them directly."

"I should think many would get lost in this way."

"I feared so at first; but after nearly twenty years of wintering them thus, I do not see that the loss of bees is any greater during their winter confinement than is the case with a cellar without one single ray of light penetrating the same."



A writer in the *British Bee Journal* is giving us some interesting talks on the pronunciation of terms used by bee-keepers. This is certainly a good field to plow up and seed down, although all doubts may be removed by consulting a dictionary. The author of these talks on bee-words says that "pro-polis" is a wrong pronunciation of that word, and that "pro-po-lis" is not heard from those who mingle much with bee-keepers. That seems a little strange, for it is quite a bee locality here in Medina, and "pro-po-lis" is the only pronunciation I hear, and this is the first or preferred accent given by the Standard Dictionary and all others I have seen. The origin of the word would seem to show that that is the best way, as *pro* means in front of, and *polis* means a city.

About twenty years ago an attempt was made in this country to put very small sections of honey on the market—some that would sell for about a nickel apiece for picnic purposes. The plan was soon dropped, however, and nothing more said about it till recently, when the matter was reviewed in England. Mr. Robertson, the projector, says in the *British Bee Journal*, "These sections weigh 1 oz. each, probably slightly more, and so to retail them at 18 cts. a dozen, or in other words at 24 cts. a pound for honey, should not spell financial ruin to those bee-keepers who try them. It is absurd to suggest selling at 12 to 16 cts. a pound and thus give 100 per cent to the restaurant. I under-

stand 20 cents a dozen is the price paid by tea-rooms for their small pots of jam, so that 18 cts. a dozen is not an out-of-the-way price for these miniature sections." The result will be watched with interest on this side.

A French correspondent, and a user of honey, both comb and extracted, says if those who use comb honey would pour milk on it they would find the honey greatly improved, as the milk deprives it of the intensely sweet flavor that prevents most people from eating more than a spoonful at one time, as it then cloyes the taste. That is all true, as I know by experience, only I improve the milk by dropping the honey into that. Father Langstroth once wrote an article for these columns, in which he showed that milk is the natural complement of honey, and that the two should be used together when honey is used for food. In ancient times, as we learn from the Bible, milk and honey were always considered as supplementary to each other. Eighteen books in the Bible refer to honey, and in every instance it speaks of it favorably, and generally as a great blessing. The above might also include what is said of honey-comb, where, plainly, comb honey is meant. I can more easily eat half a pound of comb honey, with plenty of milk, than half that amount without milk.

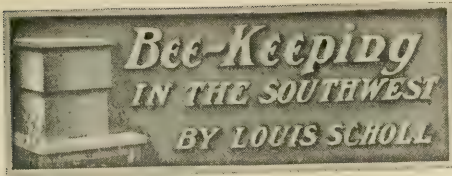
Much has been said against the eating of wax in comb honey; but, like W. Z. Hutchinson, I do not notice any ill effects from it.

A year ago considerable interest was aroused among bee-keepers on both sides of the line relative to a suit for damages, in which Mr. Morley Pettit, of Ontario, was defendant. The *Canadian Bee Journal* sums the whole matter up thus:

The appealed bee case of Lucas vs. Pettit (our friend Mr. Morley Pettit, of Villa Nova) has been decided against the defendant. We presume it is natural for us to sympathize with the bee-keeper while we bow to the decision of the judge.

For the information of those who may not have seen the report of this suit in the papers, Mr. Pettit's side of the story is that, on August 10, 1905, Freeman Lucas, a neighboring farmer, led his team of horses into his oatfield, which was across the road and at a safe distance from one of Mr. Pettit's yards, with the intention of cutting the oats. Mr. Lucas went back to shut up the gap, and when he turned to his horses there was a cloud of bees flying around them, stinging them. He attempted to drive the bees away with his hat, which only made matters worse, and was himself stung so that he ran and rolled in some mud near by, then went home, leaving the horses standing. The horses both died. The indications were that a swarm had clustered in the oats, and the horses, getting into them, stirred them up with the above results. The case was tried in Simcoe, where the jury brought in a verdict of \$400. Mr. Pettit appealed the case, but was again defeated.

The strange thing about the case is that, while Mr. Pettit has been made responsible for the action of the bees, he could not legally have claimed the swarm had he wished to secure it in his neighbor's corn-field, according to R. S. O., 1897, chapter 117, section 5, which reads: "If the owner of a swarm of bees declines to follow the swarm, and another person undertakes the pursuit, such other person shall be substituted in the rights of the owner; and every swarm which is not followed shall become the property of the proprietor of the land on which it settles, without regard to the place from which it has come."



Wise is the man who prepares ahead,
And makes ready for the unexpected;
He is the man who makes his bread,
And, above all, should be respected.

Circular No. 79 of the Bureau of Entomology, Washington, D. C., "The Brood Diseases of Bees," was kindly sent me by the author, Dr. E. F. Phillips, Apicultural Expert. It treats the subject in a very condensed form, and treats American and European foul brood principally with methods for successfully treating the same. It will be found to be of much interest to bee-keepers, and a copy can be obtained free by writing Dr. Phillips as above.

That "shorter spelling" question is up again. Several years ago this sort of spelling suited me so well that it was adopted and used for a long time. While connected with the Agricultural and Mechanical College of Texas, however, it had to be dropped for the reason that my manuscript matter had to be gone over and "corrected" before it could go. "Past" was changed to p-a-s-s-e-d; "spilt" to s-p-i-l-l-e-d; "thru" to t-h-r-o-u-g-h, etc. The *American Bee Journal* kept it up for a long time, although many of its readers "fought" against that kind of short spelling, but finally changed to the old way. I for one am in favor of the short spelling. It was no trick for me to learn it, so why should it be impossible for others? "A person is never too old to learn," they say.

That color plays a great part upon the stinging propensities of bees was proven again at the last extracting time when a brother and I worked in the yard together. He wore a black felt hat and black pants, while I had on a white straw hat and light-colored duck trowsers. The weather was a bit sultry, and the bees made a constant onslaught upon my brother's dark clothes every time a colony was handled, driving him out of the yard again and again, while I worked on, receiving stings only on the bare hands and unprotected wrists. They did not make a charge for my hat, while my brother's felt hat was covered with hundreds of stings and infuriated bees. The black clothing made the difference, for there was no such trouble upon other occasions.

The winter months are upon us, and the time for preparing for next season *should* be now; however, it is "put off" until later, when the busy season is at hand and every thing has to be done on the jump. At this

time, generally, orders are sent to the supply-dealer from all corners, and he runs behind or short of stock, hence he can not fill them. The bee-keeper loses time, and money (money), and he raves and puts the blame upon the supply-dealer when it is none but his own fault. The better way is to get supplies early, procure the discount given for early orders, and nail them up leisurely during the winter months. Try it. The result will be that you will have every thing in readiness far ahead of the time when needed and the harvest will be obtained with more leisure and more profit.

"Making" bees out of sugar syrup, says ye editor, p. 1229. That is a very good way to get bees. Most of our farmers have learned our price of a colony of bees, and they have consequently received the notion that theirs are worth \$3.00 a colony also. Others have learned that *we* are making bees pay big, hence they hold on to theirs with the hope of reaping part of the other fellow's riches. By practicing wholesale increase with *prolific queens*, and feeding enough to produce an artificial "light flow," great results should be obtained. How would you feed? and what arrangements would you use? [Generally I would feed inside of the hives with a small feeder of just enough capacity to give a small feed daily. When small doses are given, and often, practically all of it will go into brood and bees. If large doses are given the syrup will go into the combs and not much into brood.—Ed.]

A MAGNETIC HAMMER.

A small hammer, heavily charged, is one of the most handy tools for a bee-keeper. I have used them for years, always having a number of them at the several "stations." Having a crippled forefinger on my left hand makes it somewhat difficult to pick up the smaller nails used in frame-nailing, etc., so I stumbled across the magnetic hammers, which do the work for me. With it I can go J. A. Green just one better in picking up spilt nails. While he has an extra magnet to carry around, which, in all likelihood, may not "be there" when the nails are spilt, the hammer, naturally going with the nails, is put into play—a tool serving as two in one. Such hammers are cheap, small tack-hammers costing only from 5 to 10 cents, and a 15-cent size, if it is well charged, is the most satisfactory cheap hammer for frame-nailing, etc., and will be "strong" enough for picking up any of the sizes of hive nails generally used.

DOES ALFALFA YIELD HONEY IN TEXAS?

With the advent of irrigation in the arid regions of Texas, and the planting of alfalfa, will this State ever be classed with the Western States that produce enormous amounts of alfalfa honey annually? This has been an interesting question over which many of our bee-keepers have pondered. It is the general belief that alfalfa is a good honey-producing

plant, but no satisfactory data to that effect in Texas have been obtained. Investigations on this subject would, therefore, be very valuable, because, as irrigation and the growing of alfalfa in the State advance, the honey-yield is relatively increased; it means that many new localities for the location of apiaries would be opened, increasing the honey output to the amount of thousands of dollars. If alfalfa does not yield then, it will be well for bee-keepers to know it. There are those who contemplate locating in the coming alfalfa districts; but if alfalfa does not yield honey it would cause disappointment. For a number of years this has been a subject to which I gave close study. I have two apiaries near alfalfa, but as yet have failed to obtain any honey from this source during three years.

ent kinds of weather conditions. The same result followed—no honey-bees on the profusion of bloom, although small apiaries abound in immediate proximity. When there was nothing else in bloom, the bees idled, although the alfalfa was loaded with bloom, and it was not cut for several weeks. At one time a small yellow oxalis, growing in amid the alfalfa, was much visited by the bees, and the profusion of alfalfa bloom left unnoticed.

At the A. and M. College Experimental Apiary, small plots of alfalfa, planted for testing as a honey-plant, were visited by the bees, and is the only record I have been able to get to this effect. In 1902 a second growth, after cutting in July, came into bloom, and was also visited by the bees in great numbers. The soil is very poor, and of a sandy clay mixture. Here the bees worked vigorously



A TEXAS APIARY; ALFALFA TO THE RIGHT AND COW-PEAS TO THE LEFT.

The apiary here shown is located at the edge of an alfalfa-field, with others all around it, and close observation has been made at many different times, and in all kinds of weather conditions, but *not a honey-bee* was ever seen on the bloom while it stood in full bloom for several weeks sometimes. The same results were obtained at another of my apiaries seven miles from this one. These fields are in the rich Brazos River Valley, where alfalfa grows wonderfully without irrigation, producing a luxuriant growth and a profusion of large healthy bloom. The bees did not visit the alfalfa, even though there was no other bloom, and at the apiary shown here the cow-peas were visited as soon as they came into bloom. Cotton is the main source at these apiaries.

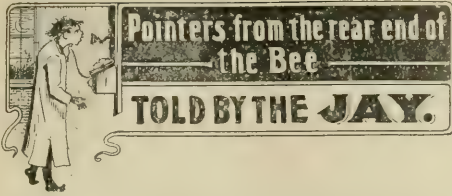
Here at New Braunfels alfalfa is grown under irrigation only a few hundred yards from our back door, and I visited the fields many times, making it a rule to go during different times of the day, and during differ-

on the blooms, however, but the plots were only a few feet square.

POSTAL-CARD REPORTS ON ALFALFA WANTED.

I should like to have reports from as many bee-keepers as possible who have any information about alfalfa as a honey-plant, not only from Texas but from all parts of the South and Southwest. Postal-card reports, in brief, will be all right, just so the important matters are mentioned. It would be well to answer the following questions: Have you ever seen honey-bees work on alfalfa? Was any surplus honey obtained from that source? Irrigated or not irrigated? What kind of land? Weather conditions, rain, etc.?

All such information will be greatly appreciated, and we may arrive at the truth whether alfalfa may prove a good honey-producer for Texas. My present address is New Braunfels, Texas.



One night the phone rang. "Say! is this that Jay, the bee crank?"

"Aye, aye, sir."

"Well, I am in a fix. I just bought five gums of bees and moved them only two blocks, and most of them have gone back to their old place, and there is a bunch of bees hanging on the fence as big as a bushel basket. What can I do?"

"Think you have done a little too much already."

"Haven't you any thing to offer me?"

"Nothing I can think of at present except my sympathy. You might put an empty hive there and give them a queen."

"This was considered the best plan, so in the morning I went over with a virgin queen about three hours old. We let her run into the hive and she was kindly received. She was the only thing that was kindly received. Never before had I seen such a mess of angry bees. They were all fielders that had returned to their old home, so of course the whole fighting force of the five hives was there. Smoke had little effect upon them, as they had no honey to eat. A bee would alight on my face with criminal intent. I would swat her one, sometimes before she stung—usually just after. My friend said: "You mustn't strike at the bees that way.



"My bees and I are very much attached to each other."—THE JAY.

disposition. Here! Let me show you how."

"Very well," I answered. "I should be delighted to learn. Just take this smoker and drive them off from the fence into the hive."

Before he had gotten near them there was a score of angry bees dancing in front of his face. Still his courage was undaunted. Satisfied there was going to be a scene I got well back out of range and sat down to pick out stings and enjoy the sport.

Now, my friend is an intelligent man. All who know him say there is nothing the matter with his upper story with the exception that it has no hair on top of it—not a serious objection in the ordinary walks of life, but on extraordinary occasions like this it was a matter not to be passed lightly over by the bees. His head was bald from his eyebrows to his coat-collar.

On he went. A bee stung him on the hand. He took no notice. One stung him on the neck. Still his stolidity was maintained. Another took him on the ear. His sweetness of disposition still remained intact. At last one got him with one of those



That makes them angry. Never make any quick movement when you are among them or they will be sure to sting. Be quiet. Do not wink. Do not smile" (I hadn't so far); "hold your breath and cultivate a pleasant

double-strength extra-hot ones (you all know) right on the end of the nose. Say! his dignity went all to pieces in a twinkling. Now, why was it that those other stings had no effect upon his temper, while that single one on the nose fanned his spark of indignation into a roaring holocaust of wrath? It was simply a matter of "locality." He brought his hand to his nose and killed the bee. That seemed a signal for a general assault all along the line. He brought up his other hand and accidentally knocked off his hat. This exposed to the fire of the enemy that shiny, glossy, mirror-like head. How very thankful I was then that my head was bald on the inside instead of on the outside! They covered his head as if it were a buckwheat-field; and—

They stung him in the whiskers.

They stung him in the face. They stung him in the eyes and nose.

They stung him ev'ry place; They stung him on the ears and mouth.

They stung him on the chin. But the way they peppered his bald head

Was certainly a sin.

Some of them went up his sleeves.

Some went far down his neck;

But the number that crawled up his pants

Must have been mor'n a peck.

He jumped and pranced about the lot.

How—oh how!—he slapped his pants!

The bees kept at it all the same;

And mercy! how he danced;

He stumbled o'er the chicken-coop.

The little chicks got out; The woman came upon the scene

(You ought to've heard her shout);

He knocked the grindstone over.

He broke the boy's toy sled; Uncomplimentary, you bet,

Were many things he said.

He brought his hand against his face

With a tremendous spank—"Confound your ornery blooming bees!"

Blank! Blank! Blankety Blank!"

The bees had him defeated. Something must be done—He did the only thing he could—

He turned around to run.

SOLILOQUY.

"When I go near the bees again

I'll keep my hat on tight, For they get on too quick, you know,

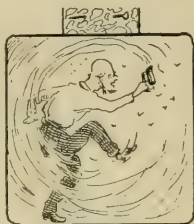
When I take it off to fight. If e'er another bee I get,

'Twill be the stingless bee—They would try to find some hair to pull

Instead of stinging me. About the bee's intelligence

The poets like to harp. But this I know: At either end

The bee is mighty sharp."



In fact, if Mr. Alexander had seen the fracas illustrated below he would have had to acknowledge that there was one place that was "overstocked." The owner certainly thought he had more bees in one place than was profitable, and tried to dispose of some of them, but did not succeed very well.



A QUEEN-FERTILIZING TENT.

How One can be Used for the Purpose of Controlling the Male Parentage; Some of the Difficulties Encountered; Will the Plans Finally be Successful?

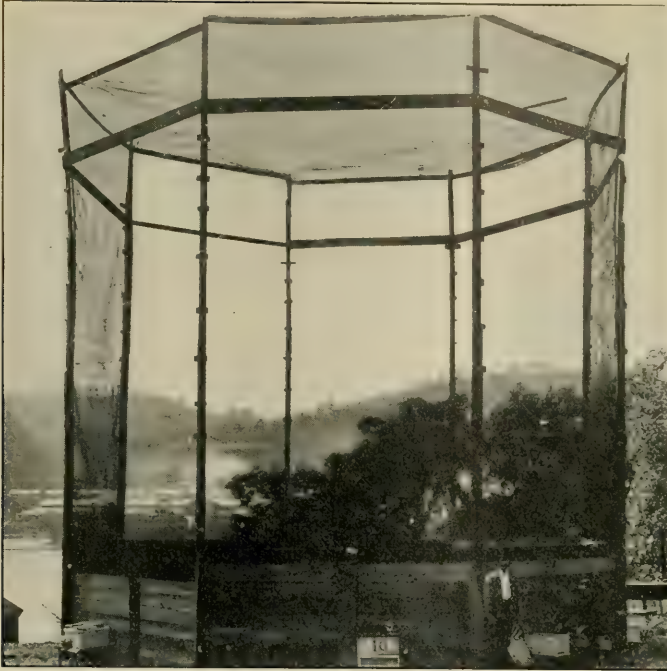
BY C. M. CHURCH.

I will explain to our readers that I made arrangements with Mr. Church to bear part of the expense of this experiment, he to furnish us the results. I had always had a desire to test it, but with our busy rush at Medina we had no one here who could give the matter time and thought sufficient to give the plan a fair trial.—ED.

After having studied bee-keeping for a number of years, and being a great lover of bees and honey, I concluded to rear a few queens, as much for pleasure as for profit. Here I came to the question confronting all queen-breeders: "How can I breed pure stock and be able to guarantee it without testing?" That is, instead of giving queens to all my neighbors to have only pure stock in the vicinity, how could I be sure that my queens were mated to select drones? Casting about for the best plan to try, I noticed the large tent or dome built by J. S. Davitt, of Aragon, Ga., mentioned in the A B C of Bee Culture; and, after corresponding with Mr. Davitt, I found that he succeeded in fertilizing queens in his dome, and that it was a perfect success. So I concluded to try his plan, which was, to build a tent of wire cloth as shown in the illustrations.

HOW WE BUILT THE TENT.

The one that I built was 30 feet in diameter and 30 feet high. I used 8 poles 34 ft. long, set in a circle about 15 feet from the center, giving a circumference of 94 ft. The poles were set into the ground 4 ft. You will see by the picture a 1×4-inch strip nailed to the top clear around to tack screen to, and another 1×10-inch piece nailed 4 feet from the top to walk on while putting on the wire cloth, etc. To keep the whole structure from being blown over, a guy of No. 6 galvanized iron wire was run from near the top of each pole out to a stake or tree. To support the wire cloth on the top, there were wires strung across through the center from



C. M. CHURCH'S QUEEN-FERTILIZING TENT.

pole to pole. The walls were boarded up 6 ft. from the ground all around, and in these side boards holes were cut to admit hives, and six full colonies of bees were so placed that the rear of the hive opened into the large tent or dome. The outer entrance at the front was covered with queen-excluding zinc so that only the workers could pass out. In those six hives I placed all the drone brood I could spare from the yard. The inside entrances — that is, those opening into the tent — were closed evenings, and opened about 10 o'clock on sunshiny days, to allow drones to fly. I made some small three - frame mating - boxes, and cut holes similar to those for the hives, and inserted them in the side of the tent. These, like the large hives, had excluding zinc

over the outside entrances, and the inside entrances were opened about 10 o'clock each bright day.

EXPENSE OF THE TENT.

To build this tent or dome, the wire screen cost me \$39; the lumber and nails, \$41; the guy wire, \$3. It took my son and me ten days to build it.

RESULTS.

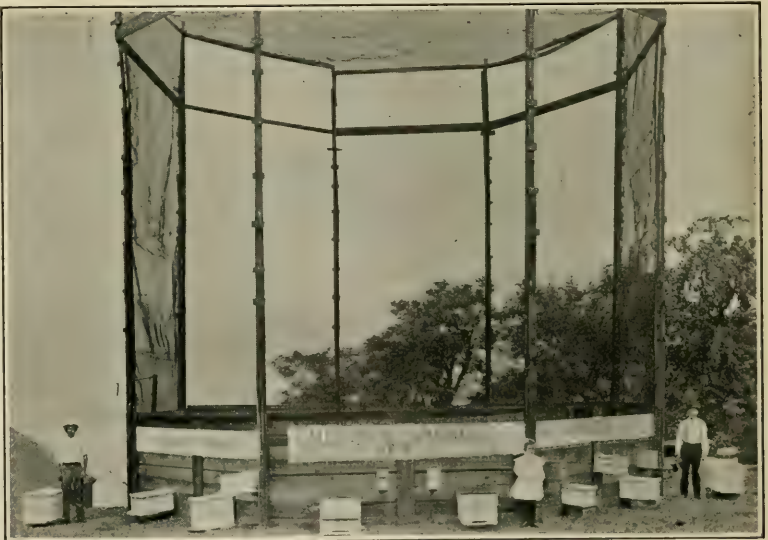
In this tent I lost, during five weeks' time, about four colonies of bees, all the drones I could spare, and about fifteen queens. I succeeded in getting one queen fertilized.

THE CAUSE OF FAILURE.

Here is my theory as to why Mr. Davitt succeeded while I failed. He used mosquito-netting made of cotton while I used wire cloth. The drones would fly against the wire cloth, and, after a few times, their wings would be torn so they would fall to the ground and crawl helplessly around. The queens suffered the same fate. I do not believe that one per cent of the drones succeeded in flying in the tent two days in succession.

MOSQUITO-NETTING PREFERABLE TO THE WIRE CLOTH.

I believe the scheme will work with netting



A QUEEN-FERTILIZING TENT FOR CONTROLLING THE MALE PARENTAGE.

instead of wire, and I hope to try it again another season.

Arnold, Pa.

[The first season's test does not seem to be very much of a success, it is true; but for all that I can not help feeling that the plan can be made to work. I read over the private letters from Mr. Davitt, the originator of the scheme, to Mr. Church. They all bear the evidence of candor. In fact, the whole tone of them indicates that the man actually did all he claims.



C. M. CHURCH, ARNOLD, PA., WHO HAS BEEN EXPERIMENTING WITH A LARGE TENT FOR THE FERTILIZATION OF QUEENS.

No one would have surmised at the start that the wire cloth would not have been as good as the mosquito-netting; but when one stops to reflect a moment he can readily see that the former, by reason of its rigidity, would discourage and kill both drones and queens, for their continual bumping against a hard surface could not fail to work disastrously. Bees may bump against mosquito-netting, and it will do them no harm. Therefore I hope that our correspondent will try the experiment again, now that he has the

poles up, using mosquito-netting, at least in the top of the cage.

I have learned that a heavy windstorm did considerable damage to the structure, and that some extensive repairs will be required before another season. I hope myself to see the thing tested to a finish before another year, with mosquito-netting. If it is a fact that Mr. Davitt succeeded (and I have no reason to doubt his word), I do not see why others can not make a success of it.

We shall never be able to make very much improvement in our strain of bees till we can control the male parentage. This can be done only on an island remote from the land, or in a large cage. As our readers probably know, we have been having our Caucasians mated on an island off the coast of Florida, and the results were very satisfactory. But an island is out of the question for the great majority of queen-breeders, and has the further disadvantage that, unless located in or near the tropics, the cold winds will kill many bees.—Ed.]

CAUCASIANS VS. BANAT CAUCASIANS.

BY N. E. CLEAVER.

I wish you would get A. I. Root to play a little with the Banat Caucasians. His love for any thing in the bee line which is really good would find a worthy object on which to expend itself. They are remarkable bees. They have all the good traits of the Caucasians and none of the bad ones. Mine I really think a little more gentle than the Caucasians, and as quiet on the combs as any Italians I ever saw. My Caucasians are not bad propolizers, during the summer. When the Italians were gluing the frames together very badly the Caucasians did not stick them together at all. During September, however, there were large wads of propolis placed near the entrance, not between the frames nor around the cover, but on the bottom of the frames near the entrance; and the substance is quite unlike the propolis gathered by the other bees in the same yard. My Banat Caucasians did not propolize at all. They stuck the frames together with bits of white wax. There is a marked difference in the young queens mating and beginning to lay. The Banats mate about the fifth day, and are soon vigorously at work in the egg business. Several breeders have complained to me that the Caucasians are half lost in mating. At the time I would expect the young queens to be laying nicely I would find about a fourth of the Caucasians all right; another fourth present but not laying, and about half missing. I was about concluding that the advice of a neighbor breeder, Mr. Pressler, was right. He said, "Don't monkey with the Caucasians—take the advice of your fool friend." But after a week or two the missing queens would be back all right. At first I thought it was because I failed to find the queen. So I used golden bees for the nucleus, but the result

was the same. I would seek for them several days in succession, and after a while the queen would be there, poor and thin and glossy, then in a few days she would develop and begin laying. Since learning these things I have not bothered the nuclei for about two weeks, and I have no more trouble. I made a comparative test of the Banat Caucasians, the Caucasians, and the golden Italians, with respect to honey-gathering. I will write it up and send it to you, for I think it valuable information. However, a real test must extend through more than one season.

Emporium, Pa., Oct. 4.

[We should be glad to have you give us the results of your observations regarding the three races.—ED.]

THE IMPORTANCE OF A LARGE ENTRANCE IN SUMMER.

BY E. R. ROOT.

Our readers will remember that I have time and time again urged the importance of having a large well-ventilated entrance in the height of the season. Our neighbor, Mr. Vernon Burt, is one who believes emphatically in such ventilation. The accompanying photo shows the kind of entrance he uses, and the alighting-board that is a part of the hive-stand leading from the ground to the entrance of the hive.

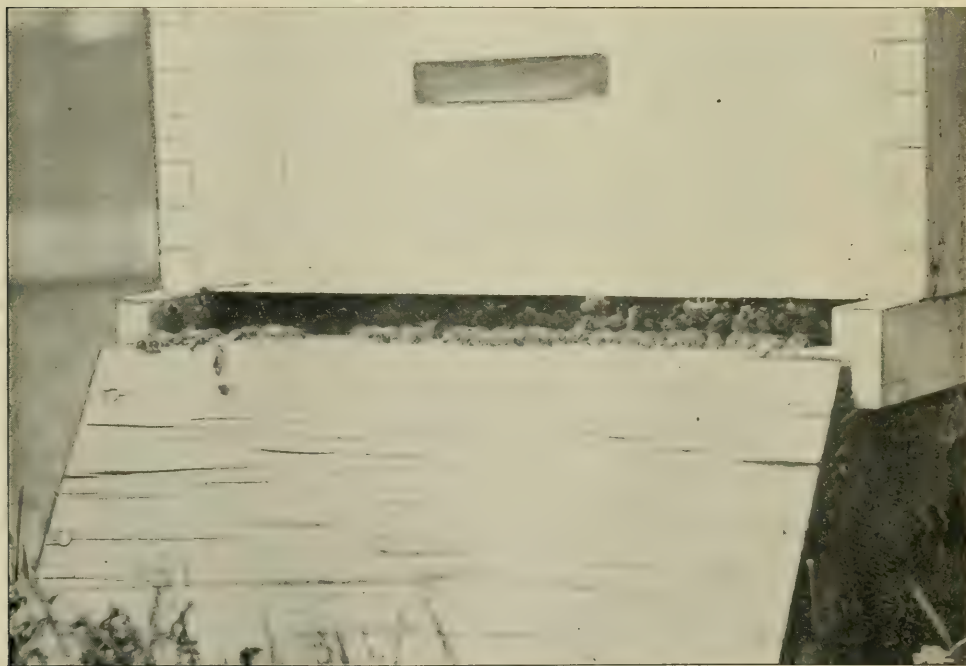
The camera does not show how the bees

were hanging down under the frames, nor does it show how the flying bees would dart through the entrance, striking the cluster of bees direct, without touching any part of the hive. A bee that is heavily laden with honey will prefer to bump up against its fellows rather than anything else. With a deep entrance they soon learn the trick of going right through the opening and alighting on the bees.

Perhaps there are some to whom this may seem a little out of season, right in the midst of winter; but this is emphatically the season for getting things ready for next year. A hive that will not permit of a wide entrance for hot weather comes far short of being a perfect hive.

I would call attention to another thing, and that is, the sloping front of the hive-stand. In cool weather, bees will often fall quite a little short of the entrance. If a slanting alighting-board is provided they will crawl into the hive and be saved; otherwise they will lie out and perish. It pays well to have hive-stands, especially those with a sloping front. It is not necessary to have them made of first-class lumber. The cheapest kind of stuff will do. The alighting-board shown in this picture looks pretty shaky: but it is good enough, and better than a board perfectly smooth.

The value of a large deep entrance in the height of the season as a factor in discouraging swarms is too well known to be gainsaid at this day and age, so I will not discuss it at this time.



VERNON BURT'S HIVE STAND AND ENTRANCE.



FIG. 1.—EXTRACTING-ROOM OF ALEXANDER'S HONEY-HOUSE: A PIPE UNDER THE FLOOR CONVEYS THE HONEY DOWN INTO THE TANKS BELOW.



FIG. 2.—TANK-ROOM OF ALEXANDER'S HONEY-HOUSE; THE PIPE BRINGS THE HONEY FROM THE EXTRACTING-ROOM ABOVE.

AN ILLUSTRATED DESCRIPTION OF SOME THINGS CONNECTED WITH THE ALEXANDER APIARY.

Raising One's own Queens for 10 Cents Apiece; some of the Conveniences.

BY E. W. ALEXANDER.

When Dr. Lyon was here last summer he took a few photos of different things he thought would be interesting to the readers of *GLEANINGS*. In one of my late articles I spoke of our extractors and uncapping-cans standing so that all three deliver their honey into the pipe leading to our honey-tanks below.

In Fig. 1 you can see them in their place. The pipe is under the floor out of the way, and runs along through the top of the cellar into the tank-room as shown in Fig. 2.

the door to know that our honey is safe from honey-thieves, and that neither rats, mice, nor even a honey-bee can enter the building when the doors are shut. This is one of the principal reasons why we put on a galvanized-iron roof.

We did not want any shingles warping or shrinking so bees could enter from above, for you undoubtedly know they are very annoying if they can find a place to enter and get at honey inside.

Fig. 3 shows Frank adjusting the alighting-board to a hive on the scales. Although this colony was not as strong in its working force as many others in the yard, still its average gain in honey during the August harvest was about 6 lbs. per day. We like to keep track in this way of what our bees are doing.

In Fig. 4 you have a view of the north end of the building as Frank is passing in a car-



FIG. 3.—FRANK ALEXANDER ADJUSTING THE ALIGHTING-BOARD TO A COLONY ON THE SCALES.

When we are extracting we put wire-cloth screens in all the windows and doors of this building, with bee-escapes in them. This keeps the building free from bees, and makes it nice and cool to work in. Before I leave this extracting-room I must speak of some of its convenient points. We find it very handy to store our hives of extracting-combs near the extractors at the close of the season, and then to have all those thousand and one things connected with the business kept separate and in their place so they can be got in a moment when wanted for use, and the whole thing near the center of the apiary. In this way we save many steps and much annoyance when in a hurry. Then it is such a satisfaction when we walk out and look

rier of heavy combs. By pulling on the cord at the other side of the window it raises the slide door where the empty combs are, and he can take out a carrier of these in a moment. In Fig. 5 you will notice a carrier that has a covered top made of canvas in two pieces which can be opened from the center. This is handy if bees are inclined to rob, as it can be opened or shut quickly when putting in or taking out combs.

Fig. 6 is a general view of the northwest side of the apiary. I wish we could have a picture of the whole yard in one view; but it now covers so much ground that we can not unless we could get high above it.

In Fig. 7 you can see some of our queen-rearing nuclei. I now speak of these as having



FIG. 4.—HOW THE HEAVY COMBS ARE PASSED INTO ALEXANDER'S HONEY-HOUSE THROUGH A SLIDING DOOR.



FIG. 5.—THE ALEXANDER COMB-CARRIER, SHOWING CANVAS TOP SO ARRANGED THAT IT MAY BE OPENED AT EACH SIDE.

a bearing on that subject of overstocking. These nuclei have three combs each, size 5×9 inches, and about a pint of bees; still they fill their combs so full, like the one you see in Frank's hands, that it was necessary to extract them frequently in order to give the young queens a chance to lay after they have become fertilized, and this was done some time before our August harvest.

Now, when little nuclei of less than one pint of bees can fill up their combs with honey in this way when there is no special harvest on, and that in an apiary of 750 strong colonies like those you see in the accompanying picture, it does seem to me that this fear of overstocking was only imaginary. A few years ago when we thought our bees went only a mile or so from home to gather nectar, we had some excuse for believing it was easy to overstock a location; but as it is now, when we have an abundance of good proof that our bees will work to a good advantage

actual cost of these queens was not ten cents apiece.

We have tried many different sizes of combs for nuclei; but, all things considered, we prefer small combs, of which three will fill one of our standard frames; then when we put them in our nucleus-boxes we slide on a piece of folded tin so it makes a shoulder for the little frame to hang on. When we wish we can put a frame of these little frames in any standard hive, and have them filled with brood or honey; then the little frames can be put into weak nuclei if we wish, and at the close of the season these small combs with their bees, brood, and honey, can all be utilized in uniting with other colonies. I am sure that, if you will try this way of rearing surplus queens another season, you will be surprised to see how easy it is to have choice young queens on hand at a small expense, ever ready to use where occasion may require. If you expect to make a success of



FIG. 6.—GENERAL VIEW OF ALEXANDER'S APIARY OF 750 COLONIES; TAKEN FROM THE NORTHWEST.

on flowers five or six miles from home, and sometimes still further, it changes the whole subject. Just think of the millions of honey-producing flowers, when the weather is favorable, within a circle of ten or twelve miles in diameter. This is the turning-point of the whole subject—"When the weather is favorable." And when the weather is unfavorable for the secretion of nectar, it makes no difference how much bloom there is or how few colonies there are in the apiary.

In regard to these nuclei I spoke of above, we find them very useful. My son fixed up fifteen about the 1st of July last season, and by Sept. 10 we had taken out 63 choice laying queens from them to use in large colonies, besides some extracted honey, and the

bee-keeping you must be on the watch to take advantage of all these little things.

Delanson, N. Y.

[So far as I know, the pictures here show the largest bee-yard and equipment *all in one spot* of any in the United States if not in the world. Every thing is done on a big scale from start to finish; then at the final windup the honey is sold by the earload.

It would be very interesting and instructive if every one of our readers could visit this yard; but I am afraid our friend Alexander would suffer immediate nervous prostration. As it is impossible to take our readers to this interesting spot, and physically impossible for him to entertain them, it is with no little pleasure that we are able

to carry the spot to them. You will do well to fix these pictures in your mind, for Mr. Alexander will have much to say about them in his future articles.—Ed.]

WAX-PRODUCTION.

The Essentials to Success in the Southern States and the Tropics; the Value of a Shed over an Apiary to Avoid Stings.

BY W. K. MORRISON.

A GLEANINGS subscriber in Arizona asks me to give every detail of my system of exclusive wax-production from start to finish—no honey being wanted. Now, it should be strictly understood that the plans and practices of the tropics generally and the

I sometimes read articles in the bee-magazines about wax rendering and refining which involve a great deal of painstaking work. It does not pay a live man to do such work. Better start right and make up your mind not to bother with old comb. Use only combs of virgin purity, and thereby enable yourself to attend to the wants of 500 colonies with no assistance whatever. The whole apiary may be converted into a sort of automatic machine. The sun will do the melting and bleaching. Careful attention to every little detail will save trouble later on.

For this work the ordinary eight-frame hive answers very well, but can be improved by using nine frames instead of eight. This will give a large force in a confined space. The bees will "boil over" when the brood-chamber is opened. Next, don't allow any



FIG. 7.—A CORNER OF ALEXANDER'S APIARY SHOWING THE NUCLEI USED IN QUEEN-REARING.

West Indies particularly will hardly fit so peculiar a climate as that of Arizona; yet a live bee-man who uses his horse sense freely can readily adapt this system to his own peculiar needs.

Wax-production can be followed with almost any sort of hive; but there is a great difference between the amount of work involved, as between a hive properly arranged for the wax business and one that is not. For example, I once came across a man in the West Indies who produced about 800 lbs. of wax per annum, using only box hives—i. e., kerosene-cases. He lost about a third of his wax in his slungum; but, what was far worse, he spent three-fourths of his time in labor that could have been avoided.

drone comb in the brood-chamber. This is a vital point. The bees being deprived of drone comb below will build some upstairs on every favorable opportunity, even when very little nectar is coming in. Of course, a queen-excluder simply *must* be used—there is no way out of it; but you can ease the bees considerably by providing a small entrance to the upper chamber. Remember a hive so fixed is practically non-swarming, and this is the reason why the system pays—laborious work is practically done away with. Starters are used in the surplus-chamber; and as fast as the combs are made they are cut out, leaving not more than an inch as a starter. Don't attempt to use five, six, or seven frames in the super, as some recommend. That

would only add to the work—not help it. The bees may be assisted in various ways. One is, to screen carefully the hives from the sun. I prefer a long narrow shed every time, with the hives raised just a nice height for easy work. The shed should always run north and south so the bees will not feel the midday heat, but the morning sun will shine right on the front of the hives on one side—the eastern; and the western sun will slant its rays on the western side. By attending to this you will have a non-swarming apiary—something we have long desired.

A bee-keeper like the Arizona subscriber will have to get around very lively indeed to avoid getting honey, snatching out the nice white combs as fast as made. And here let me state you will get about three-fourths less stings if you use a shed. As a matter of fact, the bees seldom get into the aisle between the rows. Use very little smoke, and don't use a brush. In this way the bees will not resent your frequent visits. The best way is to "steal" the combs out, shaking the bees off with a good jolt. You will soon learn the kink. If you think the nights are too cold, use something to cover the hive, as a high temperature is necessary to effective wax-production. I think an incubator set at 85° F. would be a grand place for a hive of bees being run for wax. This is why the tropical bee-master can succeed so well in wax-production. In some parts of the West Indies the thermometer varies only a few degrees from day to day, say 87 at noon and 82 at night, and this practically all the year round. Arizona in some sections can do very well, however, as the bees are not incommoded by rainy weather.

When it comes to melting the wax, a solar extractor is probably all that is necessary in Arizona; if not, a tin mold set in hot water will answer very well.

If honey is desired, let the bees seal the combs nicely over, and, taking them off the hive, cut them out, letting them drop into a bag. Let the bag drain awhile, and then squeeze it down in a German wax-press. Anybody can see this does away with laborious work. I know some do not consider they are getting along if they are not working "like a house afire." This is not the way tropical people live. They have adopted the simple life. This is the plan of plans for out-apiaries, since there is absolutely no swarming if one keeps the upper chamber reasonably clear of combs.

It seems to me this is the plan for the Gulf States and California, as well as the West Indies or wherever the seasons are good and the markets far away. I am of the opinion, too, that it tends to produce better honey, as there is less handling and less encouragement to extract before the combs are fully sealed over.

If it is so the honey can not be sold to advantage, it may be fed back and converted into wax. For successful work in feeding back, a shallow hive and entrance feeder are required, otherwise there is too much waste. In feeding back dilute the honey with water.

THE YOUNGEST BEE-KEEPER IN PENNSYLVANIA.

A Composition Written by a Nine-year old Bee-keeper after Two Years' Experience. Who has been a Member of the National Bee-keepers' Association for a Year.

In a recent number of GLEANINGS I noticed an account of the youngest bee-keeper in Indiana. I am sending you to-day a picture of the youngest bee-keeper in Pennsylvania. He was nine years old last August, but he has been a member of the National Bee-keepers' Association for a year, and has been raising bees for two years. I inclose also a recent composition of his on bees.

L. L. WILSON.

Hoyt, Pa.

BEEES IN THE HIVE.

In the hive there are always more than 3000 bees, although I have a colony that has about 40,000 bees in it.

THE QUEEN.

The queen's business is to lay eggs. She



D. H. WILSON, A MEMBER OF THE NATIONAL BEE-KEEPERS' ASSOCIATION, WITH TWO YEARS' EXPERIENCE WITH BEES.

examines every cell that she wants to lay eggs in. She is very particular.

THE WORKER.

The worker's business is to feed the drones and the babies, build combs, and gather nectar from the flowers. The worker also feeds the queen. The worker is particular too. The bees will not stay in a hive that smells badly. In the fall the workers kill the drones.

THE DRONE.

The drone's business is to walk around in

the hive with his hands in his pockets and see what is going on there.

WAX.

Wax is made from honey. When the bee wants some wax for her comb she takes a sip of honey, then she takes a nap. When she wakes up she finds her wax-pockets full. But she is not surprised. She moistens the wax in her mouth. Then she pushes and pulls and pats till there is a comb.

COMB.

There is drone comb and worker comb. I think it is best to have hatching brood in all of your hives. I have seven bee-hives full of bees.

HIVES.

Hives ought to be made as well as they can be. You ought to use well-seasoned wood for hive-making. Make your hives very deep. Never have your hives right on the ground. Always have a box under the hive. Have your hives under a tree. A half-barrel shade does not do much good.

If your hive is being robbed, make the door smaller.

D. H. WILSON.

[This is a better essay, certainly more correct in statement, than many of the published magazine articles on bees by professional writers who get their information solely from books. Our young friend has the advantage of them in that he is writing from personal experience. He indulges in a little "poetic license" in one or two places, it is true; but aside from these he is quite correct.—Ed.]

FASTENING FOUNDATION.

The Groove-and-Wedge Plan for Holding Foundation in the Top-bars; a Simple Tool to Imbed the Wedge.

BY S. E. MILLER.

I have noticed in GLEANINGS that many of the readers have trouble in fastening foundation in frames by the wedge method. Many claim that the wedges fall out. You have told them repeatedly that the wedge, in order to be effective, must be imbedded beneath the surface or level of the wood in the top-bar, but to the best of my recollection you have not given a simple and effective method whereby this can be done. I have tried driving them in, but that is far from being satisfactory. I notice that even some such men as Mr. Alexander recommend using melted wax and resin for fastening foundation to the top-bar. That is probably the best way when we are obliged to fasten it to a plain surface; but I do not hesitate to say that the wedge method, if properly done, is the simplest, quickest, and most satisfactory way of any that have come to my notice.

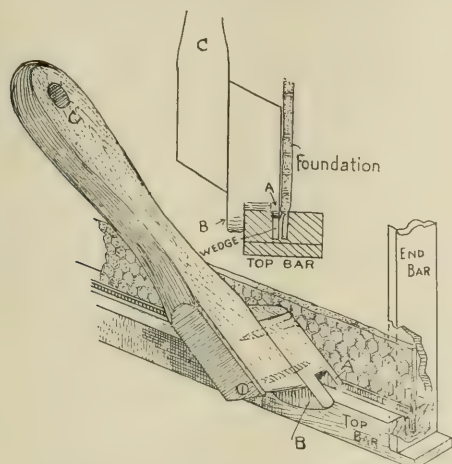
I am sending you a little tool of my invention, designed especially for imbedding the wedges. Before you pass judgment, and say a lot of things about it, try it according to directions given below. If you are too busy to leave your desk, have one of the boys bring you some frames, wedges, and foundation.



D. H. WILSON, THE YOUNGEST BEE-KEEPER IN PENNSYLVANIA.

DIRECTIONS.

Seat yourself on a high stool or chair at a bench or low table about as high as your knees (if you prefer to stand up you can use a higher table.) Lay the frame on the ta-



MILLER'S TOOL FOR IMBEDDING WEDGES.

ble in front of you, top-bar down, the one end toward you, and the groove for the wedge to the right. Place the foundation in the groove intended for it, and see that it is done right. Now place the end of the wedge in the end of the groove furthest from you (it is not necessary to start it in its entire length). Next grasp the tool with the end of the handle pointing toward you; that is, have the thumb near to you. Place the tongue A on top of the wedge, letting the tongue B rest against the side of the top-bar to act as a guide. Now with a downward pressure draw the tool toward you and see how nicely the wedge sinks into the groove and beneath the surface.

A FEW MORE HINTS.

See that the beveled side of the wedge is next to the foundation when you start it in. Remember that the best time to do this work is when the weather is dry. In the rain-belt all soft woods have a tendency to swell more than one might suppose during a protracted wet or damp spell of weather, which causes the wedges to become larger and the grooves smaller, and it is then harder to force the wedge into proper position. If the first draw of the wedge from end to end does not sink it below the level, repeat the dose, and do not be afraid to bear down on it. I do not claim that the work

is child's play. In fact, it will tax the muscles of your arm rather severely if you work at it long; but you will get used to it after a while as the Dutchman said about the Irishman being used to hanging.

I guess you will ask why that offset in the tool. Why is it not made all in one piece? I will answer the question. That is to give room for the fingers when putting in full sheets of foundation, and I think it is better, even when putting in starters only.

If properly used, no more complaints of wedges falling out would be heard, even from Colorado or Arizona. I am satisfied that, with this little tool, I can put in the wedges and put them in to stay, faster than one man can properly put the foundation in the other groove. That hole in the handle is to hang it up by when through using.

Bluffton, Mo.

BEE DEMONSTRATION IN MEDINA.

Dr. Bigelow's Second Visit to Medina with the Schoolma'ns and Schoolmasters; why Bees will not Sting a Crowd of People when they will Attack Individuals.

BY E. R. ROOT.

Very soon after the big field meeting at Jenkintown, at which over a thousand beekeepers were present, we had another field-day on a smaller scale here at Medina, July 7, 1906.

On this occasion Dr. Bigelow, so well and favorably known to our readers, was the field marshal, so to speak, for he took charge.

He had been lecturing at the summer school at Wooster, Ohio, where schoolteachers from all over the country are wont to assemble. As the visit of a similar lot of teachers of over a year ago had been found so enjoyable as well as profitable it was de-



FIG. 1.—DR. BIGELOW LECTURING BEFORE HIS CLASS AT THE FIELD-DAY MEET AT MEDINA.

cided to make another trip to Medina; and accordingly another crowd took the trolley and landed here about noon. The number



FIG. 2.—DR. E. F. BIGELOW AND HIS SCHOOLTEACHERS AT THE SECOND FIELD-DEMONSTRATION MEET AT MEDINA, JULY 7, 1906.

The view here shown, as explained in the text, represents one of the center yards at the home apiary of The A. I. Root by grapevines. As the leaves are present only during the hottest part of the year, when shade is needed, the full benefit of the location of the entrances. As the bees were working heavily on basswood at the time, the results might have been changed, were completely demoralized, bordering almost on a state of panic. So great was their consternation that not a bee was stung before they arrived at Medina that not one of them would be stung, and that he would prove it. The expression on his face betokens the supreme satisfaction of a man who can truthfully say, "I told you so."—ED.



FIG. 3.—DR. BIGELOW'S SCHOOLTEACHERS PUT TO THE TEST.

aggregated something like 150, and an inspection of the pictures will show that all were good-looking, especially the school-ma'ms. We had every thing arranged for their reception, and a special roped-off inclosure where Dr. Bigelow could illustrate his Educational hive, and his Pearl Agnes hive for the teaching of bee-keeping to children.

The crowd met at the office, where they were provided with bee-veils against an emergency. Then all went together to hear Dr. Bigelow's lecture, which was given on the north side of the yard.

Fig. 1 shows the group circled about the speaker. After a talk of fifteen or twenty minutes the crowd worked itself down into the heart of the bee-yard, and took entire possession of a hexagon; for it will be remembered that A. I. Root, when he originally laid out the home yard, had little portions grouped off the shape of a hexagon, in imitation of honey-comb.

The large engraving, Fig. 2, shows how the teachers mingled among the bees in this hexagon in front of the entrances of the hives, anywhere and everywhere to suit their pleasure. We had all our bee-boys in



FIG. 4.—ENJOYING THE SHADE OF THE BIG EVERGREEN WINDBREAK AT THE FIELD-DAY MEET AT MEDINA.

readiness to answer questions and to open up the hives and pass frames around to the teachers, so they could watch the bees to their hearts' content. Notwithstanding the aforesaid teachers were all supplied with veils, very few of these protectors will be seen. Dr. Bigelow had explained that the Root bees would not sting—couldn't make 'em sting. In proof of his statement he got on top of a hive, walked on it in an unceremonious manner, removed his hat and swung his arms, striking at the bees in the air. I began to be a little alarmed for fear the bees in the hive on which he was standing would make a regular onslaught, even if those in the air did not show fight. I accordingly elbowed my way up to him and suggested that he be a little cautious—that the Root bees would stand a good deal, but I did not think they would take kindly to what he had been doing; for a stampede of those pretty school-mistresses was not to be thought of. "Your bees sting? No, sir, Mr. Root," replied the doctor; "can't make 'em sting," and he kept on with his arm work.

The air was full of bees, for they were busy at work in the fields; but seeing the crowds scattered around among their hives they were demoralized; and, as I have before explained, when the surroundings to their homes are entirely changed they offer no attack; in fact, it would be difficult to make any kind of bees sting under those circumstances, although I might hesitate to try the temper of Cyprians.

Dr. Bigelow will be seen in the large picture with head covered neither by hat nor hair, on top of a hive a little to the right of the center. Just back of him, and a little to his right, will be seen a man with a full beard, and arms folded. This is "neighbor H.," who, years ago, reared thousands of queens for us.

Dr. Bigelow was not satisfied with this demonstration of the tameness of the Root bees, for he said he wanted every teacher to have a frame of bees and to crowd over into the open space at one side of the hexagon. "Now, Mr. Root," said he, "give us another snapshot and we will give you a view the like of which the readers of GLEANINGS never saw before."

Fig. 3 gives the result. The doctor will be seen in the middle foreground, third row from the front, with a frame of bees balanced on his head. A few feet to his left will be seen one of the schoolteachers with a frame of bees on her head.

Now if the reader will look closely he will not see a bee-veil in the whole lot; and when it is understood that only a very few of those teachers had ever before been in a bee-yard one can have something of an idea of the confidence reposed by the teachers in Dr. Bigelow.

In this same picture, over to the left, next to the evergreens, and mounted on a high pedestal will be seen a Pearl Agnes hive. It is built in the form of a dwellinghouse, equipped with miniature frames and sections. This the doctor later described, and

showed how it was used in instructing children in nature study.

Another view, Fig. 4, shows some of the teachers sitting on the ground in the shade of the evergreens that form a windbreak around this yard.

I doubt whether a crowd of ordinary people could be induced to go into a yard of bees like this; but an intelligent lot of people like schoolteachers love to learn, even at the risk of receiving a sting.

Now permit me to say in closing that the same sort of demonstration could be made in almost any bee-yard in the United States. While the Root bees are very gentle (no question about that), yet those same bees will sting individuals when they would not think of touching any one in a general crowd, especially after they have become demoralized and have begun to hunt aimlessly for their entrances.

A CASE WORTHY OF ITS CONTENTS.

Some Needed Improvements in Honey-cartons.

BY DR. EDWARD F. BIGELOW.

Two new stores have recently been opened in the city where I live—a grocery and a candy-store; or, perhaps, to put it in more accurate detail, I should say that two old stores have been thoroughly refitted, restocked, and modernized under the guidance of up-to-date merchants. I often look with admiration at the show-windows and interiors of both stores.

The grocery makes a specialty of canned goods. I often think that it must be a pleasure to go shopping there. Such conveniences in the shape of bottled and canned foods and dainties should solve the servant-girl problem. If I were a housekeeper I would surely go shopping there. I believe I should bring home every day a basket full of those glittering packages, whose labels gleam in all the colors of the rainbow. As I possess a hearty appetite, most of the fruits and vegetables would be enjoyable; and even the things of which I am not especially fond would go down well when I recalled the vision of that attractive array on shelf and counter.

I have lost no boyishness, in that respect at least, to prevent me from sympathizing with the youth who expressed a wish some time to be clerk in a grocery, for then he could have all the nice things he wanted to eat. And I have even stronger sympathy with the Mr. Crothers who, in an article in a recent number of *The Atlantic Monthly*, speaks on "the ignominy of being grown-up."

Doesn't every one of us agree with the boy that a modern grocery is an attractive place?

But to return to the two stores that I have especially in mind. If the grocery is attractive, how shall we find words to do justice to the attractions of the candy-shop, the long marble counter with glasses and holders and fruit-dishes, the intricacies of the soda-foun-

tain, the tables and chairs in the rear so invitingly arranged, and, coming up on the other side, the long lines of show-cases with contents from eighty cents per pound at one end to ten cents at the other, the long counter of shallow pans of "fresh-made candy," fudge, peanut taffy, and even the molasses candy so dear to every youngster's heart? Oh for a word to express an inhaling, mouth-watering swallow! One has to swallow hard to choke down the temptation to sample every one. I wonder how it is that all the quarter-dollars do not go, instead of only one. But look at that pile in the window—"Special popular sale; twenty cents a box for to-day only." Why, the lithographing, the pink ribbon, and the picture of the pretty girl are alone worth that. But I manage to get away without spending quite all I have, but I admit it was difficult. But these boxes remind me of something that I forgot at the grocery store. Back I go.

"Say, Mr. Proprietor, I've a few sections of honey. Your store seems attractive, and I should like to put them on sale here."

"Well, I don't know that I can use them—not much call for honey. Got a big stock of other things on hand, and some honey too."

And he takes me behind the counter and shows a few plain sections in a wooden box. Not a carton, not even a label.

"Don't you have cartons?" I inquire.

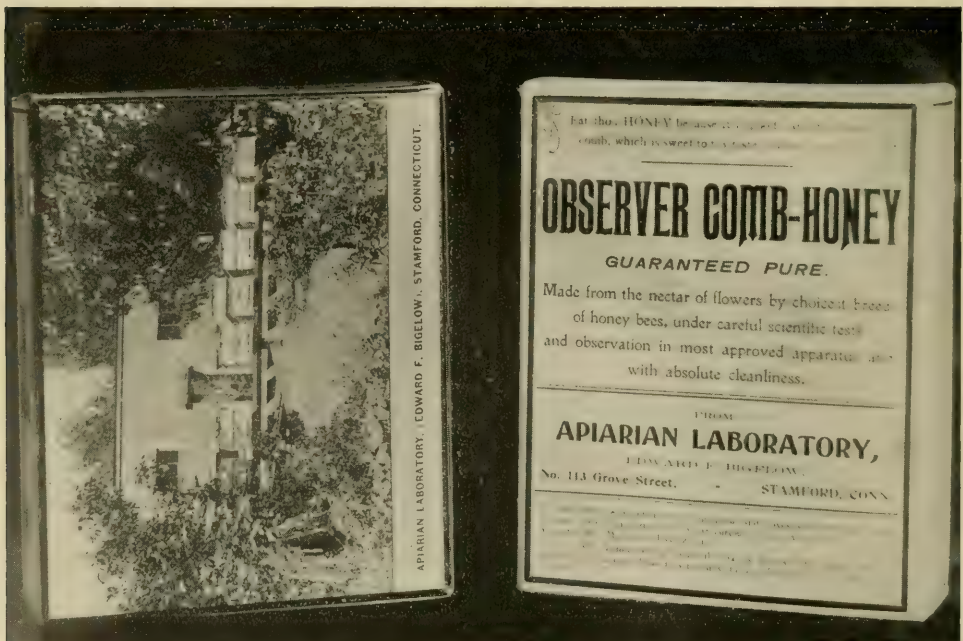
"Oh, yes! There are a few in the bottom of that show-case."

And I look, and, what a sight! Plain thin strawboard, black printed, "Comb honey."

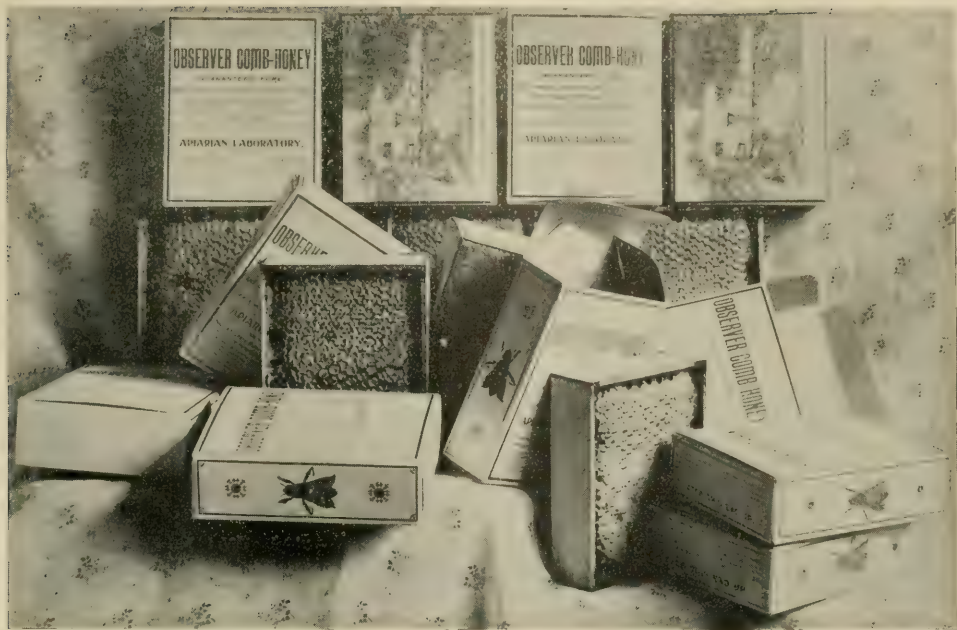
Not a name of an apiarist on it, while the thin honey-soaked paper has burst and the honey is trickling out. *The entire stock is the least attractive of any thing in that store.* I feel indignant since plebeian onions, canned squash, and candy at twenty cents a pound, should so far outshine the classic luxury, the choicest dainty of all ages—*honey*.

As my bees have been kept for the purposes of science and education, and the sections thus far produced have been consumed at the family table or given to friends, I had not thought much of selling. Indeed, to be frank, I had become somewhat nauseated, in the three bee magazines of which I have been for years a regular reader, by the undue proportion of selling, by directions for making a market, and a lot of other foolish talk along that line to the exclusion of what seemed to me the greater interests of the bee. A few hives had been left free from experimenting, with triple supers on; and when I took off about an average of nearly one hundred filled and partly filled four-by-five sections from each one, I felt deluged with honey. It was an embarrassment of riches. The family table and near friends were "swamped," and so was I in the midst of my laboratory work with several hundred sections piled up in every corner and on every shelf. At the best my room for scientific paraphernalia was limited.

But I consoled myself. All that talk about "making a market," all that eruption of gas at the conventions "how to educate the public," will at last be of some avail to me. Those fellows will have long ago solved th



AN APPROPRIATE CARTON FOR COMB HONEY.



DR. BIGELOW'S COMB-HONEY CARTONS.

problem of selling honey. They at least know how to make it attractive. I recalled that I had seen in the catalogs something about honey-cartons. I resolved to get a few and put my sections in the two stores beside the glories of pickles, and in the presence of that redolent twenty-cent candy, for I regarded honey as both a staple for the table and a confection. I wrote to several manufacturers and obtained samples. Imagine my dismay! My superb honey in such a dress as that! Not one was fit to associate with cans of pickled beets and sweet corn, or boxes of twenty-cent candy with the pink ribbon and the picture of the pretty girl. I had more respect for the beets, the picture, and for my honey too, than to put it out in such a garb. "This kind of carton," I said, "belongs to the age of boot-box observation-hives."

Readers of this magazine know how I have contended for polished oak, the best workmanship, and the most ingenious devices for observational and experimental hives. The best seems to me not too good for honey-bees, and the same principle applies to their products. So I wrote to the manufacturers and told them plainly that I didn't regard their cartons as good enough—at least not for my honey. Doubtless they are worth all they cost, and for those who like that kind of carton it is doubtless about the kind of carton that they like.

But I wanted something that would cost more and be worth more. I wrote to manufacturers of apiarian supplies, and was told that those were all they had: and after complaining that they were not appropriate

dresses for good honey, I made up my mind that I would get butchers' straw paper and wrap up each section and tie with tow string before I would use those antiquated parodies of the box-makers with their smudges of printer's ink. I obtained the addresses of several manufacturers of folding cartons to be used for choice proprietary articles. The cartons which I finally decided upon cost only thirteen dollars for one thousand, especially made and printed to order. The labels for the top of the sections cost three dollars per thousand. Of course, additional thousands would be cheaper. The cartons and the labels are printed in blue and gold—blue the favorite color of the bee (ascertained by psychic tests), and gold, emblematic of their products. On the back of the carton is a cut of my apiarian laboratory, printed in blue—that color because I like to fancy that all the bees in the country would prefer to make their home here, or anywhere else where the bees (regardless of their products) are studied and appreciated for themselves.

On the next lot I shall have some embossing (costing about \$2.00 per thousand more) and a violet ribbon (another color liked by the bees). I envy that candy-box—a pretty girl that likes honey and bees. Such a very choice carton would cost not over two cents apiece. I have found a ready market at thirty cents a section—five cents more than the regular market price.

Now, my big honey-man, or my little honey-man (and woman too), or you big manufacturers, do you really like my carton? I hope you won't, for then you will say that you "can beat him all to pieces," and you

will at once go to work and get up an *original* carton, and have it just as you like it.

To sum up, that is my whole contention. There should be no stock carton. Every apiarist should have a distinctive individual design with a cut of his apiary on the back. It is the comb honey in the markets without label or carton that makes all this talk about manufactured honey. It is the sheerest nonsense to try to annul the public impression that there is manufactured comb honey. The greater the impression the better for the apiarist who puts out his honey under sanction of his own name and reliability. Every purchaser of this known honey is the better pleased the more he thinks he has escaped the false.

May the day come, and come soon, when not one section or one bottle of honey shall be offered anonymously in the market—excepting, of course, those who are ashamed of their wares. In other words, the best is not too good for the honey-bee and her products, nor for the one who purchases, studies, or cares for either.

Stamford, Conn.

[Dr. Bigelow's points are well taken, especially his criticism of the ordinary stock comb-honey cartons that are on the market. Many cartons of special design have already been made or are being made. A new one shows a bee on the wing, carrying a section of honey in a neat tasty carton. By another year there will be other fancy cartons that are suitable for extra fancy honey. There is a fancy trade that does not consider price, but demands something that will at least compare favorably with the packages for putting up pickles, sweet corn, and the like.—Ed.]

CAUCASIAN BEES.

Mr. Benton's Trip Through Russia in Search of New Races: How this Trip is Regarded by the Foreigners.

BY A. E. TITOFF.

With great interest and pleasure I read the article about the visit of Mr. Benton to Savoy, France, which was translated from *L'Apiculteur* by our esteemed friend "Stenog," and which was printed in GLEANINGS for April 1. It was translated also into Russian. The bee-keepers of the world are greatly interested in the undertaking of Mr. Benton along the line of securing the new races of bees, and there are not a few remarks concerning it in the European literature on bees. The influence of his visit to the Caucasus is also felt in Russian literature. As the interests of the American bee-keepers are at present connected with the Caucasian bees I have decided to translate the article for GLEANINGS, and to inform you by this what the foreigners are saying about Mr. Benton, and also what they think about Caucasian and the other bees. The statement represents an extract from the letter of Mr. K. A. Gor-

bacheff, Tiflis, Caucasus, to the editor of the new Russian bee-magazine, Mr. M. A. Dernoff, which was printed by Mr. Dernoff in his magazine, and is as follows:

The well-known American apiculturist, Prof. Benton, was our guest in Caucasus. The aim of his coming here was the study of the Caucasian bee, and he visited all the chief bee-keeping regions of Eastern and Western Transcaucasus and the places lying near the boundary of Persia. Notwithstanding that, at the present time, traveling in Caucasus is connected with great difficulties and dangers, Prof. Benton, with the bravery and energy inherent in the Americans, and with the persistency of a Yankee, visited region after region, buying Caucasian queens and sending them, at times, to Switzerland to the apiaries of his friends. From there they will be sent to America next spring. Prof. Benton is enthusiastic over the Caucasian race of bees, and predicts of them a brilliant future.

The gentleness of Caucasian bees is well known, and the bee-keepers of America have also heard of it; but Prof. Benton was astonished at the gentleness of Abasian bees. He had the opportunity of becoming closely acquainted with these bees in the apiary of the Caucasian silk-cultural station, Tiflis, Caucasus, and, according to the statement of Mr. N. P. Solavieff, could not provoke the Abasians, even after repeatedly teasing them. It is a fact that the Abasian bees, in respect to gentleness, astonish even the Caucasian bee-keepers who are accustomed to work with the gentle bees. As to our beauties, the red-banded Lencorian bees, they have not attracted the attention of Mr. Benton as much as the Abasians. He found them to be cross, and precisely the same as the Italians.

The Caucasian bees possess still another great advantage. It seems that their tongues are somewhat longer than the tongues of the bees of Middle Europe. So far as I know, Prof. G. A. Kozhevnicoff is studying the subject, and has made some comparative measures of the tongues of both the Caucasian and the European bees, although their experiments are not completed yet, as Prof. Kozhevnicoff had not material enough for them. Lately we hear, oftener and oftener, that the Caucasian bees in respect to the length of tongues, do not stand below the so-called "clover" bees, which are selected by the Americans. The bee-keepers of Poland, who have queens from our apiary, informed us that they were surprised to find the Caucasian bees gathering honey from the clover at the time when the native bees were not seen on their plants at all.

Every one who has bees in the mountainous regions of the Alpine and the Sub-alpine belts, is well aware of the fact that, in these regions, the flower of the mint tribe, papilionaceous and compound plants, the best honey-plants of the meadow, have their corollas more developed than the same plants growing in middle Russia. In these mountainous regions are scattered the apiaries of Abasians and Lesgin in Dagستان (the names of the tribes of the people who have been occupied with bee-keeping from time immemorial). The hypothesis that the bees of these locations, owing to the splendid development of the corollas of the flowers of honey-plants, must have longer tongues, is well founded. We think that exact and more complete experiments with Abasian and Lesgorian bees will prove this supposition, which certainly has some foundation.

K. A. GORBACHEFF.

Los Angeles, Cal.

READING BEE-JOURNALS.

Why Even a Successful Man Needs to Study.

BY HARVEY SMITH.

"A man can not know too much about his own business." Bee-keeping is a business that is not learned in a day or a season. We very seldom find a helping article on the subject in any paper or magazine, and the "stuff" that is published in any other than a bee-journal is mostly along the line of the "comb-honey lie." It should not be a question of affording to take a bee-journal,

but, rather, can we afford to do without one? Answering that question for myself, I can not afford to take only one, but I take three journals, and I will soon add another to the list. We can never estimate the possible value to us of just one issue. I consider that the first number of GLEANINGS I received was worth at least the price of that paper for ten years from the value of just one article in that issue.

We have only to look around us a little to recognize the value of intelligent literature on bee-keeping. No doubt some of you are acquainted with men who keep bees in old boxes or logs, or possibly they have them in modern hives, but who get practically nothing out of the business from year to year. Just find out how many journals those men take. I sometimes think that such men keep bees for the excitement they get out of chasing and hiving swarms. They certainly do not get much else out of the business. If you talk bee-journal to them they will get off a little sermon about those fellows who write for the journals having no other object in view than that of giving advice which will lead to disaster.

They will tell you that if those fellows have something good they are not going to give it to the public, as it would injure their business. I say, find such a man and you have a fair example of the man who would not invest a dollar in a bee-journal. Very rarely we find a man who has had very good success who does not think it worth while to subscribe for a bee-journal. He probably has nothing in particular against them; but so long as he gets a fair yield of honey, and a fair price for it, he is satisfied. He would probably not read a journal if he took one.

The man who reads a bee-paper finds out what strides other men are making. It points out to him the possibilities which lie in his power. He takes an interest in his business.

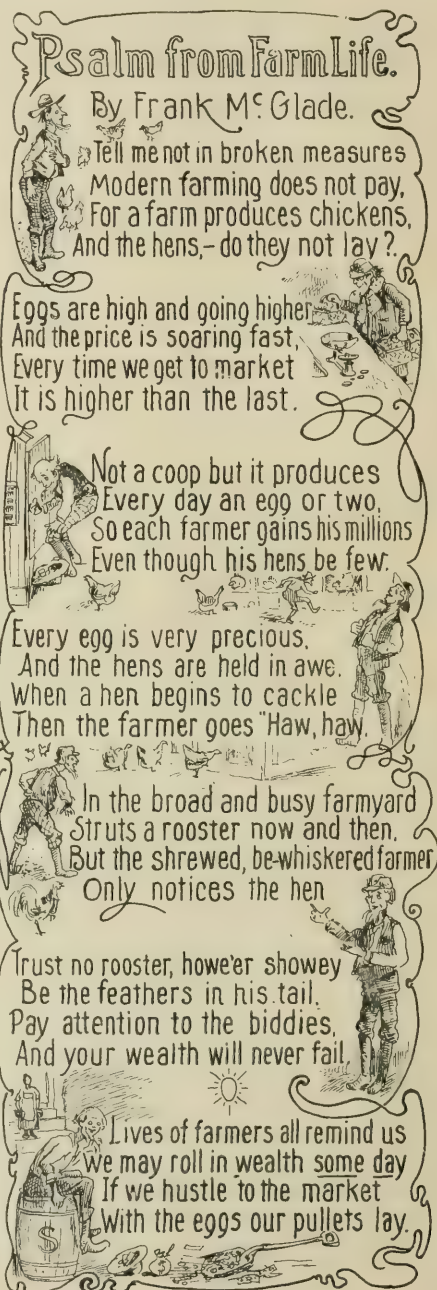
There is, however, a point to consider, other than that of learning how to get the most out of our business. Let foul brood or some other disease get a hold upon an apiary belonging to a man who knows nothing about such things. He will let his bees go from bad to worse. Diseased hives and combs will be left exposed, and this man's intelligent neighbor bee-keeper soon has his hands full. The man who will not read is a menace to neighboring bee-keepers.

Don't be afraid to read your bee-papers over several times. No doubt you have noticed that, after reading a fairly long article on some subject, your mind fails to grasp many good points that appear in a following article. Next evening, however, if you pick up your paper and read the article which the night before seemed uninteresting, it presents itself in a new light and you will get many valuable hints from it. No doubt many issues go on the file without our deriving much benefit from them. We may have read them through, but very often our minds and bodies are tired from hard work, or we may be so interested at the

time in some subject foreign to bee-keeping that we fail to derive the good that we would were we to read the journals through several times. Our reading of bee-journals is very apt to resemble "cramming" for an examination.

HARVEY SMITH.

Palermo, Ont., March 26.



Psalm from Farm Life.
By Frank M^c Glade.

Tell me not in broken measures
Modern farming does not pay,
For a farm produces chickens,
And the hens,—do they not lay?

Eggs are high and going higher,
And the price is soaring fast,
Every time we get to market
It is higher than the last.

Not a coop but it produces
Every day an egg or two,
So each farmer gains his millions
Even though his hens be few.

Every egg is very precious,
And the hens are held in awe,
When a hen begins to cackle
Then the farmer goes "Haw, haw."

In the broad and busy farmyard
Struts a rooster now and then,
But the shrewed, be-whiskered farmer
Only notices the hen

Trust no rooster, howe'er showey
Be the feathers in his tail,
Pay attention to the biddies,
And your wealth will never fail.

Lives of farmers all remind us
We may roll in wealth some day
If we hustle to the market
With the eggs our pullets lay.



A BEGINNER'S EXPERIENCE IN TRANSFERRING BEES.

After our interesting day at Jenkintown my husband transferred bees from an old box hive to a modern hive very successfully. I am sending the photograph that I took of the first step. **MRS. A. S. LUPTON.**
Shiloh. N. J., Oct. 20.

THE ALEXANDER METHOD OF BUILDING UP WEAK COLONIES; A COLONY CONSISTING OF HALF A PINT OF BEES MAKES 60 POUNDS OF SURPLUS HONEY.

After having read what A. J. Snowden wrote in regard to the Alexander method of treating weak colonies I decided to give my experience with it. I had one weak colony last spring which I thought would be a good one to work with. But one day while I was away from home one strong colony attacked it and killed all but about half a pint of bees

and the queen. I did not know what to do with them. The queen was only six months old, and a fine one. I decided that I would try Mr. A.'s plan after all; so I put them on top of my strongest colony. In about a week I opened them and found them with a small patch of brood. I left them on top of the strong one for a month, then removed it. As a result, I secured 40 lbs. of fine clover honey; also some 20 lbs. of buckwheat. They are now as good a colony as I have.

Burlinton, N. Y.

LEON PASHLEY.

HOW TO UNITE WITHOUT FIGHTING.

In Stray Straws, Oct. 15, you come so near my method of uniting that I give the way I have used for some time, my own get-up, knowing that you will improve on it! I make a frame of one-inch stuff, same size as hive. Tack common wire cloth on one side; put on hive, wire-cloth side down, thus leaving an inch space below the upper hive. Put the colony or nucleus on top; give ventilation to top colony by raising cover $\frac{1}{2}$ inch or just enough so the bees can not escape (if this is not done I always find a lot of dead bees); unite after two days in any way desired. The important thing seems to be top ventilation. It might not matter so much in cool weather or a very weak colony.

Springtown, Pa.

WILSON STROCK.



TRANSFERRING BEES FROM OLD BOX HIVES INTO NEW MOVABLE-FRAME HIVES; THIS ILLUSTRATES THE METHOD OF DRUMMING THE BEES UP INTO THE EMPTY BOX.

CAUCASIANS VS. ITALIANS FOR TOWN AND CITY LOTS.

I have had to move into town just adjoining a railroad station, and am afraid to move my bees into town. They are of a cross type of Cyprians, Syrians, and Italians all mixed up. They are of a rather excitable temperament, but great honey-gatherers. I can have an enclosure 30 feet back from the track, with a wall 14 feet high around it large enough to keep perhaps 50 colonies. I could even plant trees to make the bees fly high. They are leather-colored Italians, quiet enough to be handled safely in such a situation. I have had no experience with this class of bees except having seen an apiary of them just once, and I thought then that they might answer for keeping in town. How are the quieter strains of this class of bees as honey-gatherers?

If you think the Italians would not answer, how would Caucasians do? But first please let me know if the Caucasians are as bad breeders when there is no nectar coming in as the Carniolans are. Carniolans are altogether too much bent on brood-rearing, even when there is no flow of nectar, for my liking, consuming all their stores raising brood.

Galt, Ontario.

W. D. HARRIS.

[I do not think you need be afraid to move your bees into town if you put them in the back yard inclosed by a high wall. While Cyprians, of course, are not so gentle as Italians, yet even these bees, with the proper management, could be put right down into town. But as a matter of precaution I would advise gentler bees. Some strains of leather-colored Italians are very much gentler, and practically the equal of Caucasians. The Caucasians are gentle, but in some respects they are not nearly as desirable as Italians. The Carniolans, as you say, are too much bent on brood-rearing out of season. The Caucasians, so far as I know, are not bad in this respect.]

You should also be very careful not to let robbing get started; and when opening the hives use smoke, taking the precaution to blow a little into the entrances, and enough over the top of the frames to make sure they do not rise up and sting. Avoid opening the hives in cool weather or after a rain in warm weather. If any neighbor is canning fruit, request her to keep the doors shut or to use screens. It would be advisable to sweeten her up with a section or two of honey, to keep her from getting sour on your bees. Prevention in a case of this kind is a great deal better than cure.—ED.]

MORE PROOF THAT BEES TRANSFER EGGS OR LARVÆ; QUEEN-CELLS IN QUEENLESS COLONIES AT FIRST CONTAINED NO EGGS OR LARVÆ.

On page 934 Mr. Stachelhausen states that it is not probable that bees move eggs or larvæ. Now, while he has been handling bees a great many more years than I have, yet I think he has overlooked one fact; and that is, if you make a hive queenless the bees must

move either eggs or larvæ in order to raise another queen. While I was reading July 15th GLEANINGS I made one of my hives queenless. The next day they had started some 12 or 16 queen-cells, and I took great care in watching the cells, and in *not one cell* started was there an egg; but after the third day there was the small larva. Now, I know positively that there was not a queen in the hive, because I had taken her out and put her in another hive; also four of the cells were started next to and between the comb and frame in one end where there never was a cell, and where the queen never had laid. These four cells were the largest of any, and I destroyed all but those, and one of them has hatched. Now, the bees must have moved the eggs or larvæ to have gotten them in these cells. Last Friday I took the queen out of a hive and put her in another one. The hive she was in had combs just built, therefore white and new, and a great many eggs just laid in them. I put the cage, with the queen you sent me, in the hive, and today when I looked in the hive they had started six queen-cells; and by holding up to the light I could see very plainly that there were no eggs in the cells. Now, if the bees can not move the eggs how are they going to get the eggs in the cell?

In some of the former issues you speak of queen-raisers taking the eggs out with a spoon and transferring to other cells. Now, I am positive that the bees transferred eggs or larvæ in my hives, because I had just read Mr. Stachelhausen's article when I made my hive queenless, therefore thought that was a good time to test it and see if he was right, and found the facts just as I have written them.

D. LABERGE.

St. Louis, Mo., Sept. 10.

CONCRETE SLABS FOR HIVE-BOTTOMS.

Concrete blocks are made in our town. I can get slabs made 16×32×3 in., with edges raised to allow a bee-space under the combs for about 20 cts. each. What would be the objection to using these slabs for bottoms? I should like to hear from people with experience.

West Bend, Wis.

H. C. AHLERS.

[Concrete slabs would be all right for hive-stands, but rather too cold for bottom-boards. I should expect colonies wintered outdoors, placed on such slabs in this locality, even if in double-walled hives, to die before spring.—ED.]

THE ALEXANDER METHOD OF BUILDING UP WEAK COLONIES A GRAND SUCCESS EVERY TIME.

I can not overestimate the value of your paper, as one article alone saved me forty times the price of subscription—namely, the Alexander method of treating weak colonies in spring by putting them over strong ones. I consider this to be a grand success. As I succeeded in every case, I can not see how any bee-keeper can get along without a good bee-paper.

D. DONALDSON.

Innisville, Ont.



THE ANTI-SALOON LEAGUE OF OHIO AND THE
ANTI-SALOON LEAGUE OF AMERICA.

The Ohio convention occupied one day and part of another. The national convention at St. Louis occupied three days and a part of the fourth. In my report I *may* get the proceedings somewhat mixed up occurring in these two great conventions.

At the preliminary meeting of the executive committee in Columbus a delegation from the W. C. T. U. called on us with a petition to permit the women of Ohio to have a vote in deciding whether saloons shall or shall not be permitted near the homes. Their petition was most ably presented. One of them said she mentioned the matter to one of Ohio's great politicians. He made objection something like this: "Why, my good woman, the thing you ask for would banish the saloons from the great city of Cleveland."

She replied, "Why, my dear sir, do you think *that* would be a calamity?"

He replied, "Why, madam, it would be one of the *direst* calamities."

I suppose he meant by this that there are so many in Cleveland who can not live without alcoholic stimulants that a riot or civil war would be the consequence. Now, some of us who agree with him might have reason, or at least some reason for the above opinion were it not that the great city of San Francisco has just tried it *both* ways. I leave it to the readers of this journal if it has not been pretty well demonstrated that the "calamity" part came when they brought the saloons back to San Francisco, and that no calamity happened *at all* when they drove them out after the earthquake.

I am happy to tell you that our executive committee decided in favor of letting the women vote; and through the new Jones local-option law the women do not have to go to the polls at all, as you are perhaps aware. They simply have to write their names on the petition, yes or no, just as the men do, to keep the saloons out. Do you not think, friends, that the State of Ohio will stand a pretty good chance of being dry all through when we get such legislation?

I have told something about enforcing the search-and-seizure law here in Medina. A brother from some other State told of a similar experience. When the saloon-keeper was bidden to open his safe and show what was inside, he refused. The sheriff then sent for a big sledgehammer, and told the saloon-keeper he could have fifteen minutes to make up his mind. If he did not unlock the safe in that time he would demolish it with a hammer. Now, friends, here is a

good object-lesson, showing well the attitude of the whole saloon-keeping fraternity. Perhaps I should say it illustrates the lack of sense these people show in law enforcement. At the end of fifteen minutes the saloon-keeper was still ugly and contrary, and his safe that might have been saved, and which cost him quite a sum of money, was broken open with the hammer, and quite a lot of expensive liquors were likewise found and destroyed.

The governors of two great States honored us with their presence at the Ohio convention. Now, friends, this means something. A few years ago our politicians, most of them, were afraid to come out in the open for the Anti-saloon League. In fact, some of the churches discussed as to whether it was a good thing to do, to open their doors to our people. Governor Harris gave a brief but most emphatic indorsement of our work; and Governor Hanly, of Indiana, gave us a speech that is going to be scattered by printed copies all over the United States, I hope. He told us something of the battles he had been forced to fight to accomplish what has been done in Indiana. When he first commenced law enforcement one of the millionaire brewers—a man who stands high in politics, and has his constituents all over the State, came to him and said, "Governor Hanly, you must not push this thing as you have been doing."

Governor Hanly replied, "And who are you, sir, that presumes to dictate what the chosen executive of the great State of Indiana shall or shall not do?"

The brewer replied as he rapped with his fist on the table, "Heed my words, or I will show you, sir, what I can do and what I will do."

I can not remember Mr. Hanly's reply, but it was something to the effect that they would have to get the *Governor* out of the way in some way or other before the thing the millionaire threatened could come to pass. After the conference was over, Mr. Hanly mentioned it to his wife. She said she feared he had been unwise to defy the power of a man so well entrenched as this brewer was. Several of his political friends felt the same way. Well, Governor Hanly said he never realized, until *eighteen months* had passed, how many obstacles this brewer and his legions could bring to bear. Again and again, he said, he was led to believe that Satan himself was leagued with those fellows, or else they never could have studied up with so much satanic ingenuity schemes to subvert the laws and to mislead good and well-meaning people. But with God's help he triumphed. He said, furthermore, that he had recently visited fourteen States, and he had reason to think that the rum power has been ruling and is ruling in those fourteen States very much as it was in Indiana. You see there are "bosses" in other cities than Cincinnati.

When Governor Hanly undertook to put on the lid, the mayors of fourteen large cities in Indiana told him it could not be done.

They said their policemen would not enforce the law, as they thought it not best. He told those mayors to go back to their respective cities and tell the policemen that the laws *must* be enforced or they would have a new set of police throughout. As a consequence, in a very short time those fourteen large cities were absolutely without *any* police protection. New policemen were put in their places who would and did enforce the law. I wish, friends, you could have heard the shouts and clapping of hands and stamping of feet while that great audience of several thousand cheered and encored Governor Hanly and the State of Indiana.

By the way, there were between one and two thousand delegates present at that Ohio meeting. County local option is what we are going to work for next; and when the matter came out in the papers it was one of my happy surprises to see some of the papers that have been severely criticising and objecting to the work of our league come forward and strongly indorse county local option. The *Ohio State Journal* is one of these Columbus papers. This is what they say:

If there is any subject upon which home rule should be recognized as the governmental idea, it is where the home shall say for itself whether it wants the saloon by its side or not.

We are in favor of that issue. We believe the people are ready for the conflict, and what this paper can do to help them to a signal victory, it will do.

I can not take space even to mention the great men and women who addressed us at that convention. Miss Lillian Burt in particular carried us all by storm by her eloquent and almost girlish enthusiasm.

So much has been said in the advertising pages of the papers about the food value of beer ("liquid food" as it is called) that Professor Higley gave us a discourse on the subject. He bought a glass of beer for five cents, and analyzed it. It did contain some food, it is true, but so little that a man would have to drink about 180 glasses of it to get the quantity of nourishment he would find in five cents' worth of flour. The professor held up before the audience the amount of nutriment in dry form to be found in a glass of beer; then he held up two beautiful loaves of bread that were both made from five cents' worth of flour. The flour cost the same as the glass of beer. A good deal has been said in regard to the value of *moderate* drinking, giving to invalids a little beer every day as a tonic, etc. In order to test this part of it, a large number of puppies were selected, and half of them fed on good nourishing food. The rest of the puppies had more or less beer put in their daily rations, commencing with a very little, and finally giving them about all they could stand. Well, none of the puppies that had *any* beer *whatever* in their rations did any thing like as well as the "total abstainers." The beer-fed puppies, in fact, lacked vitality; they could not get up even a respectable bark—they just growled and grumbled their discontent. Some years ago somebody said that a little beer mixed with bee-feed would greatly stimulate the bees when you are

building up colonies in spring by stimulative feeding; but as the matter was dropped, I think the experiment never proved to be a great success.

Now, the most of our speakers were great scholars and eminent orators; in fact, we had a collection of some of the best intellects that the State of Ohio affords—men of education and great ability in their respective lines. But one of my happy surprises came when the mayor of London, Madison Co., came on the platform. London is a town of about 3000 inhabitants, about 30 miles southwest of Columbus. As it had until recently 23 saloons, it has been a landmark for crime and outlawry of every description; in fact, it has been a regular rendezvous for gamblers for years past. The saloon element generally elected the mayor, and they always chose one that could be "manipulated" according to their notions and ideas. Through some oversight or mishap they got in Mr. A. T. Cordray as mayor about a year ago. Now, this man is not very much of a scholar, as I took it, or perhaps I should say he was not at the time he was elected. He was not particularly a temperance man, and, if I am correct, not a professing Christian. He had, however, thank God, a keen sense of right and wrong. Soon after he became mayor a man in town got drunk and pounded his wife. When sober he was a good law-abiding honest man—a good husband and a good neighbor; but when drunk he invariably began to pound his wife and children. On this occasion he came home, knocked his wife down, then put his great brawny knees on her chest and began pounding her in the face. She was a weak woman, and disposed to consumption. He pounded her face until it was unrecognizable, and he jammed her head against the floor until the scalp was loose on the back side. I might mention, incidentally, that, a month or two after this event, there was an addition to their family. Now, after the mayor had taken this man into custody he went around to those 23 saloons and told the proprietors they must not sell that man any more drink, explaining why; but he said that, in a few days, he had good reason to believe that every one of those saloon-keepers would sell that man, *or any man*, drink as long as he had a nickel to pay for it; and from that time to this he vowed war on the saloon business.

In that town of 3000 inhabitants, besides the mayor quite a police force was needed as a matter of course. He could not get his policemen to enforce the law against the saloon-keepers, and so he went around with them and showed them how. His wife complained that he was not getting any sleep at all, except in the day time. He said he was quite willing to work nights and sleep days for the sake of making it "hot" for the saloon-keepers. Well, he passed and enforced an ordinance compelling them to shut up at 10 o'clock at night and Sundays. He made them pull down their screens. He passed an ordinance prohibiting the use of music in saloons as a means of drawing custom. He

took away their tables, and tried to take away their chairs; but the "chair business" seemed to be too much, and he could not make it go. Of course, the good people of the town helped him. The town had been a great headquarters for gamblers; and the farming community about, lost much of its earnings, as what did not go into saloons went to the gamblers. Sometimes whole farms were lost and gained in a single night. This town has every so often what they call a "sales day," when cattle and horses are sold at auction. A big crowd congregates, and they generally have a "high old time" on such days. One sales day, while the saloon-keepers were reaping a rich harvest, it came near closing time. A delegation visited the mayor and offered him \$50 if he would let them remain open till 11 o'clock instead of 10. Of course, he drew back on his dignity at this, but the spokesman explained that the \$50 he had in his hand was for the benefit of the town. They could build "sidewalks," etc. The mayor replied, "Gentlemen, if you were to give me \$50 a minute you could not stay open one minute more after the clock strikes ten. Go back, and prepare to shut up promptly or I will have you arrested and fined, every one of you. God knows I would have you shut up all day long and for ever if I could have my way about it."

Now, this mayor aroused more enthusiasm, more cheers, clapping of hands, and more amens than any great orator who spoke during the whole session. It reminded me of the beautiful but encouraging verse, I. Cor. 1:27, "God hath chosen the foolish things of the world to confound the wise; and God hath chosen the weak things of the world to confound the things which are mighty." I was on the platform not far from the speaker, and I had it in my mind to take him by the hand and bid him Godspeed, and to tell him I thanked God that he had been led by the Holy Spirit thus to consecrate his life to the work he was doing. But I did not say it. I could not get near enough to him. The audience climbed on the platform in a body, and they pressed on him from all sides. I heard one man say to him, "How much money will it cost us to have you come and talk to our people? Give us just the talk you have given here."

The mayor replied, laughingly, "Why, friends, I do not know how our town can spare me for a day; and I could not give my talk over again to save my life. I do not know what I have said. It was mostly in answer to your questions."

Now, friends, there is a great moral right here. A lot of mayors and other officials have the foolish notion in their heads that it will not do to enforce our laws—they would become unpopular, etc. I think this kind of suggestion comes from Satan. It is just the other way. Look about you and notice the men who have arisen suddenly just because they obeyed the voice of God rather than the suggestions of the evil one.

Just one thing more before I close, about

the mayor of London. This man Cordray has a peculiar gift. He perpetrated some of his hugest jokes when he did not seem to know he had got off any joke at all. He stared at us with open mouth as if he were puzzled to know what we were laughing at. His very attitude and demeanor made that great audience cheer again and again; and the next sentence after he had the audience still so he could say a word, generally proved to be a huger joke still; and yet his face hardly softened into a smile. He is one of God's great men, and does not seem to know it. May his honest, earnest, boyish simplicity never be spoiled by the applause and praises of men.

The 23 saloons in London are now reduced to 17. He gave, as an illustration of the way in which intemperate men will use their wits to get drink, the following incident that occurred in his town: A certain man had exhausted his credit, and bartered all he could lay hold of. Then he went to a neighbor's of his and said that one of his hens had just commenced sitting, but he had no eggs to put under her. Would the neighbor kindly loan him a setting of eggs? After he got the eggs he went and traded them for whisky.

Joseph Clark, Secretary of the Ohio Sunday-school Association, sometimes known as "Timothy Standby," gave us a talk about Sunday-schools and temperance. In that talk he said:

"How many people in this building consider themselves members of some Sunday-school? Stand up." (Practically all arose.)

"The Sunday-school stands behind the Anti-saloon League. The greatest temperance organization in the world is the Sunday-school. I stand before you as the training-master of the Anti-saloon League of the future. I have had a vision. I had a vision of the day when the Sunday-schools will pass out to Ohio 300,000 boys who have been taught in our Sunday-schools, not only the principle of total abstinence, but also the right use of the ballot against all the foes of the people. God being my helper, if I am spared to serve ten years longer I intend to pass along to the commonwealth, ten years from to-day, 300,000 boys who will vote right."

THE NATIONAL CONVENTION AT ST. LOUIS.

When I first got off the train at the great union station in St. Louis I could not find anybody who knew where the First Presbyterian church was located. It was almost time for the first address, and I was very anxious. I thought if I could find a corner drugstore I could surely get some directions; but every corner in that city seemed to be occupied by a saloon, and every man on the street seemed to be a saloon frequenter. I hope St. Louis will forgive me, for it may be there are more saloons around that great station than anywhere else. I hope so. But nobody—not even a policeman—could tell me where the church was, and so I asked the street-car conductors. They looked a little ashamed of it when they had to confess that they did not know where the First Presbyterian church was. Neither could anybody on the car tell. In despair I did find a drugstore, and the obliging manager told me it was something over a mile away. But he wrote 4100 Olive St. on a piece of paper and told me to hunt up a conductor on a certain

car, and he would get me near there. If I did not find a Christian man on the street or in the cars I did find one, thank God, in one of the drugstores.

While in session at St. Louis we were interrupted by a telegram from Oklahoma, telling of a great victory. In fact, we had encouraging telegrams from several localities during our meeting. The State of Iowa could not do any better than to send a woman delegate, and I guess they were right about it; for I doubt if any man in that whole great State could have done any better than this Miss Harriet E. Yeater, a young lady less than 25 years of age.

Rev. G. W. Young, of Kentucky, has been called the Henry Clay of modern times. It was largely through his efforts that Kentucky, West Virginia, and Tennessee have been made almost dry. Yes, the region where "Kentucky whisky" has been so famous is now all dry except a few counties. In fact, it is getting to be so unsafe for the railroad and express companies to deliver liquors anywhere in Kentucky that the Louisville & Nashville and the Illinois Central have just asked Dr. Young to look over their list of dry towns and cities and correct it for them, and also to add any towns or cities that he knows of where prohibition reigns that is not on their list. I mention this as an evidence of wonderful progress, or I might say of a grand awakening, on the part of the railroad and express companies.

The brother who gave us a talk on Georgia hung a map up before the audience, showing the dry counties white and the wet ones black. Several black spots had been cleared off during the past year: "and," said he, "friends, we are still at it. We are growing better and better every day. Yes, thank God we are growing whiter and whiter every day."

Now, friends, wherever this journal goes, how is it with you? Are *you* growing better and better every day? and is your city, county, or town getting "whiter" and "*whiter*" every day?

Rev. Mr. Folk, brother of Governor Folk of Missouri, told us that Tennessee is almost dry—in fact, all but eleven cities, and these cities will *soon* be made "white" through God's providence, thanks to the work of the Anti-saloon League.

Judge Ben B. Lindsey, of juvenile-court fame, from Denver, Col., was one of the great speakers of the occasion. He was not a great orator, but what he has done and is doing for the boys is where the "great" comes in. Like the mayor of London, of whom I have spoken, he was not particularly a temperance man, nor perhaps prominent as a Christian worker, until he began to discover the injustice that is being done to childhood, especially in our large cities. I will give two incidents:

One morning a mother came to his office in behalf of a little boy who had been arrested with a crowd of other boys for drunkenness. The mother said, "Judge Lindsey, you may not think it possible, but this boy

has been kneeling at my knee and saying his little prayers every night right along. I did not think it possible that he could do any thing wrong deliberately, and especially a wrong like this."

The judge promised to investigate. He gained the boy's confidence, and the boy told him the whole story. A neighbor's boy had been in the habit of going to a certain saloon to bring beer in a little pail for his father. As this boy was a constant visitor, the saloon-keeper, without hesitation, gave him a bottle of whisky when he laid down the price of it. The boy took the bottle out back of the schoolhouse to a lot of other boys, and dared them to take a taste of it. How many young boys are there who would not hesitate when "dared" by the other boys? The consequence was, they took a drink all around, and then took some more. Finally a policeman arrested the whole gang and shut them up for drunkenness. Judge Lindsey remonstrated with the father of the boy who had been in the habit of sending him to a saloon; but the father insisted that it was his right, saying that, when he came home tired out, a drink of beer "rested" him better than any thing else. The judge made investigation to see if there was no law or ordinance forbidding the sending of young boys into saloons for a pail of beer. He said to that great audience, representing almost every State in the Union, "How many of you have laws or ordinances in your own cities forbidding boys from going into saloons for a pail of beer?" Not one replied. He went on:

"I venture to say the city of Denver has the only law of this kind in the United States; and it did not have that until I brought it about. The saloon-keeper and the father who sent that boy to the saloon were the ones to be arrested, and not the comparatively innocent boy," said the judge. The second incident was something as follows:

One morning one of the Denver papers came out with big headlines reading, "A Boy Bandit," narrating how a boy in his teens had held up and robbed a man. The judge dropped his work, went down to the prison, and found the boy handcuffed. He was a flaxen-haired boy about fourteen or fifteen years old: and instead of being a tough, equal to the task of holding up a full-grown man, he looked like a boy who would not harm any one. His name was Christopher. The judge could not get him to talk until he had sat down and urged him and won his confidence. The boy supposed that, of course, the judge came there to get him sent to the penitentiary or something of that sort. The boyish story was something like this: He and some other boys were having fun, as boys do, when a couple of men came along through a deserted alley, so full of drink they could hardly stand up. This boy Christopher had a piece of broom-handle in his hand; and while one of the men was staggering, Christopher put this broom-handle between the man's legs in such a way as to trip him up, and over he went. He was in just the right stage of intoxication to fall into a drunken

sleep, which he did. While he was asleep the boys got into his pockets and took what little change he had. That was the whole of it. Christopher was not a bad boy at all. He was simply full of mischief, and was not old enough to realize that he was committing crime. So much for the boy bandit of the newspapers. Christopher and the other boy are now among the judge's very best friends and helpers. With the assistance of his boys in the juvenile court, Judge Lindsey has prosecuted more saloon-keepers and other criminals than the police have succeeded in roping in within the past twenty years. You have probably read about the work, in the magazines. The judge told us about one particular boy whom he called "Mickey." He is captain of the newsboys' baseball team of Denver. Well, Mickey's team had been winning all the games for a year past. One day the judge asked him how it came about that he and his team were making such continuous victories. The boy replied as follows: "It's like dis, Judge. You see, half of dese kids is Irish, and de odder half is Jews; and when de Jew kids and us Irish kids git togedder, we whips every ting dat comes down de pike."

The judge said, in closing, "Now, friends, we want to learn a lesson from Mickey. When the Anti-saloon League, the W. C. T. U., and the Prohibition party and all other temperance organizations get together, we 'whips every ting dat comes down de pike.'"

John G. Woolley, of the *New Voice* and of the Prohibition party, gave us one of his grandest speeches, and something like 5000 people turned out to hear him. This address was given in one of the great beautiful Methodist churches. While I think of it, St. Louis has some of the finest churches I ever saw in the United States; and the first Presbyterian church, when I first came to it, I found to be about the finest and most convenient I ever saw; in fact, it was a revelation to me of what a church edifice *can* be. Woolley said it rejoiced his heart to see the number of people who are voting for good men without voting for any *particular* party. The Ohio Republicans had recently voted in a Democratic Governor; and things of a like nature are going on all over this land of ours. He suggested that, while both Democrats and Republicans were looking for good men, they would do well to glance occasionally over into the Prohibition party, and see whether there were not some to be found *there* also.

Of course, a photographer was on hand and got us all out in front of that beautiful church to have our pictures taken. While arranging things and the people, he asked Woolley if he could not look a little pleasant-er. Woolley replied that he "did not know how he could *consistently*, because he was a *Prohibitionist*." By the way, some of my friends keep throwing it up to me every little while that I am not voting as I pray. Why, my good brothers and sisters, I rejoice that I stand so close to Bro. Woolley, or he

stands so close to me (I really do not know which), that we can *almost* walk together and *vote* together on every matter that comes up. God bless Bro. Woolley.

At one point in our program one of the great speakers failed. Dr. Howard Russell was kind enough to mention that, under the circumstances, we should be glad to hear from a great and good brother from away down in Maine, who had in a quiet way helped the cause of temperance perhaps almost as much as any other man in that region. He had done it by furnishing funds to help things along, when that seemed to be the great thing lacking. Dr. Russell then made me shake in my shoes by saying that, after this good brother had spoken, they would like a word or two from your humble servant, A. I. Root, who had helped the Anti-saloon League from its birth up to its present proportions, in a like manner. The thought of standing on the platform before a convention of the educated D. D.'s and LL.D.'s and the great orators together from all over the United States, made the cold chills run down my back for a while; but I prayed God to help me to say something that would help the work along; and if anybody should care to know just what I did say I will try to write it out some future time for these columns.

I hope most of you have heard Dr. Chapman, or "Old Father Eloquent," as he is often called, of Los Angeles, Cal. If you have not heard him, you are likely to hear him soon in connection with his great temperance speech called the "Stainless Flag." He gave it first at our Ohio convention, and then again at the St. Louis convention; and it is, in my opinion, a second "declaration of independence," and perhaps not second in importance to the one we read over so reverently and love so much. It is a declaration of independence from the domination of the liquor-traffic. It aroused so much enthusiasm that, as soon as he closed, a man rose up and said that a lady by his side would give \$100 to have it printed and scattered broadcast provided her name was not mentioned. Similar amounts followed rapidly. Well, I was feeling just as the lady did, and I finally got up with the idea in mind that I would furnish a large number of the pamphlets if they would let us print them on our new large printing press just installed. I intended to give about the same amount that the lady did—\$100; but under the excitement of the moment I somewhat recklessly made a blunder in my figures. I said I would print *one hundred thousand* if the Anti-saloon League of America would see to it that they were put into the hands of people who would read them. Well, this proposition or donation was received with such bursts of enthusiasm that I began to think that may be I had "put my foot in it," and I meditated correcting the matter; but just then Howard Russell got up and said, "Friends, I am afraid we do not all realize the magnitude of Bro. Root's offer. Why, it really means something like \$1000."

The clapping of hands, and the amens and the shouts were then even still greater; and when I thought of checking all that enthusiasm by telling them that I meant only *ten* thousand instead of one hundred thousand, my courage failed me. After I arrived home I told the boys the predicament I was in; but they just laughed at me, and said they would help me out. Mr. Calvert suggested that 30,000 of the 100,000 could be furnished by printing the speech in *GLEANINGS*; and then I thanked God to realize that it is really in our power to put such a paper into the homes of 30,000 people where it will be pretty sure to be read more or less. Howard Russell made a further motion that, when we got enough copies of the *Stainless Flag* printed, the United States shall appoint a certain Sunday for temperance, and call it "*Stainless Flag*" Sunday. The pastor of every church shall be desired to read over the speech carefully, present it to his people, then have the ushers hand a copy of the speech to every one in the audience as the congregation passes out. The sum of \$2500 was raised for this purpose in less than fifteen minutes, and there is very little doubt that the money to furnish half a million copies could be raised without any trouble. I will not tell you any thing about that speech now; but when you get an opportunity to read the *Stainless Flag*, go over it thoroughly and carefully. "*Stainless Flag*" Sunday will probably be the Sunday preceding the Fourth of July, 1907. And, dear brothers and sisters, it looks now as if the time were near at hand when the stars and stripes that float over our heads in this great republic shall indeed be a "*stainless flag*," unstained by any direct or indirect complicity with the liquor-traffic.

Before closing I feel that I must express my thanks to our excellent presiding officer, Bishop G. M. Matthews, of the United Brethren Church of Chicago. Bishop Matthews is one of the kindest, most genial, and most Christlike or Christianlike men I have ever met in my life. He taught us one thing that I think would be a benefit at our bee-keepers' conventions. With that great audience of men whose time was exceedingly valuable it was of the utmost importance that no time be wasted. One of his short cuts to save time was to get rid of things that came up, with as little red tape and parliamentary machinery as possible. For instance, some brother would make a suggestion, and he would add, just the instant the brother sat down, "Friends, can we not all agree to this so as to get on with our regular business?" and if the response was agreed to, we pushed right on to something else. In this way a great number of things that might have provoked a long discussion were pushed along out of the way, and everybody was just as well off, or perhaps better. He constantly impressed on every one the importance of getting through, and giving each delegate from the various States a chance to make a report of ten minutes.



BUDDING APPLE-TREES.

Years ago an aged bee-keeper who was a lover of apples showed me how to bud apple-trees. I had almost forgotten about it till last August, while on a visit to our Ohio Experiment Station, where they showed me a new early apple. It was about the size of and somewhat resembled the Red Astrakhan, although not nearly as tart. But I decided at the time that it was the "very nicest apple I ever tasted in my life." Perhaps you have heard me say that before. But this for the time being seemed to eclipse all others. I was told that no trees are yet for sale by the nurserymen; but I was permitted to cut off a little twig of the young tree. It had just commenced bearing, if I am correct. I took that twig home and went to some trees in our dooryard and proceeded much in the usual way of budding peach-trees. I made a T-shaped cut (or, rather, two cuts) on a thrifty twig or limb, raised up the corners in the usual way, then with a very thin-bladed knife took a slice from my choice twig so as to cut out a leaf-bud, taking a little of the wood right under the bud as well as the bark. This bud was then pushed under the corners of the bark where I made the two cuts and the top cut off squarely. Then I tied it up with woolen yarn, as that is better than any thing else because it will stretch if you should forget to take it off at the proper time. I set three buds in this way; and as I soon left home the matter was forgotten till to-day, Dec. 1, when I went out and took off the woolen yarn, and found every bud had taken perfectly; the wound had healed up well and sound, and I have the promise of this new fruit a good deal sooner than if I had purchased trees at the nursery.

Now, there is one feature about this manner of budding that greatly pleases me. Whenever you find an apple-tree that bears apples that suit you, especially early apples, at just the time when apples are ripe, do the budding. You do not have to have any wax, nor any tools, except a sharp-bladed pen-knife and a little woolen yarn. The bark of an early apple-tree will always raise nicely when the fruit is ripe, so far as my experience goes. I hope our friends at the experiment station will be able to give me the name of this beautiful new apple when they see what I have written about it.

SUCCESSFUL MUSHROOM-GROWING.

Friend Root:—On page 1453 you ask about successful mushroom raising. This locality is about 20 miles from Philadelphia, and one of the most successful districts for mushroom-growing in Pennsylvania. The land being used for dairy farms has been heavily manured, and seems to be adapted to mushroom and ear-nation growing. There are within five miles of my home probably thirty mushroom-houses, built expressly for the growing of mushrooms, and holding from five to twenty-five carloads of manure each. There are many farmers who raise them in small

buildings, and in the cellars under their residences. One man in the neighborhood has been in the business four or five years, and has not yet had a poor season. From the first house he filled this fall, holding six carloads of manure, he cut 350 lbs. in three days and received 80 cts. per pound for them. All the houses are built above ground.

One of our neighbors has about 40,000 carnation plants in his bothouses at present. Some of the greenhorns here have as good success as the experts. It seems to be due to the nature of the soil, in this locality.

H. P. FAUCETT.

Brandywine Summit, Pa., Nov. 26.

Friend F., we are all exceedingly glad to learn that mushroom-growing is a success, at least in some places, after all; and one of the encouraging things about your report is that the greenhorns, as you call the novices, are succeeding about as well as experts. I hope to be able to make you a visit in the near future, and write the matter up for the benefit of our readers who are following high-pressure gardening.

J. W. DAY, THE AUTHOR OF THE TOMATO-BOOK, AND WHERE HE LIVES.

Our older readers will remember my description of my visit to friend Day when the first edition of the tomato-book was sent out. During the correspondence that was called forth in preparing the second edition of the book just out, friend Day sent us a very nice photo of his home as it appears at the present time, and we submit it to our readers.

You will notice that our friend and his good wife have an eye for flowers and a

handsome dooryard as well as for fine peaches and choice tomatoes. The vines in front of the porch are not connected directly with the porch. In fact, some of us know by experience that such heavy foliage is detrimental to the woodwork. They are arranged on a trellis several feet in front of the building. In regard to the picture, friend Day sends the following description of it:

Friend Root:—My wife says the vines on the arches in front of our house, beginning at the left arch, are variegated hops; on the second side are some kudzu vines; on the third and fourth are white moon-vines; fifth and sixth arches are blue moon-vines with some Madeira-vines. All these vines are annuals.

The two beds of flowers in front of the house are round, and about 16 ft. in diameter. The center set are three dwarf cannas of different colors; around this is a band of salvias, then geraniums, then pinks and carnations, then a band or circle of ageratum; and last, or outside, are verbenas of all colors. We endeavor to have the tallest flowers in the center, and the lowest at the outer edge. This exposes every flower, and all these flowers are constantly blooming from early spring till late in fall. The tall trees around the house are black locust. We now have lightning-rods on the house. The arches stand four feet from the porch, and are about 30 inches across. The lawn is mostly Bermuda grass.

Crystal Springs, Miss.

J. W. DAY.

I am glad to know the kudzu vines do better in the South than here in Ohio. Our readers may remember I mentioned this some two years ago. The plant grew so rapidly that we called it "Jack's beanstalk." In our locality none of them lived over winter, although they made an astonishing growth during the first summer.



SOUTHERN HOME AND RESIDENCE OF J. W. DAY, CRYSTAL SPRINGS, MISS.

YOU CAN NOT BUY THESE SPOONS!

Read Every Word of This Advertisement Carefully



To
Be Given
Away

In
Sets
of Six

Illustration Shows Spoons One-half Size.

For advertising purposes we have arranged to give away absolutely free of cost to the users of Mary Elizabeth's Baking Powder, one thousand or more sets of six Louisiana Purchase Exposition Souvenir Spoons (full tea size) on certain very easy conditions.

These are the same make of spoons sold on the World's Fair Grounds in St. Louis, at \$1.00 and \$1.25 each, and we propose to make every lady reader of "Gleanings in Bee Culture" a present of a full set of six for which thousands of visitors paid \$7.50 on the World's Fair Grounds.

Send No Money---Just Write a Letter Like This:

Mary Elizabeth's Baking Powder Co., Shelbyville, Ind.

Please send me the box containing eight cans Mary Elizabeth's Baking Powder and one set, six (all different) Louisiana Purchase Exposition Souvenir Spoons as advertised in "Gleanings in Bee Culture," for which I agree to pay you \$2.00 on receipt of the goods if they are found (after examination) to be as advertised.

Name _____

State _____

Town _____

P. O. Box or Street No. _____

The Illustration but Faintly Portrays the Beauty of the Spoons.

The handle of each spoon is embellished with the head of President Jefferson, a French and an American flag and other cabalistic designs commemorative of the Louisiana Purchase.

In the bowl of each spoon is embossed a reproduction of one of the principal exposition buildings. Each spoon shows a different building, viz.: Electricity, Mines and Metallurgy, Liberal Arts, Machinery, Horticultural and the United States Government Buildings.

The workmanship on these spoons and materials used are vouched for by one of the largest manufacturing silversmiths in the United States.

The Historic Value of the Spoons.

The great Louisiana Purchase Exposition, the most stupendous collection of the works of modern man and the relics of his savage ancestors is a thing of the past—the glories of the Exposition but a memory.

Already your friends and your children look with eager interest on every memento of what in all probability will be the last of the Great World's Fairs. Recognizing this, we have purchased from one of the largest manufacturing silversmiths in the world a large supply of the official souvenir spoons (full tea size) which we propose to distribute (in sets of six) absolutely free to the users of Mary Elizabeth's Baking Powder.

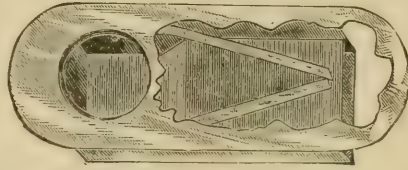
These Spoons are not for Sale Separately at any Price.

They are obtainable only in connection with Mary Elizabeth's Baking Powder.

Mary Elizabeth's Baking Powder can not be purchased at stores; is sold only direct from factory to user, and conforms strictly to all requirements of the new Pure-Food Laws recently enacted by Congress.

Mary Elizabeth's Baking Powder is not made by a trust, but you can put your trust in this brand. If you want a dependable powder this brand will never disappoint you.

MARY ELIZABETH'S BAKING POWDER CO., Shelbyville, Ind.



PORTER BEE-ESCAPES

HIVE ESCAPE

When taking off surplus this is the greatest saving device. It does away with the shaking of the heavy supers, the cruelty of excessive smoking which causes the bees to uncap their honey and start robbing. Just tip the super to the angle of 45 degrees and insert the board. In a few hours it is free of bees; then take off your super. You can as well afford to be without a smoker as without the Porter Bee-escape.

PRICES

Each, 20 cts.; dozen, \$2.25; postpaid. With board, 35 cts. each; \$3.25 per 10; by express or freight.

TESTIMONIALS

They are perfect in action.—British Bee Journal.

No bee-keeper can afford to be without them.—Prof. Cook in American Bee Journal.

Worthy of highest commendation.—Eugene Secor, judge on awards, World's Fair, Chicago.

I would not do without them even if they cost five dollars apiece.—W. Muth-Rasmussen, Independence, Cal.

They are absolutely perfect. I can not tolerate my own make since using them.—John S. Reese, Winchester, Ky.

They are one of the best things ever brought into any apiary, and should be used in every bee-yard in the whole world.—Wm. McEvoy, Foul-brood Inspector, Ontario, Canada.

There is no robbing or fighting or disturbance in the apiary when the surplus honey is taken off with them. They are simply perfect.—W. Woodley in British Bee Journal.

HOUSE ESCAPE

To be used over the doors and windows in the extracting-house, or any place you wish to clear of bees. The most persistent robber can not return. Some bee-keepers make a practice of taking off the filled supers and stacking seven or eight in a pile. The Porter Honey-house mounted on a board makes the best kind of escape. Don't wait till to-morrow before you get a supply. You can not afford to be without them longer.

PRICES

Each, 25c; dozen, \$2.75; postpaid.

TESTIMONIALS

The Porter bee-escape clears the supers of bees so perfectly and quickly and easily that it makes the taking off of honey a pleasure instead of a dread as in former years.—G. M. Doolittle, Borodino, N. Y.

The removal of full honey-boxes has become an amusement since we began using the Porter bee-escape.—Ed. Bertrand, Editor Revue Internationale d'Apiculture, Nyon, Switzerland.

This number of the Review contains more unqualified praise of the Porter bee-escape than any other issue has ever contained of any other implement; but so long as it is deserved, who cares?—Bee-keepers' Review.

They are the greatest thing on earth for expelling bees from supers.—G. J. Flansburg, South Bethlehem, N. Y.

I would not be without them for four times what they cost.—Dr. W. A. Tufts, Musson, La.

Undoubtedly the best bee-escape is the one invented by R. & E. C. Porter.—W. S. Pouder, Indianapolis, Ind.

Bee-men are certainly behind the times if they can afford to use them and do not.—M. H. Mendleson, Ventura, Cal.

For Sale by Dealers Everywhere!



R. & E. C. Porter, Patentees

Send Orders to Your Dealer

A Bee in Your Bonnet!



Assets
Over
One-half
Million

Don't deny yourself advantages of a bank account because your savings are small.

It is the careful attention to little things that makes the big things possible. This bank accepts savings deposits in any amount from \$1.00 up, and allows interest at the rate of 4 per cent compounded twice a year.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system. Write for the booklet to-day.

The Savings Deposit Bank Company Medina, Ohio, U. S. A.

A. T. SPITZER, President

A. I. ROOT, Vice-president

E. B. SPITZER, Cashier

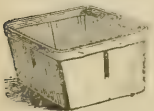
We Import

Teas, Coffees, Olive-oil.

We retail direct to consumer.
Mail orders solicited.
Write for our price list.
Representatives wanted everywhere.

Rio Vista Trading Co.

670 Main Street
Buffalo, N. Y.



Plants, Berry - crates,
and Quart Baskets

Special prices for December and
January orders. . . Catalog free.

H. H. Aultfather
Box 62, Minerva, Ohio

The New Food Law Takes Effect January 1, 1907

BEE-KEEPERS, BEWARE!

EVEN that gathered from your own bees is not sure to pass inspection if it is near a city, or honey-dew localities, or you feed your bees syrup in the fall. I will analyze your honey at the following rates:

\$3.00 for a single sample.
\$5.00 for two samples.

I will also sell fine basswood and clover mixed, two 66-pound cans to the case, at 95¢ per pound. My bottled honey, trade-marked "Blossom Nectar," packed two dozen in a case:

Large size.....	25c retail;	\$2.30 per doz.
Medium size.....	15c	1.35
Lunch	10c	.95

Quantity price given on application.

A written guarantee and certificate of analysis with every purchase.

Wm A. Selser

Philadelphia :: Pennsylvania
8 Vine Street

The Swarthmore System

of Queen-rearing

IT IS HARDLY necessary to go into details describing the Swarthmore System of Queen-rearing, as it has been thoroughly covered in the bee-journals, and fully described in the books listed below, each taking up a special subject. In brief, this system is the most modern, and in many ways the best. It is simple, and any one with a knowledge of bees can enter the profit branch of queen-rearing with assured success by adopting the Swarthmore methods and tools.

Swarthmore Books!

BABY NUCLEI (2d ed.).—The second edition of this popular treatise is off the press. This book thoroughly covers the field of small mating under management. The experience of twenty years in mating young queens in baby nuclei is given. A delightful little book—good printing, enjoyable reading, and easy understanding. Price 25 cts. postpaid.

INCREASE.—Don't depend entirely upon swarming for your increase. It's too slow and uncertain. Swarthmore tells of a way in his delightful little book entitled "Increase"—a natural way, simple and safe, no labor, little trouble. Colonies formed on this plan will work like prime swarms, and store a surplus. Price 25 cts. a copy postpaid.

SIMPLIFIED QUEEN-REARING.—A revised edition of this book just out. It tells the honey-producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just an effective and economical plan for the bee-keeper who works for profit. Price 25 cts. postpaid.

CELL-GETTING.—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life. Price postpaid, 50 cts.

SWARTHMORE QUEEN-REARING TOOLS.—Complete outfits or separate parts. Write for price list.

The Swarthmore Queen-rearing Outfits

Prices of Separate parts:

	post. extra
Bar holder	.10 .04
Blank Bar	.05 .04
Bottle Feeder	.10 .05
Bulb Filler and Feeder	.75 .08
16-hole Cell-bar	.10 .02
Cage-pocket	.25 .09
Flange-cups, unwaxed, 1c each; per 100.	.75 .09
Flange-cups, waxed, 2c each; per 100...	1.75 .14
Grace Cell-compressor, each	1.75 .14
Grafting-needle, each	.15 .01
Grafting-plug, each	.10 .01
Grafting-stick, each	.10 .01
Holding-frame, each	.10 .05
Incubating-cage, each	.35 .07
Double Mating-boxes, complete, \$1.00; 10	7.50
Nursery-cages, complete, waxed cell-cup	.35 .05
Nursery-cages, no cups	.25 .04
Swarm-box, with lid	1.00
Swarm-box, lid only	.25
T Stands, each	.10 .06
Transfer-cages	.10 .02

Prices of Complete Outfits:

Outfit No. 1—Experimental

POSTPAID, \$1.50

1 Cell-bar,	1 Holding-frame,
16 Waxed Flange Cups,	12 Transfer-cages.

Outfit No. 2—Amateur

POSTPAID, \$3.50

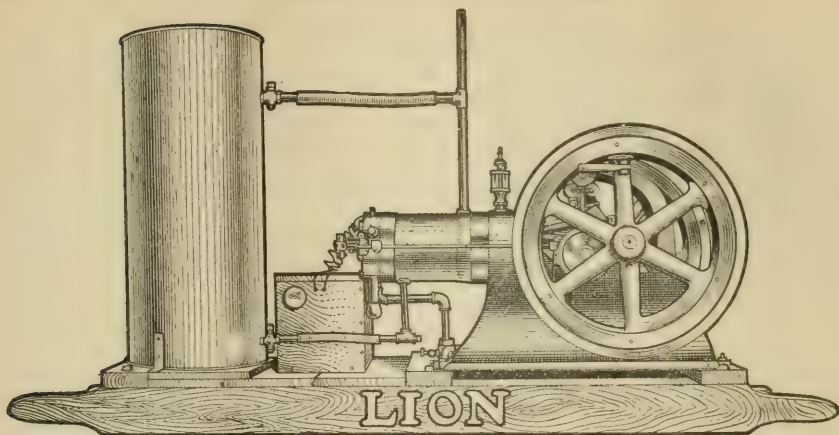
2 Cell-bars,	1 Holding-frame,
35 Waxed Flange Cups,	18 Transfer-cages,
1 Needle,	1 Cell-stick.

Outfit No. 3—Professional

BY FREIGHT OR EXPRESS, \$7.50

2 Blank bars,	2 Cell-bars,
3 Holding-frames,	1 Incubating-cage,
1 Cage-pocket,	1 Grace Cell-compressor,
1 Grafting-plug,	100 Flange Cups,
2 Double mating-boxes,	2 Swarth. nursery-cages,
1 Bar-holder,	24 Transfer-cages,
1 Swarm-box with lid,	1 Needle, 1 Stick.

Manufactured by The A. I. Root Company
For Sale by All Dealers in Bee-keepers' Supplies.



IT'S READY TO OPERATE

There's no firing-up—no waiting for steam with a **Lion Gasoline Engine**. It is **always ready to operate**. Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

The Lion Engine

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

We sell direct from factory to buyer, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion engine** and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion engine**. It is free if you mention this paper when you write.

Lyons Engine Company
LYONS, MICHIGAN





The "SUN"

SUN INCANDESCENT HYDRO-CARBON LAMP

1-6 the cost of kerosene. Makes its own gas. Dispenses with dirt, grease, smoke, odor. Safe as a candle; 100 candle power. Agents wanted; liberal commission.

OUT-SHINES THEM ALL

9th Year of Success.
Get up Club and receive special discount. Conforms to insurance underwriters' rules. Write for catalog.

SUN VAPOR LIGHT CO.
BOX 111, CANTON, OHIO.
Licensee of the Campbell patent.

It Will SAVE You to Ask Our Special Time Price NOW on a Detroit Tongueless Disc Harrow

You'll **Save** in time—**Save** your horses and save much harder work for yourself, if you'll simply write a postal for our proposition on a Detroit Tongueless Disc Harrow today.

Dor't let yourself buy any other kind of a harrow until you have heard from us. It's well worth your while to find out what you can do with us. Especially worth your while to know all about the Detroit Tongueless Disc.

We Allow 30 Days' Field Test FREE

This new Tongueless of ours was **The wonder of the age** in Disc Harrows last year when we had 1463 orders more than we could fill. Think of that.

There are good reasons.

Until we made and patented this Original Detroit Tongueless Disc nobody knew how to save the **awful draft** of those old Tongue Harrows. Ours is

The Lightest Draft Disc Harrow in the Market

No weight on the horses' necks—no bruises, galls or straining from sharp turns or rough, hilly ground.

**No Tongue at All
to Pound Around.**

You hitch to eveners on the light front wheel truck. Then your horses pull straight ahead all the time, turning and all. No tongue to **cause tipping**.

It rolls smoothly everywhere you drive and is **The Easiest for Horses and the Driver**. We can't tell you the whole story here.

But we want you to know the whole truth about what a desirable harrow the Detroit Tongueless Disc is.

The best way for you to know is for you to try it free yourself for a month in your own fields.

We Pay the Freight

to your railroad station and even pay return freight if you don't find our

Detroit Tongueless just exactly what we say it is. It won't cost any responsible party a cent to try it NOW, or at the time you want to begin your regular harrow work.

All you need to do is to say in your order when you want to test it. We'll ship promptly.

Ask for our free catalogue. That also tells all about how well built our Detroit Tongueless Disc Harrows are. That, too, will interest you.

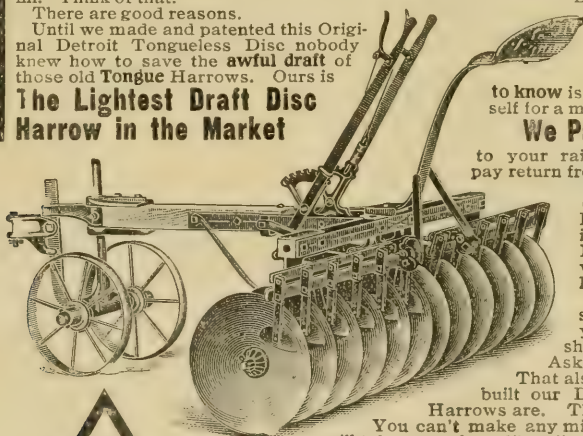
You can't make any mistake in writing us. We will take care of you liberally on a square deal.

Order Now for Future Delivery

We advise you to send in your order right NOW, and we guarantee to make delivery when you want it. Handsome catalog and time prices on full line of sizes FREE. Write today.

This
is only
one of the
Great Special
Features—Truck
Instead of Tongue

Address **AMERICAN HARROW CO.**
4644 Hastings Street Detroit, Mich.



BOOKS

Special offer to Gleanings readers: "The Doctor," Ralph Connor's latest book, or "The Jungle," by Sinclair, or "Bob Hampton, of Placer," by Randall Parrish, by return mail for \$1.20, postpaid. List of good books free.

M. T. WRIGHT, MEDINA, OHIO.

LEGAL ADVICE BY MAIL!

Two dollars our only fee. Right your wrongs. Understand your liabilities. Safeguard your property. Secure your interests. Protect your family. Relieve your mind of trouble, worry, uncertainty, doubt. Absolutely confidential. Advice under laws of any State. NATIONAL LEGAL BUREAU, 38 Court Sq., Boston.

GET BIGGER HATCHES

Whether you are a beginner or an expert at Poultry Raising, you can secure Bigger Hatches, aided by the patented and exclusive labor saving, automatic features of the Latest Pattern

CYPHERS INCUBATORS

can find poultry profit in raising Broilers, Roasters and Capons, and become successful in Chick Rearing and secure profitable results in Egg Farming. Cyphers Incubators and Brooders are in use and recommended by leading Agricultural Experiment Stations the world over.

Our new 244 page Guide to Poultry Profit telling you how to become a successful poultryman.—FREE if you name this paper and send addresses of two acquaintances interested in poultry keeping.

CYPHERS INCUBATOR COMPANY

Address Nearest Office:
BUFFALO, NEW YORK
BOSTON, CHICAGO,
KANSAS CITY, OAKLAND, CAL.



Write today for The Autobiography of a Hen and the Victor Book—the whole story from the chick in the egg to how to make hens lay. All about Incubators for expert and beginner. Knowledge you ought to have if you are thinking of buying one. VICTOR machines are practical and well made, economical in operation and always produce the best results. Don't waste your time, eggs and oil in a poor machine. Let us tell you how to begin right. Our 40 years experience is at your service in these books. Let us send them to you and see. Write us for them today. Geo. Ertel Co. Established 1867. Quincy, Ill.

240-EGG \$11.75 Incubator

120 Egg Size, \$9.00
60 Egg Size, \$7.50

Brooders equally low. Not cheap machines but the famous "Ideal"

—guaranteed to be the surest and easiest ever made. Why not save from \$5 to \$10? Get our big 128 page, illustrated poultry book FREE.

J.W. Miller Co., Box 48, Freeport, Ill.



\$5 NO MONEY IN ADVANCE

The "Dandy" is the easiest operated, best built, fastest cutting green bone cutter made. Sold on 15 days free trial with abroad guarantee. If it suits keep it, if not, send it back. Free catalog, Stratton Mfg. Co. Box 54, Erie, Pa.



Hatch Chickens by Steam with the EXCELSIOR INCUBATOR Or WOODEN HEN

Simple, perfect, self-regulating. Hatch every fertile egg. Lowest priced first-class hatchers made. GEO. H. STAHL, Quincy, Ill.

Send for free Catalogue.

25 YEARS ON THE MARKET

Think of it! Our "Silver Jubilee" Why take chances? Buy a Reliable and be sure. Beautiful Silver Jubilee Catalog free. Write today. Reliable Incubator & Brooder Co., Box B-49 Quincy, Ill.



May we send you Lee's new book on poultry and live stock? Thirty-two pages; illustrated; in colors; and an

EGG RECORD--FREE

for 1907. Interesting; instructive. Mention this page that's all! GEO. H. LEE CO., Omaha, Nebr.



HOW TO MAKE POULTRY PAY is the greatest book published on Poultry and is attracting attention. It contains 116 pages also 9 beautiful color plate reproductions from oil paintings. 600 black and white illustrations representing over 90 different breeds. You can get it FREE.

Address INLAND POULTRY JOURNAL, 15 Cord Bldg, Indianapolis, Ind

Why Don't YOU Build Your Own Incubators and Brooders

You can do it easily with our Free Plans. Over 18 thousand people interested last year. Why not send for them. Catalog full of valuable information for incubator owners and **PLANS** H. M. SHEER CO. **FREE** 151 Hamp St., Quincy, Ill.

HATCHING TIME IS HERE!

and so is the new

AUTOMATIC BUCKEYE INCUBATOR OPERATES WITHOUT A THERMOMETER.

All Metal, Fire Proof, Continuous Hatcher. SOLD ON INSTALLMENTS with five years guarantee. Adjusted ready to run when you get it. CATALOGUE FREE. BUCKEYE INCUBATOR CO., Box 64, Springfield, O.

THE HUMPHREY GREEN BONE and VEGETABLE CUTTER

will save half your feed bills and double egg yield. Guaranteed to cut more bone, in less time, with less labor, than any other. Send for Special Trial Offer and handsome catalogue. HUMPHREY, Mine St. Factory, Joliet, Ills.

HOW TO GET MORE EGGS

Help your hens. Feed them fresh cut green bone and you'll get more eggs—you'll get eggs in winter when eggs are worth while. The Standard Green Bone Cutter prepares bone right for feeding, quickly—easily. Prices \$8.50 and up; sold on guarantee—sent on trial. Write for catalog. Standard Bone Cutter Co. Milford, Mass.





The "SUN"

SUN INCANDESCENT HYDRO-CARBON LAMP

1-6 the cost of kerosene. Makes its own gas. Dispenses with dirt, grease, smoke, odor. Safe as a candle; 100 candle power. Agents wanted; liberal commission.

OUT-SHINES THEM ALL

9th Year of Success.
Get up Club and receive special discount.
Conforms to insurance underwriters' rules. Write for catalog.

SUN VAPOR LIGHT CO.
BOX 111, CANTON, OHIO.
Licensor of the Campbell patent.

It Will SAVE You to Ask Our Special Time Price NOW on a Detroit Tongueless Disc Harrow

You'll **Save** in time—**Save** your horses and save much harder work for yourself, if you'll simply write a postal for our proposition on a Detroit Tongueless Disc Harrow today.

Don't let yourself buy any other kind of a harrow until you have heard from us. It's well worth your while to find out what you can do with us. Especially worth your while to know all about the Detroit Tongueless Disc.

No weight on the horses' necks—no bruises, galls or straining from sharp turns or rough, hilly ground.

No Tongue at All to Pound Around.

You hitch to eveners on the light front wheel truck. Then your horses pull straight ahead all the time, turning and all. No tongue to cause tipping.

We Allow 30 Days' Field Test FREE

This new Tongueless of ours was **The wonder of the age** in Disc Harrows last year when we had 1463 orders more than we could fill. Think of that.

There are good reasons.

Until we made and patented this Original Detroit Tongueless Disc nobody knew how to save the awful draft of those old Tongue Harrows. Ours is

The Lightest Draft Disc Harrow in the Market

It rolls smoothly everywhere you drive and is **The Easiest for Horses and the Driver.**

We can't tell you the whole story here.

But we want you to know the whole truth about what a desirable harrow the Detroit Tongueless Disc is.

The best way for you to know is for you to try it free yourself for a month in your own fields.

We Pay the Freight

to your railroad station and even pay return freight if you don't find our

Detroit Tongueless just exactly what we say it is. It won't cost any responsible party a cent to try it NOW, or at the time you want to begin your regular harrow work.

All you need to do is to say in your order when you want to test it. We'll ship promptly.

Ask for our free catalogue.

That also tells all about how well built our Detroit Tongueless Disc

Harrows are. That, too, will interest you.

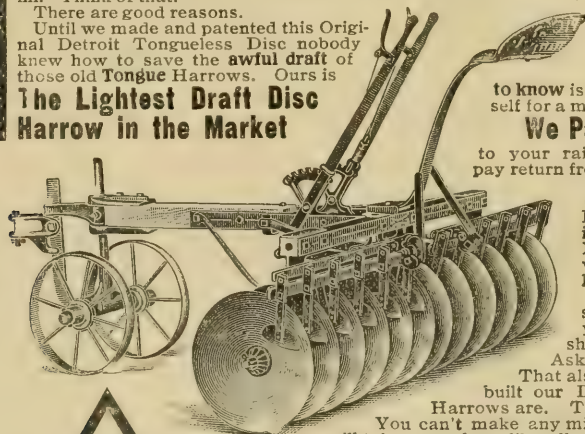
You can't make any mistake in writing us. We will take care of you liberally on a square deal.

Order Now for Future Delivery

We advise you to send in your order right NOW, and we guarantee to make delivery when you want it. Handsome catalog and time prices on full line of sizes FREE. Write today.

Address **AMERICAN HARROW CO.**
4644 Hastings Street Detroit, Mich.

This is only one of the Great Special Features—Truck Instead of Tongue



BOOKS

Special offer to Gleanings readers: "The Doctor," Ralph Connor's latest book, or "The Jungle," by Sinclair, or "Bob Hampton, of Placer," by Randall Parrish, by return mail for \$1.20, postpaid. List of good books free. M. T. WRIGHT, MEDINA, OHIO.

LEGAL ADVICE BY MAIL!

Two dollars our only fee. Right your wrongs. Understand your liabilities. Safeguard your property. Secure your interests. Protect your family. Relieve your mind of trouble, worry, uncertainty, doubt. Absolutely confidential. Advice under laws of any State. NATIONAL LEGAL BUREAU, 38 Court Sq., Boston.

GET BIGGER HATCHES

Whether you are a beginner or an expert at Poultry Raising, you can secure **Bigger Hatches**, aided by the patented and exclusive labor saving, automatic features of the Latest Pattern **CYPHERS INCUBATORS** can find poultry profit in raising Broilers, Roasters and Capons, and become *successful* in Chick Rearing and secure profitable results in Egg Farming. Cyphers Incubators and Brooders are in use and recommended by leading Agricultural Experiment Stations the world over.

Our new 244 page Guide to Poultry Profit telling you how to become a successful poultryman.—FREE if you name this paper and send addresses of two acquaintances interested in poultry keeping.



CYPHERS INCUBATOR COMPANY

Address Nearest Office:
BUFFALO,
NEW YORK
BOSTON,
CHICAGO,
KANSAS CITY,
OAKLAND, CAL.

\$5 NO MONEY IN ADVANCE

The "Dandy" is the easiest operated, best built, fastest cutting green bone cutter made. Sold on 15 days free trial with a broad guarantee. If it suits keep it, if not, send it back. Free catalog. Stratton Mfg. Co., Box 54, Erie, Pa.



Hatch Chickens by Steam with the EXCELSIOR INCUBATOR Or WOODEN HEN

Send for free Catalogue.

Simple, perfect, self-regulating. Hatch every fertile egg. Lowest priced first-class hatchers made. GEO. H. STAHL, Quincy, Ill.

25 YEARS ON THE MARKET

Think of it! Our "Silver Jubilee!" Why take chances? Buy a Reliable and be sure. Beautiful Silver Jubilee Catalog free. Write today. Reliable Incubator & Brooder Co., Box 8-49 Quincy, Ill.



May we send you Lee's new book on poultry and live stock? Thirty-two pages; illustrated; in colors; and an

EGG RECORD--FREE

for 1907. Interesting; instructive. Mention this paper that's all! GEO. H. LEE CO., Omaha, Nebr.



HOW TO MAKE POULTRY PAY

is the greatest book published on Poultry and is attracting attention. It contains 116 pages also 9 beautiful color plate reproductions from oil paintings. 600 black and white illustrations representing over 90 different breeds.

You can get it FREE. Address INLAND POULTRY JOURNAL, 15 Cord Bldg, Indianapolis, Ind

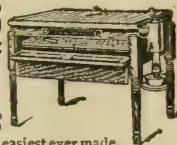
Write today for The Autobiography of a Hen and the Victor Book—the whole story from the chick in the egg to how to make hens lay. All about Incubators for expert and beginner. Knowledge you ought to have if you are thinking of buying one. VICTOR machines are practical and well made, economical in operation and always produce the best results. Don't waste your time, eggs and oil in a poor machine. Let us tell you how to begin right. Our 40 years experience is at your service in these books. Let us send them to you and see. Write us for them today. Geo. Ertel Co. Established 1867. Quincy, Ill.

240-EGG \$11.75 Incubator

120 Egg Size, \$9.00
60 Egg Size, \$7.50

Brooders equally low. Not cheap machines but the famous "Ideal"—guaranteed to be the surest and easiest ever made. Why not save from \$5 to \$10? Get our big 125 page, illustrated poultry book FREE.

J.W. Miller Co., Box 48, Freeport, Ill.



Why Don't YOU Build Your Own Incubators and Brooders

You can do it easily with our Free Plans. Over 18 thousand people interested last year. Why not send for them. Catalog full of valuable information for incubator owners and **PLANS** FREE

H. M. SHEER CO.
151 Hamp St., Quincy, Ill.

HATCHING TIME IS HERE!

and so is the new

AUTOMATIC BUCKEYE INCUBATOR OPERATES WITHOUT A THERMOMETER.

All Metal, Fire Proof, Continuous Hatcher. SOLD ON INSTALLMENTS with five years guarantee. Adjusted ready to run when you get it. CATALOGUE FREE. BUCKEYE INCUBATOR CO., Box 64, Springfield, O.

THE HUMPHREY GREEN BONE and VEGETABLE CUTTER

will save half your feed bills and double egg yield. Guaranteed to cut more bone, in less time, with less labor, than any other. Send for Special Trial Offer and handsome catalogue.

HUMPHREY,
Mine St. Factory, Joliet, Ills.

HOW TO GET MORE EGGS

Help your hens. Feed them fresh cut green bone and you'll get more eggs—you'll get eggs in winter when eggs are worth while. The Standard Green Bone Cutter prepares bone right for feeding, quickly—easily. Prices \$8.50 and up; sold on guarantee—sent on trial. Write for catalog. Standard Bone Cutter Co. Milford, Mass.



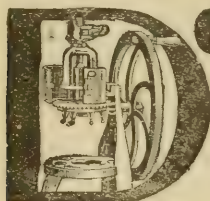
We Offer for a Limited Time Only At Liberal Figures

300 Thousand Quart Berry-crates,
100 Thousand 16 and 24 quart Berry-crates,
200 Thousand Sections,

25 Thousand 24-section No-drip Shipping-
cases,
2 Thousand Dovetailed Bee-hives.

Write to-day, and get our special prices on any quantity. Address

Sheboygan Fruit-box Co., Sheboygan, Wis.



DOUBLE YOUR EGG YIELD

Fresh, raw, green bone contains over four times as much "protein" and other egg-making materials, as grain. It takes the place of worms and bugs in fowls' diet; that's why it gives more eggs—greater fertility—stronger chicks—earlier broilers and layers—larger market fowls, and bigger profits. You

can cut it most easily, rapidly and best with

Mann's Latest Model BONE CUTTER
Automatically adapts cutting to your strength. Never clogs. Cuts all adhering meat and gristle. We send it on **10 DAYS FREE TRIAL**. No money in advance. Catalogue free.

F. W. MANN CO., Box 37, Millford, Mass.



40 BREEDS Fine pure-bred, chickens, ducks, geese, and turkeys. Northern raised; hardy and very beautiful. Largest poultry-farm in the Northwest. Fowls, eggs, and incubators at lowest prices. Send 4c for fine 76-page thirteenth annual catalog. **R. F. NEUBERT, Box 778, MANKATO, MINN**

\$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3840 pages (size 8x 11 3/4 inches) of valuable poultry, pigeon, and pet-stock reading, costing us thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

Poultry Item, Sellersville, Bucks Co., Pennsylvania



25c Book Free

Conkey's book on poultry diseases contains just the information you need to keep your flock strong and healthy—and that means to **Get Paying Results**. The regular price of this valuable book is 25c, but we are offering it free for a limited time to those who will send 4 cents for postage and give us the names and addresses of two other poultry raisers. Write for it today.

THE G. E. CONKEY CO., 315 Ottawa Bldg., Cleveland, Ohio.

EARLY CHICKS PAY BIG



Hatched in January, February and March, they make big profits. Hatch them in a **BANTA INCUBATOR**. Heat uniform, case tight, ventilation gives strong chicks, regulator reliable. Ten minutes work daily. New catalogue free. **Banta-Sender Mfg. Co Dept. 23, Ligonier, Ind.**

You Need It.

If you have only a few chickens;
If you are at all interested in poultry;
If you are breeding for fancy points;
If you cater to the market trade;
If you are in the business on large scale, you need

American Poultryman

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. **AT HALF PRICE** a year, but we offer it for a short time to introduce it to readers of Gleanings. Send 25 cts. and get it a year; or if you send us \$1 for a year's subscription to Gleanings in Bee Culture we will send you American Poultryman for a year free. Address **American Poultryman, Dept. 14, Dayton, Ohio.**

Golden all-over Italian Queens!

Reared from best stock by Swarthmore methods. Am now booking orders for May and June delivery. Select untested, \$1.25; six for \$6.00.

Wm. A. Shuff, 4426 Osage Ave., Philadelphia, Pa.



WHAT DO YOU SAY?

Several hundred thousand farmers say that the best investment they ever made was when they bought an

Electric Handy Wagon

Low wheels, wide tires; easy work, light draft. We'll sell you a set of the best steel wheels made for your old wagon. Spoke united with hub, guaranteed not to break nor work loose. Send for our catalogue and save money.

ELECTRIC WHEEL CO., Box 95, Quincy, Ill.



No attorney's fee until patent is allowed. Write for "Inventor's Guide."

FRANKLIN H. HOUGH, Atlantic Bldg., Washington, D. C.

"If Goods are wanted quick, send to Pouder."

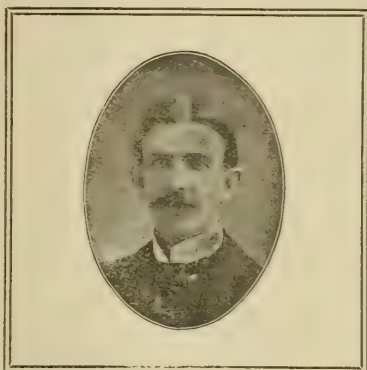
Established 1889

Bee-Keepers' Supplies

Distributor of Root's Goods from the best shipping-point in the Country. My prices are at all times identical with those of The A. I. Root Company, and I can save you money by way of transportation charges.

Special Discounts for Early Orders!

**New Metal-spaced
Hoffman Frames
are Here in Stock**



**Headquarters for the
Danzenbaker
Hive**

**Dovetailed Hives, Section Honey-boxes,
Weed-process Comb Foundation,
Honey and Wax Extractors, Bee-smokers,
Bee-veils, Pouder Honey-jars, and,
in fact, Every Thing used by Bee-keepers.**

~~~~~ **BEESWAX WANTED!**

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight. Always be sure to attach name to package.

If you wish to secure finest grades of Honey with which to supply your neighbors, write for my market Quotations of the Indianapolis honey market, free.

Certificate guaranteeing purity with every shipment.

~~~~~  
**Catalog Free**

# Walter S. Pouder

**513-5 Massachusetts Av., Indianapolis, Ind.**

# Root's . . . . . . Goods

Stand for

## Reliability

Uniform excellence . . . .  
. . . . always maintained.

## Popularity

Everywhere in high favor.

## Quality

Material and workman- . . . .  
. . . . ship unexcelled.



In Other Words-----It's Root Quality



We Sell the Root  
Quality Goods in  
**MICHIGAN**



Write for prices and discount on  
your list of goods for the  
coming season.

“Where Quality Counts, We Win.”

# M. H. HUNT & SON

Bell Branch, Wayne Co., Michigan

# 8 <sup>per</sup> cent Discount During December!

In order to liven up business during the dull months we will give eight per cent off all supplies, in the catalog, wholesale or retail, during December for goods for next year.

Jobbers for

**Central : Pennsylvania**  
— for —

# ROOT'S GOODS

Now's the time to save money on goods for next season. Send for catalog. Best shipping facilities in the State.

**Frank W. Prothero**  
Dubois, : : : Pennsylvania

# Dittmer's . . . . . . . . . Foundation

is the best foundation for you to use because it is tough, transparent, will not sag, and has the odor of pure beeswax.

# Working Wax for . . . . . . . . Cash a Specialty

This is the cheapest way for you to secure your foundation

# Beeswax Always Wanted!

Our warehouse is well filled with all kinds of bee-keepers' supplies. Four per cent discount during December.

**Gus Dittmer, Augusta, Wis.**



# BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

## Kretschmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.  
Trestler Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.  
T. B. Vallette & Son, Salina, Kansas.



Established 1881

YES!

Same Place 1906

## THIS IS THE MAN WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year. ♡ ♡ ♡ ♡ ♡

Geo. E. Hilton, - Fremont, Mich.

## SPECIAL BARGAINS

In dovetailed **HIVES**, plain and beeway **SECTIONS**, Hoffman **BROOD-FRAMES**, Section-holders, Separators, etc.

We are enlarging our **FACTORY**, and all of these goods have to be moved. If you want any thing in your apiary, you will do well by writing us at once, and we will make you **DELIVERED PRICES** that will surprise you. Our stock is all new and up-to-date. We do not keep poor or second-grade goods. Our sizes are standard. Quality and finish can not be surpassed by any one. We make any thing used in the apiary, and can save you money and delay at any time of the season. Give us a trial and be convinced. We aim to please our customers, and guarantee all our goods to give entire satisfaction or refund the money.

## MINNESOTA BEE-KEEPERS SUPPLY COMPANY,

NICOLETT ISLAND NO. 20.

John Doll & Son, Proprietors.

MINNEAPOLIS, MINN.

## BEE - SUPPLIES

Best of every thing needed.  
Big Discount from now to  
April 1st. Catalog free.

C. M. Scott & Co., Indianapolis, Ind.

1004 East Washington Street

## PATENTS.

Twenty-five Years' Practice.

## PRINDLE & WILLIAMSON,

Second Nat'l Bank Bldg., Washington, D. C.

Patent practice in Patent Office and Courts.  
Patent Counsel of The A. I. Root Co.

**BINGHAM**  
 • Original  
 Direct Draft  
 CLEAN  
 Bee Smokers



Pat'd 1878, '83, '92 & 1903

## Long Advertising

Twenty-seven years ago the first patent bee-smoker surprised bee-keepers. The Bingham Smoker patented improvements are dated 1878, 1882, 1892, and 1903. They always please; they always sell. For October orders we discount 6 per cent; any number, any size, delivered any time.

**T. F. Bingham - Farwell, Mich.**

## North Texas . . . . Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of **ROOT'S GOODS IN STOCK**, and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1906 free on application. Mention GLEANINGS when you write.

**Texas Seed  
 and : Floral : Company**  
 Dallas, : : : : Texas

## Northeastern and New England BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

**J. B. Mason, Mechanic Falls, Maine**  
 MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

## Ohio and West Virginia BEE-KEEPERS

— Order —  
**Root's - Goods - from - Zanesville**

Nine railroads, Muskingum and Ohio River steamboats, and all express companies, insure a saving of freight and time. . . . Write now for catalog and special discounts.

**E. W. Peirce, Zanesville, Ohio**

## HONEY-JARS

No. 25, with burnished cap, heavy clear glass, per gross, \$5.00; 3 gross, \$13.50.  
 11-ounce nickel-cap jar, gross, \$4.00; 3 gross, \$11.00.  
 1-lb. square jar with cork, gross, \$5.00.  
 Heavy cartons, \$5.50 per M.  
 Italian queens, 75c. Catalog free.

**I. J. Stringham**  
**105 Park Place, N. Y. City**  
 Apiaries at Glen Cove, L. I.

## Canada : Distributors

for  
**Marshfield Manufacturing Co. Beeware  
 of Wisconsin**

Hives, Sections, Shipping-cases, all Beeware. None better. . . . Sample sections sent free.

**N. H. Smith, Canadian Agent**  
 Lock Box A, Tilbury, Ont., Can.

**BANATS.**—Before you buy imported Banat, Italian, Carniolan, Cyprian, or Carinthian queens for 1907, write **L. A. LAWMASTER & SONS**, Upper Sandusky, Ohio.



## When a Thing Needs Doing

NOW is the time to do it. How about those worthless queens? Will you tolerate them for another season, when the best of stock can be obtained so readily? Laws' bees and queens are bringing the best of reports. I could fill many pages of testimonials, but give you only one. Mr. T. P. Robinson, of Bartlett, Texas, says: "Dear Sir.—The car of bees shipped June 20th are now all safely landed, and I have overhauled the entire lot. The bees are from 25 to 40 per cent better than contract, and you ought to hear my wife's exclamations of delight at seeing those fine yellow bees so quietly nestle between the combs at the very approach of smoke. I can certainly recommend you."

Leather and Golden Italians, Holy Lands, and Carniolans—single queen, \$1.00; six for \$5.00. Quantity lots, prices on application.

I also manufacture the Hoffman frames, both new and old style, at \$16.00 per M; single-story eight frame hive complete, 75c; 1½-story for extractor, \$1.00. Price list on application.

**W. H. Laws, Beeville, Bee Co., Tex.**

### Queens from 50 Cents Up!

Bred from Root's Imported Italians.

Write for prices, stating wants.

**C. M. Church, Arnold, Pa.**

## Something New in Honey-Jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest one-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements.

**J. H. M. COOK, 70 Cortlandt St., New York**

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

## Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy-Lands, Italians.

**The JENNIE ATCHLEY CO.,**

Box 18, Beeville, Bee Co., Tex.

## Yellow from Tip to Tip!!!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce Golden queens and beautiful bees; non-swarmlers, very gentle, and hustlers for honey. Single queen, \$1.00; three queens, \$2.50; six, \$4.50, or \$8.00 per dozen. Large select breeding queen, \$2.00 each. Every thing guaranteed.

**H. ALLEY, - - - Wenham, Mass.**

## Boston Headquarters

— FOR —

## Bees-Queens-Supplies

**H. H. Jepson, - 182 Friend St.**

## A. H. REEVES & CO.

DISTRIBUTORS OF

## "ROOT'S QUALITY" BEE-SUPPLIES

Cash paid for beeswax. Send for catalog and price list.

**17 Morrison Street, Watertown, New York**  
Phone 1296

**TRAINLOAD OF BEE SUPPLIES**  
ENROUTE TO  
**A. G. WOODMAN CO.**  
GRAND RAPIDS, MICH.

**SEND US LIST OF GOODS WANTED AND LET US QUOTE PRICES**  
**WE CAN SAVE YOU MONEY**  
**LOW PRICES ON BEE HIVES WRITE US**

G. B. LEWIS CO. - DADANT & SONS' GOODS

## Fire Sale Bee and Poultry Supplies

Come or send, and save 25 to 50 per cent on slightly damaged goods. NEW LEWIS GOODS at factory prices by return freight. Honey and beeswax wanted. State lowest price and particulars.

Honey in 5 gal. cans for sale.

**Four per cent Discount for December Orders**

**H. M. Arnd, Propr. York Honey & Bee Supply Co. (Not Inc.)**

Long Distance Telephone, North 1559.

191 and 193 Superior St., Chicago, Ills.

## QUEENS AND NUCLEI FOR 1907

We book orders now for next season, at a discount, except for foreign lands. Price list free. . . . . We can furnish you Benton cages. . Information free.



**D. J. Blocher**

Pearl City : : Illinois

## Do You Want to Spare or Make Money? : : : :

**SO READ HERE--This Ad. appears but once**

**STEEL TOOL.**—Serves as hammer, hatchet, screw-driver, nail-lever, wire-cutter, box-opener, pincers, pipe-tongs, screw-key. The tool in every respect answers all these purposes without moving the hand, either to screw a tool on or to do any thing else. Everybody should always have one in his pocket. Six-inch size, 40 cts.

**BEE-KEEPERS**, write at once for our American catalog of our bee-goods and specialties: it pays! *If you buy from us only a dozen escapes you save just a dollar.* You can, therefore, make money by selling cheap to neighbors. We want to send you, free, improved spring bee-escapes, 1 for 13c, 2 for 23c; 6 for 66c; 12 for \$1.20. Strong cotton veil, 25c. Uncapping-knife, 40c. Excellent sting-proof rubber-gloves, with sleeves, 60 to 70c. Pincers to take queens carefully, 30c. Best tinned 1/4-inch honey-gate, 50c each. All goods of fine quality. Send international P. O. order, and try for a few cents.

**DEALERS IN BEE-GOODS** should not omit to write for our extremely low wholesale prices. You can sell of our specialties as much as you will. Practical rubber gloves from 25c up.

**A. Mees, Mnfr., Herenthals, Belgium**

## Bees and Queens for 1907

I am fully alive to the importance and value of good queens for profitable keeping of bees. I think I can raise just as good queens as anybody. I will book orders for 1907 at the following prices: Each, 55c; \$6.00 per dozen; \$45.00 per 100. Also eggs to hatch, Buff Wyandotte, R. I. Red, S. C. Buff Orpington, Barred Rock. Circular free.

**A. H. Kanagy, Milroy, Pa.**

## Bees - and - Queens Golden Italians

The yellow-all-over kind.

Book all your orders before the rush comes, and you will be sure to get your queens on time.

I rear queens from select mothers only.

I am situated on an island that is entirely Italianized, and pure mating is practically insured.

My stock originally came from the best-known queen-breeders in the country.

I will begin April 1st and fill orders in rotation.

Satisfaction guaranteed.

|                             |        |
|-----------------------------|--------|
| Untested Queen .....        | \$1 00 |
| Select Untested Queen ..... | 1 25   |
| Tested Queen .....          | 2 00   |
| Select Tested Queen .....   | 3 00   |

### NUCLEI

|                                     |      |
|-------------------------------------|------|
| One-frame Nucleus, no queen .....   | 2 00 |
| Two-frame Nucleus, no queen .....   | 3 00 |
| Three-frame Nucleus, no Queen ..... | 3 50 |

**H. M. PARKER, Jr.**

James Island, South Carolina

## Better than an Island

This place is just as good as an island for breeding queens, for there are no other bees within five miles, and so pure mating is guaranteed. It is better than an island when you order queens, for the fastest trains stop here, and hence queens are not away from the colony long enough to impair their usefulness. Safe introduction is guaranteed if you follow my special directions. ♀ ♀ ♀ I consider the Banat Caucasian bees the best and gentlest in the world. Banat Caucasian bees are bred here; other races in out-yards. Queen-breeders should secure their breeding-queens from this pure stock. Order now. Banat Caucasian queen, \$3.00. Caucasian queen, \$1.50. Golden Italian, 75c. Tested queens, one year old, double these prices.

**Dele Collins, Ph. D., Emporium, Pa.**

## ITALIAN : QUEENS

Golden or leather colored. Send for circular telling of ONE COLONY which produced 280 FANCY SECTIONS in one season. Order now with cash. Untested queen, \$1.00; six for \$5.00; tested, \$1.50 and up. Address

**Robt. B. McCain, Rt. 1, Oswego, Ill.**

## Choice Italian Red-clover Queens

I will sell my choice Red-clover queens at 75 cts. each; six for \$4.25. Tested, \$1.25; six for \$6.00. Every queen guaranteed to produce bees that work on red clover. I have sent out, during 1906, 1000 queens, and not a dissatisfied customer. Descriptive circular free, **Fred Leininger, Ft. Jennings, O.**



# DANZENBAKER HIVE

"Facts About Bees," a 64-page book written by Mr. F. Danzenbaker, giving a complete description of his famous hive and directions for using. Full of valuable information. Sent on receipt of a two-cent stamp to pay the postage. Send for it.

## THE Danzenbaker Hive

THE COMB-HONEY HIVE.  
Three points of Excellence:

### QUALITY.

You can produce better-looking honey.

### QUANTITY.

You can produce more of it.

### PRICE.

You can get more per pound for it.



## Special Notice.

The great popularity of the Danzenbaker hive has brought the shallow brood-frame and the tall plain sections into prominence. It must be remembered that no other hive contains the essential features of the Danzenbaker. The success of this system depends on having everything just right, so you should place your order for the Danzenbaker hive with our main office, or any of our branches or regular agents.

## What Others Say About the Danzenbaker Hive.

*The A. I. Root Co., Medina, Ohio.*

Dear Sir:—Though rather late in the season, I send you report of my labors in the apiary the past season and my success with the bees. I started with 44 colonies in the spring and increased to 54 colonies. I made that much increase because I had purchased ten Danzenbaker hives to experiment with. I am highly pleased with the experiment. My Danzenbaker hives produced about 33% per cent more honey than the eight-frame Dovetailed hives. Bees in this locality have done better than I ever knew them to do before. From my best hive I took off 116 well-filled sections. My average for the season was 60 nice well-filled sections to the colony, spring count. I want to increase next spring to 75 or 80 all Danzenbaker hives.

J. H. MCCARGO.

Arkansas, Nov. 17, 1906.

[We have permission to quote the following extracts from a private letter, which will show the opinion of a prominent bee-keeper.]

Dear Sir:— . . . I like the closed-end frames so well that I would prefer paying for them even if I could have Hoffman or loose-hanging frames for nothing. I can handle closed-end frames as rapidly as loose-hanging frames, and by proper manipulation very little handling of frames is necessary in this hive after the swarming season; and, as you know, we are not greatly troubled with propolis until after this period, so that the objections put forth by some of the older beekeepers will not hold out. The Danzenbaker hive has proved so much better for me than the Langstroth or Chaff hive that I have discarded all other hives and now use the Danzenbaker hive exclusively. I have fifty of them in use at this

writing, and expect to increase to 200. I will run one hundred in an out-apiary for extracted honey, as they have proved with me as good run for extracted as for comb honey. . . . It is a wonderful hive, and has many points of merit not found in any other hive on the market. I can tell you more about this hive but have confined myself strictly to your questions.

I am a user of the Danzenbaker hive, and can honestly say that I do not believe there is anything can equal it in the production of fancy comb honey. I took the first prize on comb honey this fall at our State fair, Trenton, N. J., the honey being in the Danzenbaker sections and off of the Danzenbaker hive. This season white clover gave only a light crop, but I averaged a little over 100 lbs. per colony, spring count.

Stanton, N. J., Dec. 7, 1905. LEVI K. COLE.

Gentlemen:—Let me tell you of the result secured from the three-frame nucleus purchased of you. This was received here May 23d. This was given good care and has made me 64 pounds of surplus honey and will yet have to its credit about 32 pounds more. Is not that good for a "greenhorn"? But it was all on account of the worth of that queen. An experienced bee-man tells me that this was an exceptionally good queen. When he saw the immense swarm busy at work, and was told that only a short time before it was only a small nucleus, he remarked, "Got them of Root, did you not?"

I give full credit to Root and the queen. I cared for them in a Danzenbaker hive according to Root's advice, and got the usual Root result.

Iowa F's., Ia., Aug. 29, 1906. THOS. F. RIGG.

## F. Danzenbaker, Patentee, Miami, Florida

For Sale by all Leading Dealers in Bee-keepers' Supplies

## Classified Advertisements.

Notices will be inserted in these classified columns at 2 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

## Help Wanted.

WANTED.—Competent bee-keeper wants bees on shares in Southern California. Address  
J. M., care The A. I. Root Co., Medina, Ohio.

WANTED.—Manager for small-fruit and poultry farm of 20 acres. Must understand fruit, poultry, underdraining, etc. State salary expected, age, experience, references, etc.  
Box A, GLEANINGS.

WANTED.—Local representative to handle the sale of our new Unrivalled Series of Charts and Surveys, showing every State and foreign country; reliable, historical, and descriptive matter, beautifully illustrated. We anticipate sale large enough to net our representatives from \$300 to \$800 in every county. Address Rand, McNally & Co., Chicago, Ills.

## For Sale.

FOR SALE.—Cuban apiary. C. care of Root Co.

FOR SALE.—4000 ferrets; some trained. Prices and book mailed free. N. A. KNAPP, Rochester, Ohio.

FOR SALE.—At a bargain, machines for making bee-hives and sections. C. A. GRAVES, Shelby, O.

FOR SALE.—Fine job-printing outfit.  
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—Beagle hounds, best blood; bottom prices; photo free. D. S. HALL, So. Cabot, Vt.

FOR SALE.—Smith Premier, Hammond, and Oliver typewriters. Prices from \$25 up. Will exchange for wax or honey. THE A. I. ROOT CO., Medina, O.

FOR SALE.—Pedigreed Beagle hounds; guaranteed to run rabbits until shot or holed.  
J. B. MASON, Mechanic Falls, Me.

FOR SALE.—Globe, 200-egg, hot-water incubator, and two large brooders, good as new. Will be sold at great bargain. THEO. W. FLY, Coffeetown, Miss.

FOR SALE.—Comb foundation, both brood and surplus. Beeswax worked into foundation at a very low price. Send for price list and free samples to  
THE DELTA APIARIES, Delta, Colo.

FOR SALE.—A B C of Bee Culture (1907) free with order for bee-supplies amounting to \$15.00 or over, at factory prices, before May 1.  
S. D. BUELL, Union City, Mich.

FOR SALE.—Scotch Collies. The most beautiful and intelligent of all dogs. Blue-blooded puppies from champion prize-winning stock. Pedigree and photos on application. Address  
M. G. VIGLINI, Route 20, St. Matthews, Ky.

FOR SALE.—Sixty-pound honey-cans, used but once, emptied without steam or water being used, therefore perfectly clean and bright. Price, ten-cans lots or more, 35 cts. per case of two. E. R. PAHL & CO., Honey Dealers, Milwaukee, Wis.

FOR SALE.—Will sell my valuable ten acres of fruit and truck farm for one-half what it is really worth. One mile to center of good town of 7000; best market known for fruit, truck, and honey. Write for price and description. Great bargain here.  
J. B. DOUGLAS, Mena, Arkansas.

FOR SALE.—Seed corn that will enhance your corn crop 10 to 25 per cent under favorable conditions, unless you already have an extra good kind.  
D. E. LHOMMEDIEU, Colo. Iowa.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1908 send your name and address to  
FRANK S. STEPHENS,  
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Till Jan. 1, best Wisconsin sections per 1000, \$4.00; No. 2, \$3.40; plain, 25c less. Big discount on Danz. hives and other Root's goods; also berry-boxes.  
H. S. DUBY, St. Anne, Ill.

FOR SALE.—Angora and Persian cats; mostly all colors. Persians pure white with blue eyes. Everybody admires these beautiful pets. Women make money raising them. Good profits. Cats and kittens for sale at moderate prices. Also have ferrets for sale. Send stamp for circular.  
MRS. J. F. SKEES, Marion, Ohio.

FOR SALE.—A Florida home is offered cheap, owing to old age and infirmities. Six acres of land, all cleared, and fronting on a fine lake. A good two-story house on cement foundations; a few bearing orange-trees and grape-fruit, guavas, and grapes in great abundance. A good chance for a bee-man. Twelve stands of bees in frame hives, on cement and iron. An excellent honey-extractor; ¼ mile to church and school; ½ mile to store and postoffice. Call on or write to me. J. A. BARBER, Chuluota, Orange Co., Fla.

FOR SALE.—I offer for sale my 40-barrel water-power roller mill with established trade; double circular saw-mill; stone dam; stone-quarry; good 10-room house, with hot water and bath room; good barn and carriage house; 16 acres of land; 5000-bushel elevator. This property is situated at the head of the Little Miami River, with 25-foot fall, located at Clifton, Greene Co., Ohio, 8 miles south of Springfield. For further particulars call on address  
G. H. ARMSTRONG, Clifton, Ohio.

FOR SALE.—A two-story house of five rooms, three closets, two halls, a very dry cemented cellar, good basement barn, 10x12 hen-house, 8x10 hog-house. Barn is 20x20, 16 feet high; all improvements, three years old and A No. 1; three acres of dry and wonderfully productive land; 77 Early Richmond cherry-trees from 6 to 8 and 10 feet high, and thirty; the remainder of 200 fruit-trees, plum and apples, of many varieties; also other shrubbery and fruits; four blocks from a college; six from a No. 1 public school; town of 2300 to 2400. No saloon for years. Presbyterian, Baptist, Methodist, Episcopal, Free Methodist, and Christian churches; also a small Catholic church. C. M., & St. F. R. K. and C. & N.-W. R. R.; fine cement walks; good reason for selling. Price \$2250. My average yield per colony of extracted honey has been 83½ lbs. for three years. I can put 46 colonies, some containing imported queens, in at a low figure to a buyer.  
DOUGLAS D. HAMMOND, Sac City, Ia.

## Bees and Queens.

FOR SALE.—400 colonies pure Italian bees in lots to suit. Write for prices.  
F. A. GRAY,  
Redwood Falls, Minn.

FOR SALE.—Two apiaries—one of 100 stands of bees close to Pomona, Cal., and the other containing 150 stands near Etiwanda, Cal. Will sell both or either one. For particulars address, enclosing stamp,  
M. R. KUEHNE, 263 East 3d St., Pomona, Cal.

FOR SALE.—Am booking red-clover untested-queen orders now for May delivery at 75c each. Have all Caucasian orders I can fill.  
W. T. LEWIS, Lewisburg, De Soto Co., Miss.

FOR SALE.—450 colonies Italian bees free from disease, in eight and ten frame Dovetailed hives heavy with honey. Super with each hive all painted two coats. \$2.75 per hive, on Sacramento River.  
ALBERT LANE, Vordan, Sac. Co., Cal.



## Poultry Offers.

**FOR SALE.**—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free.  
A. H. DUFF, Larned, Kan.

**FOR SALE.**—M. B. turkeys. Hens, \$3.00 each; Toms, \$5.00 each; eggs in season, \$3.00 per dozen.  
A. P. YOUNG, Cave City, Ky.

**FOR SALE.**—S. C. White Leghorn Cockerels, \$2.00; also pairs and trios. G. L. FERRIS, Atwater, N. Y.

**FOR SALE.**—150 White Wyandottes, Jannett's strain, old and young stock. There is no better stock anywhere. Prices: \$1.50, \$2.50, \$3.50, and \$5.00 each. Eggs, after January, \$1.50 per 15. Address  
JANNETT'S POULTRY YARDS, Caldwell, Texas.

## Wants and Exchange.

**WANTED.**—Early American and foreign books on bee-keeping.  
A. L. BORDEN, Medina, Ohio.

**WANTED.**—A location for a custom feed and saw-mill.  
4432 South Grand Ave., St. Louis, Mo.

**WANTED.**—To exchange modern firearms for incubators and bone-mills. Address  
4432 South Grand Ave., St. Louis, Mo.

**WANTED.**—Bee supplies in exchange for 300 colonies bees. Ad. elsewhere. Manufacturers write if interested.  
LEO F. HANEGAN, Glenwood, Wis.

**WANTED.**—Refuse from the wax-extractor, or slumgum. State quantity and price.  
OREL L. HERSHISER,  
301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—Australasian readers to know that Root's publications, Root's strain of Italian bees, and Root's world-famed goods are all obtainable from  
H. L. JONES, Goodna, Queensland, Australia.

**WANTED.**—To exchange one American hay-press, two-horse power, for pony saw-mill, planer, power feed or meal mill, standard bee-supplies, extracted honey, or any offers you have.  
L. F. WEAVER, Dexter, Mo.

**WANTED.**—To exchange modern firearms for Indian relics.  
WM. S. AMMON,  
4432 So. Grand Ave., St. Louis, Mo.

**WANTED.**—Every one who reads this to send a postal for my circular on Caucasian and Italian bees and queens. Important.  
A. D. D. WOOD, Lansing, Mich.

**WANTED.**—Your name and address if you buy garden seeds. Will send you our beautiful 1907 catalog.  
E. C. GREEN & SON, Box G, Medina, Ohio.

**WANTED.**—To print you 100 up-to-date calling or business cards for 40 cts. in stamps. Sample free.  
H. H. HAWLEY, JR., Concord June., Mass.

## Honey and Wax Wanted.

**WANTED.**—Choice white comb and extracted honey; clover preferred.  
B. WALKER, Clyde, Ills.

**WANTED.**—Comb and ext'd honey. State kind and lowest price. CHAS. KOEPPEN, Fredericksburg, Va.

**WANTED.**—Fancy white-clover comb honey. Write us. INDIANAPOLIS DAIRY CO., Indianapolis, Ind.

**WANTED.**—Comb, extracted honey, and beeswax. State price, kind, and quantity.  
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

**WANTED.**—Comb and extracted honey. Must guarantee pure and of best quality. State price and how put up. Cash paid.  
C. M. CHURCH, Arnold, Pa.

**WANTED.**—No. 1 and fancy white comb honey (un-glassed), Danz. sections preferred.  
THE A. I. ROOT CO., Medina, Ohio.

**WANTED.**—Beeswax. We will pay 30 cts. per pound for fancy pure yellow beeswax delivered in New York until further notice. CHAS. ISRAEL & BROS.,  
486 Canal St., New York City.

**WANTED.**—Immediately, honey in large and small lots for spot cash. Only dealer in Utah selling Root's goods at factory prices. Write us.  
SUPERIOR HONEY CO., Ogden, Utah.

**WANTED.**—In large or small lots, No. 1 white and amber extracted honey in 60-pound cans or barrels. Send sample and quote lowest cash price delivered in Preston.  
M. V. FACEY,  
Preston, Fillmore Co., Minn.

**WANTED.**—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.  
HILDRETH & SEGELKEN,  
265-267 Greenwich St., New York.

**WANTED.**—Well-ripened extracted basswood honey. Prompt payment on receipt; 7½ cts. per pound, f. o. b. West Bend.  
H. C. AHLENS, West Bend, Wis.

**WANTED.**—Slumgum. Do not burn your refuse from wax-extractors. Send it to me and get your cash.  
ARCHIE L. COGGSHALL, Groton, N. Y.

**WANTED.**—20,000 pounds pure clover honey. Send average sample and state best price.  
J. E. CRANE & SON, Middlebury, Vt.

**WANTED.**—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.  
GRIGGS BROS., Toledo, O.

## Honey and Wax For Sale.

**FOR SALE.**—Buckwheat honey, extracted, in 160-lb. kegs, at 6c.  
IRA WILSON, Ovid, N. Y.

**FOR SALE.**—Pure comb honey. Write for prices and description. H. W. DOERR, Beardstown, Ills.

**FOR SALE.**—Buckwheat honey in 60-lb. cans, at 6c per lb.  
C. J. BALDRIDGE,  
Homestead Farm, Kendaia, Seneca Co., N. Y.

**FOR SALE.**—350,000 pounds California water-white extracted honey by the case or car.  
H. J. MERCER, 731 E. Third St., Los Angeles, Cal.

**FOR SALE.**—2000 lbs. No. 1 buckwheat extracted honey in 60-lb. cans, at 6 cts., on car here. Sample free.  
E. D. TOWNSEND, Remus, Mich.

**FOR SALE.**—10,000 lbs. of clover and buckwheat honey at 8c per lb. for clover and 7c for buckwheat, in 60-lb. cans.  
G. H. ADAMS,  
Mill St., Bellevue Sta., Schenectady, N. Y.

**FOR SALE.**—Three tons comb honey, white, at \$3.50 per case, glass front, 24 sections to case; amber and buckwheat, \$2.75 per case; unfinished sections, \$10.00 per 100. All honey well ripened.  
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

**FOR SALE.**—Pure white-sage honey. One 60-pound can, cased, f. o. b., \$4.00; two cans, \$7.50.  
FRANK MCNAY, Redlands, Cal.

**FOR SALE.**—Extracted clover and linden honey in 60-pound cans, two cans in a case, at 8 cts. per pound; sample, 6 cts.  
C. A. GRAVES, Shelby, Ohio.

**FOR SALE.**—White-clover comb honey at \$3.25 per glass-front case of 24 sections, 22 to 23 lbs. net; 20 lbs. net at \$3.00. Amber, \$2.75 and \$2.50 per case.

B. HOLLENBACK, Spring Hill, Kan.

**FOR SALE.**—Choice extracted clover and basswood honey in 60-pound cans. It was extracted at end of season, and is very thick and well ripened. Price 8½ cts. per pound. Sample free.

J. F. MOORE, Tiffin, Ohio.

**FOR SALE.**—Amber and buckwheat comb honey, per case of 24 sections, \$2.50; unfinished sections, \$8.00 per 100.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

**FOR SALE.**—2000 lbs. of Colorado alfalfa extracted honey. It is ripe, rich, and thick; 60-pound tin-cans, two in a case, at \$10.00 a case.

A. A. LYONS, Fort Collins, Colo.

## Bee-keepers' Directory

This department is for the exclusive use of all-year-round advertisers. If you have any thing the bee-keeper needs, your card in this department keeps your name always before your prospective customers at half our flat rates. We reserve the right to reject or modify any ad. not eligible to these special rates.

|                                           |         |
|-------------------------------------------|---------|
| 2 lines, 24 issues and GLEANINGS one year | \$ 5.00 |
| 3 " " " " " " " " " "                     | 7.50    |
| 4 " " " " " " " " " "                     | 10.00   |

Cash in advance. Ad's can be changed only in the first issue of January, April, July, and October.

**MAPLEWOOD APIARY.**—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

**ROOT'S SUPPLIES** at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

**ITALIAN BEES**, queens, and bee supplies.

H. H. JEPSON, 182 Friend St., Boston, Mass.

**ITALIAN BEES**, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

**FOR SALE.**—Bee-keepers' Supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

**ITALIAN BEES** and queens—red clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

**ITALIAN BEES**, queens, honey, and bee-keepers' supplies. A. T. DOCKHAM, Box 95, Rt. 1, Eagle Bend, Minn.

**SWARTHMORE APIARIES**—Golden, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

**GOLDEN-ALL-OVER** Italian, Caucasian, and Banat races. Bred by Swarthmore methods from best stock in the world, in three mating-yards with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

**QUEENS.**—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, \$1.00 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

## Big Reduction in Supplies!

Until May 1

Big stock of Dovetailed hives and Marshfield sections to draw from. FREE—a year's subscription with order amounting to \$15.00 or over. Send for 32-page illustrated catalog free.

**W. D. Soper, Jackson, Mich.**  
Rural Route 3

## BOOKS RECEIVED

From the Reliable Poultry Journal Publishing Company.

### POULTRY HOUSES AND FIXTURES.

Shows plans of low-cost, practical and labor-saving houses, designs for inside fixtures, roosting coops and coops for young chicks, and all necessary appliances for the poultry yard; 96 pages, 9x12 inches, illustrated. Price 50 cts.

**ARTIFICIAL INCUBATING AND BROODING.** Solves all problems of artificial incubating and brooding. Tells how to obtain strong-germed, fertile eggs, etc. Results gained from practical experience. 96 pages, 9x12 in., illustrated. Price 50 cts.

**THE CHICK BOOK.** Tells how to obtain good hatches; how to care for chicks of all ages; how to feed for breeders and for broilers and roasters; how to build coops; gives complete instructions in all work connected with successful chicken growing. 80 pages, 9x12 inches, illustrated. Price 50 cts.

**THE PLYMOUTH ROCKS.** Barred, buff, and white. Gives rules for mating followed by the most successful Plymouth Rock breeders, with a chapter and chart on line breeding. Contains color-plate of each variety. 110 pages, 9x12 inches, illustrated. Price 50 cts.

**THE LEGHORNS.** The best illustrated standard of all varieties of the popular Leghorns. Mating schemes clearly described. Color-plate of S. C. W. Leghorns. 78 pages, 9x12 in., illstd. Price 50 cts.

**ASIATICS.** A work on Brahmas, Cochins, and Langshans. Contains "inside" information necessary to success, with standard and ideal charts for all varieties. Color-plates of Buff and Partridge Cochins. 100 pages, 9x12 inches, illustrated. Price 50 cts.

**DUCKS AND GEESE.** Gives all details of hatching, rearing, fattening, and marketing. Describes labor-saving methods. 68 pages, 9x12 inches, illustrated. Price 50 cts.

**TURKEYS.** Every detail of the turkey business explained fully and clearly. Written by the world's foremost turkey growers. Contains color-plate of ideal Bronze turkeys. 84 pages, 7x12 inches, illustrated. Price 50 cts.

**THE BANTAM FOWL.** Mr. T. F. McGrew, judge and breeder, tells how to house, feed and grow bantams, how to treat their diseases, etc. 72 pages, 9x12 inches, illustrated. Price 50 cts.

**RELIABLE POULTRY REMEDIES.** Points out the causes, describes symptoms, and gives simple and tested remedies for all diseases. 6x9 inches, 84 pages. Price 25 cts.

The following books, French translations of the Swarthmore series, have been received from Mr. E. Bondonneau, Paris, France. Mr. Bondonneau has also translated the ABC of Bee Culture.

**NUCLEI MINIATURES.** The French bee-keepers are strenuously after Mr. Pratt and his system of queen-rearing, for, no sooner has his monograph on "increase" appeared than a translation follows of his "Baby Nuclei." The rendition of this work into French is evidently the work of an expert bee-keeper who wields a facile pen—in French. Evidently they do not have "babies" in *la belle* France, so they are content to use the title of "nuclei miniatures." Mr. Pratt may rest assured that not one of his ideas have been lost in the translation, for French is a scientific language, created for and by a scientific nation who are always ready to consider a new idea, no matter where it originates. Our French colleagues will find Mr. Pratt not "slow" on the subject of queen culture, even if he lives in the suburbs of Philadelphia. Mon. E. Bondonneau, 142 Fanbourg St., Denis, Paris, the authorized agent in France for Mr. Pratt's books and outfits, is responsible for the publication of "Nuclei Miniatures." Price 50 cts. each, postpaid.

**ACCROISSEMENT.** The above is not a new word, but is the round-about way the French have of saying "increase," which every bee-keeper who reads GLEANINGS regularly will understand at once. This is Mr. E. L. Pratt's (Swarthmore's) book on the subject, beautifully translated into French for the benefit of French readers. This work is not a liberal



translation, as that would be impossible, but at the same time not one of Mr. Pratt's ideas has been lost in the transferring, which so often happens when foreigners attempt to translate American "ideas" into French. Our French friends have many books of merit on bee-keeping, queen-breeding included, but we are sure they will find in this one some novel ideas well worth paying for. It is published by Mr. E. Bondonneau. Price 50 cts. We can furnish it at the publisher's price.

¶ The following book comes from the *Pall Mall Press*, London.

**THE BEE-MASTER OF WARRILOW.** By Tickner Edwards. The author is a well-known writer on rural subjects, and romantic articles on bees and bee-keeping, which have appeared in magazines and newspapers. In the 11 chapters of this little book he has produced some delightful stories in connection with bee-keeping, which will be found most interesting, even to those who do not keep bees.

From Dodd, Mead & Company:

**THE SWARM,** by Maurice Maeterlinck, translated from the French, 113 pages. "The book considers the different episodes of the swarm as they occur in the ordinary hive." Price \$1.20.

We can supply any of the above books at publishers' price.

**HOW TO KEEP BEES.** By Anna Botsford Comstock; 228 pages; 32 pages of illustrations.

A charmingly written manual describing clearly and in detail the outfit, first steps, and methods. The author's well-known literary ability has combined with her enthusiasm for a subject to produce a very unusual volume. It is a handbook for those who keep bees for happiness and honey, and incidentally for money. It serves as well as an introduction to the more extended manuals already in the field. "Finally with all due deference to the authors of the excellent books on bee culture which we have already, my opinion is that this new book, 'How to Keep Bees,' is the best one for a beginner, or one who does not wish or expect to keep more than a dozen colonies, that has yet come before the world."—A. I. Root, in *Gleanings*, July 1, 1906.

Chap. 1. "Why Keep Bees," urges honey, perhaps money, recreation, love of nature study, and the need of bees in "a perfect garden," as good reasons for keeping bees. The second chapter tells "how to begin" in a small way, and we may get all the necessary detailed information for management from later chapters, arranged in order of demand for information.

Price \$1.00. Postage 10 cents extra.

Money refunded to any dissatisfied purchaser.

The A. I. Root Co., Medina, O.



#### ADVANCING PRICES.

We are obliged to withdraw the special prices named a few months ago on tin cans and glass packages for honey. Tin cans have already advanced ten per cent, and manufacturers of glassware withdrawn prices owing to increased cost of material and labor. Prices

will be those printed in our catalog for 1906 till further notice on tin cans as well as No. 25 and Simplex jars. We still have in the East some stock of Simplex jars, but are sold out here and in Chicago, and can not get more of the one-pound size from the factory for some time yet. We can get some holding about 13 oz. of honey at the same price, or some holding about 18 oz. at regular price, shipped direct from factory in West Virginia, if any one can use a jar a little larger or smaller than the regular size.

#### PRICE OF PERFORATED ZINC ADVANCED.

The price of sheet zinc has been advancing for two years past, and has now reached a point where we can no longer continue present prices on perforated queen-excluding metal. Accordingly we mark prices up an average of about ten per cent. The advance in zinc in the last two and a half years amounts to two and a half cents a pound, or over thirty per cent. As we are able to sell the punchings at a corresponding advance, we can get along for the present with a ten-per-cent advance. Revised retail prices are as follows:

Zinc sheets, 32×96, \$1.65 each.  
A corresponding advance is made in wholesale and jobbing prices.

#### HONEY BOARDS.

|                                         |                |
|-----------------------------------------|----------------|
| No. 1, unbound zinc, 10-frame, 14½×19½  | \$1.55 for 10. |
| " 2, " " " 10 " 16×20                   | 1.70 " 10.     |
| " 11, " " " 8 " 12×19½                  | 1.40 " 10.     |
| " 9, slatted wood-zinc, 8-frame, 13½×30 | 2.20 " 10.     |
| " 10, " " " 10 " 16×20                  | 2.40 " 10.     |
| " 12, wood-bound zinc, 10 " 16×20       | 2.00 " 10.     |
| " 13, " " " 8 " 13½×20                  | 1.85 " 10.     |

#### HALF-POUND TUMBLERS.

The half-pound tumblers we are now furnishing are a little smaller than those we had first. They will hold half a pound of honey without filling to the brim. Packed 4 dozen in a case, with corrugated partitions, \$1.00 per case; 10 cases at 95 cts.; 50 cases or over, 90 cts. a case. Packed 32 dozen to the barrel, \$5.00 a barrel. May be had from stock from here, New York, or Philadelphia.

#### BEEWAX WANTED.

Until further notice we will pay 28 cents cash, 30 in trade, for average wax delivered here or at our branch offices. This is an advance of one cent a pound in the cash price.

#### PRICE LIST FOR 1907.

The preparation of our catalog for 1907 has been very much interfered with and delayed because of the distraction of preparing and moving into our new building. After we become settled in our new quarters we shall be in shape to turn out the work with greater dispatch. From present indications we shall not have catalogs in any quantity before the middle of January. Those wishing to take advantage of early-order discounts can order from the old catalog, as there are very few changes in prices.

We are planning to list hives and supers with full sheets of foundation in the frames and sections, as well as with starters and without.

No. 2 plain sections will be 25 cts. per 1000 lower in price, as noted in August 15th issue; 5-lb coils No. 30 wire will be 10 cts. each higher. Perforated zinc is advanced, as noted in this issue. Several new items will be listed, such as the German bee-brush in black bristles at 25 cts.; in white at 30 cts. each; Alexander feeders at 25 cts. each, \$2.20 for 10; Root wax-press, \$6 00. This will be described in our next issue. Root smokers in copper, Jumbo and Standard sizes, will be 50 cts. each more than same size in tin. Hot bed sash are 5 cts. each higher, and 8x10 glass for same 60 cts. a box higher.

In honey-packages the list prices are restored in the place of some special prices announced in this department a few months ago. We are planning to furnish more of the glassware put up in cases of two dozen each, with corrugated packing ready for reshipping when filled with honey without additional protection. Because of the increasing cost of materials and labor we may find it necessary during the year to make further advances in prices. If so, due notice will be given in this department. For the present the few changes in price noted above are all that the new catalog will contain, so far as we are able to tell at this writing.

### Convention Notices.

At Brantford, Ontario, Canada, a district convention will be held in the City Hall, beginning Jan. 30, at 7 P. M., closing at noon, Feb. 1. Mr. S. D. House, Camillus, N. Y., has promised to be present. R. H. Smith, St. Thomas, Ont., Pres. Ontario Bee-keepers' Association, and F. J. Miller, London, vice-president, E. R. Root, and many others are invited to be present. For further particulars address the secretary of the convention, W. J. Craig, Brantford, Ont.

The Michigan State Bee-keepers' Association will meet at Big Rapids, Dec. 25 and 26. Special low rates have been secured at the Northern and Western hotels, with headquarters at the Northern, where probably the first meeting in the evening of the 25th will be held, and we expect the attendance the next day to be so large that we shall meet in their beautiful court-house, which has been granted us free of charge by the city. You can get special holiday rates on any train leaving your station on the 25th, but don't fail to start that day. A good program is being provided, and many of the most prominent bee-keepers of the State, Canada, and other States are expected, GEO. E. HILTON, Vice-president.

### THE CHICAGO SHOW.

The annual poultry, pigeon, and pet-stock show to be held in Chicago, Jan. 23 to 30 inclusive, 1907, will be an improvement on any of the series of high-class shows heretofore held under the management of the National Fanciers' and Breeders' Association. The exhibits of stock, incubators, brooders, appliances, foods, remedies, and all things pertaining to the poultry, pigeon, and pet-stock industry, have at all times taxed to the utmost the capacity of the largest hall obtainable. The attendance of visitors, always great, was phenomenally large last year. Plans are now being perfected to make the exhibition, whether from the standpoint of the exhibitor, the visitor, or the management, better than ever before.

Premium lists giving names of judges, and the varieties to be passed upon by each of them, and all necessary information to intending patrons, will be issued about Dec. 15, 1906. Twenty thousand will be mailed, and it is the intention to have one sent to every interested person; but if for any reason it is not received, or additional copies are desired, write to the secretary, Fred L. Kimmey, 325 Dearborn St., Chicago, Ill.

### Special Notices by A. I. Root.

Travels in the Black Hills, South Dakota, is crowded out of this issue by the Anti-saloon League Report.

### OFF FOR FLORIDA.

Until further notice, all communications intended for A. I. Root personally should be addressed to Osprey, Manatee Co., Fla.; and if you want an immediate answer, please inclose an addressed postal card. I do not care so much about the postage; but I find that, in my old age, it takes a mental effort to decipher names and addresses. I have often thought I would not mind answering letters if I could just pick up a pen or pencil and go right into the subject without even asking somebody the day of the month or something of that sort. As I shall have no stenographer in my Robinson Crusoe island I can not write very long letters. I can fill out a postal card very comfortably, but that is about as much as I want to do at one time. Now, friends, with the above conditions and restrictions I am ready to give my opinion, and answer all your questions to the best of my ability, and remain  
Your old friend and servant,

A. I. ROOT.

### PROF. HOLDEN'S A B C OF CORN CULTURE.

On page 1454 I said, "Who can tell us about a corn-book?" The above has brought to light a book called "The A B C of Corn Culture; or, Making Two Nubbins Grow where Only One Grew Before," by Prof. P. G. Holden, of the Iowa State College. Now, may you will have to make some allowance for my extravagance and enthusiasm when I get hold of something that just suits me. Well, I consider the above book, which I now hold in my hand, the most valuable one for its size that has been given to the cause of agriculture in the last hundred years. It is not only of tremendous value to every man, woman, and child who

grows an acre of corn of any kind, but it is the most wonderful opening-up and development of just what Luther Burbank, of California, and other enthusiastic workers have been at work on that the world has ever seen. We can understand it better than we can understand Burbank's works, because it is all about corn; and everybody, even the baby in the household, knows more or less about ears of corn.

I hope you have read my account of Prof. Holden's talk, published in GLEANINGS for Aug. 15. If not, get right at it and do it at once, and then you will be ready for this book. This work contains about 100 pages, printed on beautiful paper, and the half-tone cuts that embellish almost every page (and sometimes two or three of them on a page) are about the finest I ever saw in any publication. It contains all of the lecture I reported, and ever so much more; how to fit your ground, time of planting, and every thing pertaining to corn. Then comes the wonderful part about the selection of seed. The farmer who says he has not the time to fuss with such work will be almost as guilty as the man who goes to work and plants seed that he has good reason to believe will not make more than half a stand, not over half the seed germinating.

If these easy directions are followed, which are put down so plainly in the book, we can almost be certain there will be the right number of stalks in a hill; that every stalk will bear one or more ears of corn, and that the corn will be up to the highest type. You need not plead locality or bad seasons as an excuse for your slipshod behind-the-times crop. Those who are working along the lines of this book get great crops of corn where their neighbors just over the wire fence have only half a crop or almost none at all.

The publishers of the book have kindly loaned me three cuts. The one given below, Fig. 34, shows how the children of the household can do the work if you only get them interested. No. 59 is a wonderful eye-opener. Those two ears of corn presented externally just the same appearance so far as one can judge; but, of course, there was a difference in the weight. Just think of it, friends! It is within your power to have your corn-cribs full of ears like No. 1 instead of No. 2.

No. 53, which we give below, shows what our Ohio Experiment Station did. Just think of that too!—a difference of 44 bushels to the acre caused by the difference in seed and nothing else.

Now, if I am correct about it this carefully selected improved seed corn can not be purchased anywhere. You can grow it in your own fields or you can select some that will come pretty near it from your own corn-crib. But wherever you get it or however you get it, it must be tested; and the expense of testing, where you grow a number of acres of corn, is less than ten cents an acre—perhaps half that price if you grow forty or fifty acres. Is any corn-grower going to be so stupid or so indifferent to his own interests that he will go ahead and plant seed corn picked out of the

### YIELD OF INDIVIDUAL EARS — OHIO EXPERIMENT STATION.

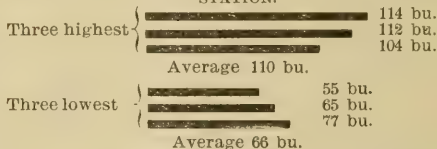


FIG. 53—Prof. C. G. Williams, of the Ohio Experiment Station, selected twenty-four of his best ears of seed corn. These were shelled separately and planted side by side, each ear in a row by itself. The corn was planted five kernels per hill, thinned to three stalks after coming up.

Notice—First: That one ear yielded at the rate of one hundred and fourteen bushels per acre, while another yielded fifty-five bushels.

Second: That the one-hundred-and-fourteen-bushel ear produced no worthless stalks, while the fifty-five-bushel ear produced fifty-eight barren or worthless stalks, yet each of these rows contained exactly the same number of stalks.

Third: That the second-best ear produced at the rate of one hundred and twelve bushels per acre, with only fifteen barren stalks, while next to the poorest ear yielded but sixty-five bushels per acre and had fifty-two barren stalks.

Fourth: That the three highest-yielding ears averaged one hundred and ten bushels per acre, while the three poorest of the twenty-four ears produced only sixty-six bushels, or a difference of forty-four bushels per acre.



corn-crib, or buy of some seed-grower, as he has been doing for years past?

Now, this book would be cheap at a dollar. Why, dear me! my honest conviction is, if I dared express it, that it would be cheap at *ten* dollars for the man who grows a dozen acres of corn, and yet the publishers have put an almost insignificant price on it. It comes from the Simmons Publishing Co., Springfield, O. If I am correct it is not for sale except in connection with their periodical. We can send you a book, together with the *Farm News* and GLEANINGS, for only \$1.25. If you are already a subscriber to GLEANINGS you can have the book and the *Farm News* for a year, both for the small sum of 25 cents. We ought to send out a thousand copies within a month after this notice reaches you.

The *Farm News* is a live, wideawake, up-to-date home paper. It is now in its 26th year, and well worth the 25 cents without this wonderful book thrown in.

We grow a little corn for our horses. I did not get hold of the book in time to select my seed corn from the field, so I shall have to do the next best thing—pick it out of the granary. I presume ten ears of corn will be all we need; but I am going to test a hundred ears, and select the best ten for the seed we plant.

By the way, the book does not mention it, but this same scheme can be worked with sweet corn, popcorn, and every other kind of corn; and I think Young America will very soon find a way to make the same principle, with proper variation, work with all the grains and all the garden seeds and every thing else we plant. Why, the farming world has been blindly stumbling over a concealed gold-mine, right within easy reach of every man, woman, and child who starts out with a firm determination to plant *better* seeds than we have been planting. Why, bless your dear hearts, this thing is not confined to the vegetable world. It can be put in practice with bees and chickens, sheep, cattle, and horses, and no one now living probably catches more than a glimpse of what may be done in the years to come, right along this very line.

Now, if you do not get this book and read it, and give it to your children to read, and read it over and over again, I shall feel ashamed of our family of people who read GLEANINGS. Why, high-pressure gardening is *nowhere* compared with what may be done in the future with the help of this. Professor Holden is so interesting in his teachings that I think every member of your family will read the book or look at the pictures.

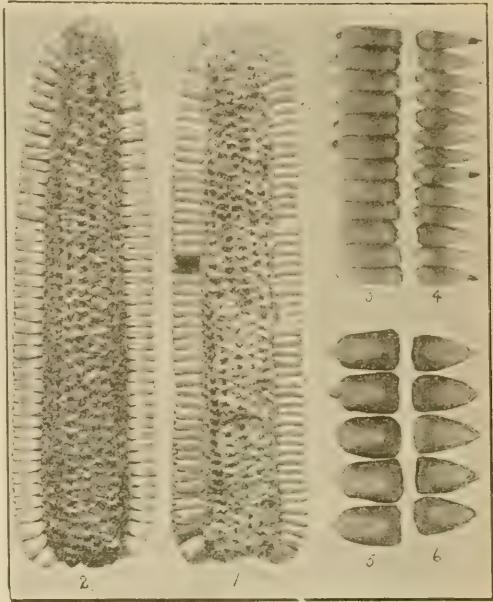


FIG. 59—Space between the kernels next to the cob objectionable. Ears 1 and 2 are the same length and circumference. Ear No. 1 weighed 13.45 ounces. Ear No. 2 weighed 10.12 ounces. Ear No. 1 shelled out thirty-three per cent more corn than ear No. 2. No. 3 is edge view of the kernels taken from ear No. 1. No. 4 is edge view of kernels from ear No. 2. Nos. 5 and 6 is a flat view of the kernels. Ear No. 2 should be discarded for seed purposes. *First*, because it will shell out a smaller proportion of corn to cob; *second*, because it is poorer in feeding value; *third*, because the kernels give weaker stalks.

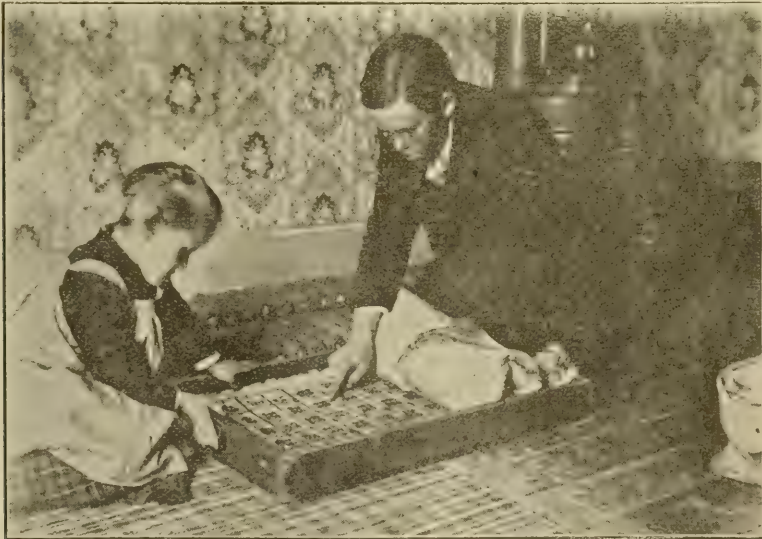


FIG. 34—Examining the Germination Box to Discover the Worthless Ears.

Hundreds of Iowa boys and girls tested the seed corn for the crop of this year. The young people in this case got too anxious, and will have to wait a few days until the germination is further advanced and the sprouts have grown two or three inches long.

# Paroid Roofing-

**BUY** one lot of Paroid; open it; inspect it; apply it to your roof, and if then you are not satisfied that you have the *best* ready roofing made, send us your name and address, and we will send you a check for the full cost of the roofing including the cost of applying it.

rust-proof caps—water proofed on *both* sides—the *only* caps that will not rust, work loose and cause leaks.

These are some of the reasons why we can give Paroid so strong a guaranty—*why* it lasts so long—why it is so largely used by the U. S. Gov't., railways, factories and farmers everywhere. All we ask is that you *try* it, on our money-back guaranty.

If your dealer cannot supply you, don't take a substitute but send for samples and prices.

**BUILDING PLANS FREE** Enclose 4c in stamps and we will send you by return mail our 48-page book of plans for Practical Farm Buildings. Better do it at once.

**F. W. BIRD & SON,** 20 MILL ST., EAST WALPOLE, MASS.  
or 1420 MONADNOCK BLDG., CHICAGO.

## The Roofing With a Money-back Guaranty

### Paroid Lasts Longest

Because it is made of the *best felt*—made in our own mills (established in 1817); other manufacturers buy their felt outside and simply saturate and coat it.

Because it is *soaked* (not dipped) in a saturating compound which makes it water proof in *every fibre*. Because it is coated on both sides with the *strongest, thickest, smoothest, toughest, most flexible* coating used on any ready roofing. Don't take our word alone for it. Compare Paroid with *any other*. You can see and feel the difference. Paroid does not break or crack in the coldest weather or run in hot weather.

Because it is applied with our patented square,

## A SWEET CHESTNUT TREE



To get this valuable "Blizzard Belt" Chestnut quickly introduced and at same time gain new friends, we offer to send a **Hardy Sweet Chestnut tree** 1 year old, entirely **Free** to a limited number of property owners not already our customers. Mailing expense 5cts which send or not as you please. A postal will bring the tree. Our Catalog containing 64 colored plates of our "Blizzard Belt" Fruits, Ornaments, Evergreens, etc., and a mine of valuable information for fruit-growers is free. Write today.

The Gardner Nursery Company, Box 748, Osage, Iowa.

## Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it six months on trial. Sample free.

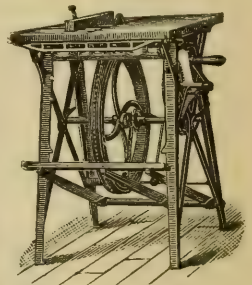
The Southern Fruit Grower, Box 1, Chattanooga, Tenn.

## BARNES' HAND and FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

### MACHINES ON TRIAL

send for illustrated catalog and prices. Address **W.F. & JNO. BARNES CO.** 545 Ruby Street, ROCKFORD, ILLINOIS.



The only light that makes and burns its own gas at the extremely low cost of 2c per week and gives perfect service with **NO GREASE, DIRT, SMOKE OR ODOR**. Every burner equal to 100 candles burning at one time. Think of it—brighter than electricity or acetylene and cheaper than kerosene. You cannot afford to be without it. Over 100 styles. Every lamp warranted. Agents Wanted Everywhere.

THE BEST LIGHT CO., 308 E. 5th St., Canton, O.

**\$60**



GOES LIKE SIXTY  
SELLS LIKE SIXTY  
SELLS FOR SIXTY  
**GASOLINE ENGINES**  
for Pumping,  
Churn, Cream Separator,  
Ice Cream Machine,  
Ice Cream Freezer, etc.  
Send for catalogue.  
**GILSON MFG. CO.**  
Port Washington, Wis.

174 Park St.



# A New Factory

and also a new firm name,  
but in the same place with  
the same management. We  
have just put in a complete

## Weed Process Comb Foundation Factory

of the very latest type, and  
we are now ready to work  
up wax for western bee-  
keepers at low prices. . .  
We want several thousand  
pounds of beeswax at once,  
and will pay top market  
price for same. Let us hear  
from any one having wax  
to offer.

**Buck & Wilson, Augusta, Kan.**  
Butler County

One step won't take us very far;  
We have got to keep on walking.  
One word won't tell folks what we are;  
We have got to keep on talking.  
One inch won't make us very tall;  
We have got to keep on growing.  
Promptness once won't do it all,  
We have got to keep on moving.

Single orders are good enough in their place,  
But more are necessary to keep up our pace.

---

No doubt you are planning  
for next season's supplies.  
Write us for catalog and  
other information. Give  
us a trial. We can please  
you. By handling the Root  
Co.'s goods, with excellent  
shipping facilities, prompt-  
ness, etc., we can serve you  
in a satisfactory manner.

---

**John Nebel & Son Supply Co.**  
High Hill, Montgomery Co., Mo.

# MR. TEXAS BEE-KEEPER

I would like to talk to you *personally*.  
First, I want you to know about my supplies. I handle Root's Goods, of  
course; for I believe in giving my customers complete satisfaction—for that's *better*  
in the long run than low prices. My place of business is on the S. A. & A. P. Ry.,  
just opposite the passenger depot, where I have built a warehouse 40×250 feet, and  
I have filled it full to the brim, for I handle Root's goods by the carload. This  
means I can furnish you supplies with the utmost promptness.

Then, too, I have installed a complete Weed-Process Foundation factory. I  
can turn out 500-lbs. a day. I can work your wax into foundation. In fact, my  
facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the  
quality of the goods. It will save you dollars to get my prices. Better write for  
them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at  
my office when at San Antonio. You are *always* welcome. I have fitted up my  
office with plenty of desks and chairs, with writing material, a reading-table, and all  
the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red-clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax deliv-  
ered here. Save your slumgum. I will buy it. Let me know how much you have,  
in what condition the slumgum is, and in what kind of an extractor it was rendered,  
and I will make you price I am paying.

Call or Address

**Udo Toepperwein - San Antonio, Texas**

1322 South Flores Street

# Gloves for Handling Bees

Something New. Something You Want.

Our specially prepared Gloves soften the hands, and prevent and cure chapped hands. The fabric contains a preparation which prevents the gloves from becoming hard and stiff. We furnish them without armlets or sleeves for using in sweeping, gardening, or general housework, driving, or outdoor work. They are just the thing for driving in the rain, as they are absolutely waterproof. If worn at night they keep the hands soft and white. All their points of excellence can not be here enumerated, but they never fail to give the greatest satisfaction. To introduce them, we will send by mail or with other goods at the following low prices:

|                                                                                      |           |
|--------------------------------------------------------------------------------------|-----------|
| Bee-gloves—long arms, fleece-lined in two sizes—large for men, small for ladies..... | .35 cents |
| Men's gauntlets, fleece lined .....                                                  | .35 cents |
| Ladies' gauntlets, fleece lined.....                                                 | .35 cents |
| Ladies' unlined for wearing at night or doing light housework.....                   | .40 cents |

Early-order discounts on bee-supplies (excepting above and a few other articles) as follows:  
 4% for cash with order before January 1st      3% for cash with order before February 1st

If you haven't our 1906 catalog send for one and a free copy of The American Bee-keeper (50c a year).

**The W. T. Falconer Manufacturing Co., Jamestown, N. Y.**

# New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

## Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

**Howkins & Rush, 124 West Liberty St., Savannah, Ga.**

# Dadant's . . . . . .. Foundation

**We guarantee it absolutely satisfactory every way.**

Ask any dealer who handles our make along with any other, and he will say, "Of course, Dadant's is the best." Ask a bee-keeper who has used our make and he will tell you the same thing. WHY? Because we make the manufacture of foundation our SPECIALTY. We devote our time and energies to making THE VERY BEST COMB FOUNDATION that CAN BE MADE.

It will cost you no more than any other make. Send for free catalog and prices. Early-order discounts on all kinds of goods for the bee-keeper now.

We work beeswax into foundation.

We buy beeswax at all times.

Prices sent on application.

**Dadant & Sons, Hamilton, Ills.**

# Root Goods

## for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

**Jos. Nysewander, Des Moines, Iowa**  
 565, 567 West Seventh Street











